

Effects of El Salvador's Population Education Program on Rural Youth and Their Future Fertility

**Richard H. Cain, MPIA
Beth Osborne Daponte, Ph.D.
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Introduction

Population Education Programs: Objectives and Effects

UNESCO (the United Nations Educational, Scientific and Cultural Organization) and the UNFPA (United Nations Population Fund) have provided technical and financial support for the design and implementation of a group of educational themes, which are known collectively as Population Education, as primary school curriculum in about 80 countries. This education, while varying by country, generally focuses on demographic, ecological and family life issues. In some countries, reproductive education is an additional component.¹ These areas of focus include education on many subjects, such as gender equality, self-esteem, parental responsibility, population growth, the effects of population growth, the responsibility of all to protect the environment, human reproduction, and, in some countries, artificial and natural contraception.

National governments and their ministries of education began implementing Population Education in the late 1960's.² India (1968), the Philippines (1972), and Thailand (1972) were some of the first to begin programs. Population Education in Latin America dates back to 1970, when UNESCO began the Latin America and Caribbean Regional Program in Population Education.³ In the early '70s, UNESCO and the UNFPA worked to raise awareness among education leaders in Latin America about the impact of population growth on development and the need for a curriculum that could help reduce fertility. Their efforts coincided with those of much of the medical profession in Latin America, which encouraged reproductive and family life education programs to reduce both unwanted pregnancies and exposure to the serious risks of abortion under unsanitary conditions.⁴ The first Population Education program in Latin America was developed in Colombia from 1973 to 1979. Similar programs have since been designed and implemented in 10 other Latin American countries.⁵

Population Education has a variety of objectives. At the 1974 UNESCO sponsored Latin America and Caribbean Regional Seminar for the planning of Population Education, participants announced that the Education should "contribute to the preparation of individuals in the areas of reproductive education, family education, civil rights, the dynamics of population growth, and environmental education, with the goal of creating consciousness of these problems and preparing individuals for the exercise of their responsibilities and for their participation in the improvement of the quality of life in their cultural world."⁶ The Current Regional Director of UNESCO Martha F. De Moyano defines a primary goal of Population Education to be the fomenting of "a responsible consciousness of parenthood in regards to the exercising of sexual roles and gender equality, including for this, among other themes, family planning which is understood as a right of the couple to decide with complete liberty and with complete information the number of children that are desired and their spacing, in order that their reproductive behavior corresponds with their objectives, values, personal situation and social consciousness."⁷ Both these stated objectives suggest that raising consciousness on issues related to family planning, equality among genders, population growth, and the environment may have profound effects on students' lives, including students' future decision making regarding their fertility.

This study explores how El Salvador's Population Education program, which was designed by Salvadorans from the Salvadoran Ministry of Education with the assistance of a UNESCO consultant from Colombia, is affecting rural Salvadoran students. The effects of this program are explored in two analyses, for which data was collected in June, July and August of 1996. The first analysis assesses what likely impact the program will have on future fertility levels in rural El Salvador. The second analysis explores how rural Salvadoran primary school students believe Population Education is affecting, and will affect, their lives.

Both analyses are important. Many in El Salvador, including recent governments, as well as much of the international community, have come to view El Salvador's fast rate of population growth at detrimental to public health, sustainable economic development and environmental sustainability.^{8 9}

^{10 11} El Salvador's population of 5.05 million and her population density of 281.7 people per km² would double in 32 years at her 1990 to '94 annual growth rate of 2.2%.¹²

It is also important to explore in what other ways the teaching of concepts in Population Education affects the lives of rural Salvadoran adolescents. Many concepts taught in Population Education, such as those related to gender roles and sexuality, run counter to cultural norms, and are outside the boundaries of what some Salvadoran parents believe their children should be taught. During one rural school district meeting attended by parents and teachers from several schools and myself, participants discussed the teaching of reproduction and contraception subjects after viewing a video in which teenagers dramatized the unfortunate consequences of teenage pregnancy. All 34 parents attending responded that these subjects are important for avoiding teenage pregnancy and protecting their children's futures. However, interviews with teachers in other rural schools found that during parent-teacher meetings, it is not uncommon for one or two parents to respond that teaching related to human anatomy and reproduction is improper or even sinful, and that such knowledge should only be gained through experience after marriage. Rural Salvadoran students, with their first hand experiences in, and understanding of, their current social, economic and physical environments, provide an important perspective on how Population Education affects their lives. Their perspectives, which are included later in this study, may well reveal unforeseen and unintended program effects.

This study focuses on program effects in rural areas because it is in these areas where any existing effects of the program would be greatest, and thus more easily observed. As in other countries, rural fertility rates are higher than urban rates (4.02 vs. 2.43)¹³. Also related to the program's potential effects, the borders around gender roles are more strictly defined in rural than urban El Salvador (discussed below). By concentrating resources on rural areas, the quantity of data collected was increased, thus improving the internal validity of the study.

The preceding section of the paper briefly discusses country selection for the study and outlines the subjects contained in the first six grades of El Salvador's Population Education program. Next we discuss what prior theory and research suggest about the potential effects of these education subjects on fertility. Then the research methodology, data collection and results of the quantitative component of the study are presented, followed by students' perceptions of the effects of Population Education. This paper concludes with a summary of the findings, followed by brief discussions on the findings' validity, and the degree to which similar effects might be suspected from similar programs in other regions of the world.

El Salvador's Very Own Flavor of Population Education

El Salvador was chosen for this study for a number of reasons. Our language skills and knowledge of gender roles and other cultural aspects present in much of Central America made selection of a country from this region preferable. Of all the Central American nations, El Salvador is the country in which teacher training in Population Education has been the most advanced - likely leading to a higher degree of program implementation.¹⁴ However, teachers at some rural Salvadoran primary schools still had experienced relatively little Population Education training, thus facilitating the search for control groups for the study. And the high level of cooperation between the UNFPA and the Salvadoran Ministry of Education facilitated an extremely high level of cooperation in the study.

While both Salvadoran primary school and its primary school Population Education program continue until 9th grade, this study examines the effects of only the first 6 grades of the program. This is because most rural Salvadoran schools do not teach beyond 6th grade, thus requiring rural students to travel farther to reach a larger school and greatly limiting the number of rural students actually studying beyond grade six. In fact, many rural students do not reach even the 6th grade. From the 10 rural schools in this study, 524 students began 1st grade in 1991. Of these, only 210, or 40%, still remained in those schools for 6th grade in 1996.

Table 1 lists the Population Education themes in the Salvadoran public school curriculum for grades one through six. The themes have been grouped into six categories, which are discussed in the review of literature.

Table 1
Salvadoran Population Education Themes Contained in the First Six Primary School Grades

Themes related to gender equality	Grade taught
• Comparing and valuing the roles of different family members and discussing the attitudes towards love, understanding, communication, respect and equality desired in family relations.	3
• Evaluating the role of the father and the mother in the satisfaction of the needs of sons and daughters.	3
• Recognizing that women and men can develop the same activities and professions.	3
• Analyzing myths and beliefs that impede equal rights, responsibilities, and opportunities among women and men in order to achieve improvements in individual, familial, and social well being.	5
Themes related to self-esteem	Grade(s) taught
• Valuing personal qualities of your classmates, teachers, and yourself.	1
• Establishing similarities and differences in the body of the boy and the girl in order that they accept, respect, and value themselves and others.	1 & 2
• Recognizing the right and the ability of all to formulate their own “life project” in order to prevent personal and social problems in adolescence and achieve a healthy and independent life in adulthood.	5 & 6
• Analyzing physical and emotional development during puberty to identify the changes that students will experience in order that they will accept the changes as natural.	4 & 6
Themes related to parental responsibility	Grade(s) taught
• Recognizing the home as the center of family life where basic needs are satisfied.	1
• Describing the benefits provided by activities and chores that people do inside and outside the home without distinction of gender.	1 & 2
• Distinguishing families by their size according to their number of children and other members.	1
• Identifying the home as the center of family life where family members share love, respect, understanding, and parental relationships.	2
• Recognizing the relationship between the size and composition of the family and the satisfaction of its needs.	2
• Identifying the conditions that a couple should meet before having a family.	2
• Understanding the characteristics of the family as the fundamental group of belonging.	3
• Recognizing and valuing the family in its different compositions.	3
• Applying preventative measures that avoid the development of diarrheal, parasitic, and respiratory illnesses that can cause infant mortality.	1, 2, 3, 4, 5, & 6
• Evaluating work as a factor of production that satisfies the needs of the family and other groups to improve their quality of life.	4
• Recognizing the role of the family in satisfying the physical, emotional and social needs of its members.	5 & 6
• Recognizing the importance of medical attention during pregnancy and birth to avoid complications for the mother and the child.	6
Themes related to population dynamics	Grade(s) taught
• Explaining changes in the size of populations and of families as a consequence of births, deaths, and migration.	3
• Identifying the causes and consequences of rapid population growth in El Salvador and considering options for its solution.	4
• Understanding the relationship between the age distribution of the population and the satisfaction of its needs.	4

Themes related to the environmental and economic effects of population growth	
• Understanding simplistically how rapid population growth contributes to environmental pollution.	1
• Recognizing some problems occurring in the environment due to population growth.	1
• Recognizing how population growth is one of the factors that contribute to the degradation of the environment.	2
• Comparing life between small families and large families to identify characteristics and repercussions within the community.	2
• Recognizing that the goods and services that a community demands are related to the size of its population.	3
• Recognizing the influence that rapid population growth has on natural resources and the environment.	3
• Identifying the problems confronting persons who migrate from the country to the city and from one country to another in order to reflect on its consequences for the quality of life.	5
• Analyzing the role of fertility in population growth and its relation to the quality of life.	6
• Recognizing that rapid population growth and high population concentration contribute to the deterioration of the environment and raise the need for natural resources.	6
• Recognizing the value of the interrelations between ecosystems and the actions of human populations in order to maintain ecological equilibrium and bio-diversity.	6
• Recognizing that air and water are components of the environment, that they benefit all living things, and that population growth impacts on their conservation.	6
Themes related to reproduction and contraception	
• Identifying the correct manner by which boys and girls are formed to clarify erroneous concepts.	2
• Identifying the male and female reproductive organs and their function so that the processes of fertilization, gestation, and birth are understood.	3, 4, & 5
• Recognizing the biological characteristics that mark the beginning of reproductive capacity in order to develop responsible attitudes towards procreation.	3
• Evaluating the different methods of fertility regulation.	6

Review of the Literature

How Might Population Education Affect Fertility?

Much research has linked women's education to decreases in fertility.^{15 16} A 1995 UN study of 26 countries from Sub-Saharan Africa, Northern Africa, Asia, Latin America and the Caribbean found that women in each of these countries having at least 10 years of schooling have lower fertility rates than women who had not received any formal schooling.¹⁷ This study, which controlled for demographic and socioeconomic variables, also found that for all regions of the world except Sub-Saharan Africa, sixth grade education is sufficient to decrease fertility. In El Salvador, the study found that 0.64 fewer children were born to mothers having four to six years of schooling than to mothers having no education. No published research has however addressed whether certain types of education, such as the subjects contained in Population Education, might enhance the impact that education has on fertility. Much research does however allude to various means by which such education might affect fertility levels.

Opong's work has linked the development of alternatives to traditional maternal and conjugal roles to opportunity costs associated with childbearing.¹⁸ Her work suggests that Population Education themes related to gender equality and self-esteem might decrease female students' demand for children by increasing their perceptions of the roles that they are able to play in society - either through work or other community activities. Where the performance of alternative roles is inhibited or prevented by caring for children, young female adolescents who envision themselves as having such roles may associate the loss of alternative roles to the having of children. For all 15 Latin American, Caribbean and Sub-Saharan countries except Mali included in a 1994 Demographic and Health Surveys study, women who were currently working for pay for a non-family enterprise had substantially lower total fertility rates than did women who were not working for pay.¹⁹ For the five Latin American countries

included in the study for which data is provided on TFR by working status (Bolivia, Brazil, Ecuador, Guatemala, and Mexico), the average difference in the TFR for women who were working for pay and women who were not was 2.08 children. The standard deviation among these differences in TFR for the five countries is only .374 children.

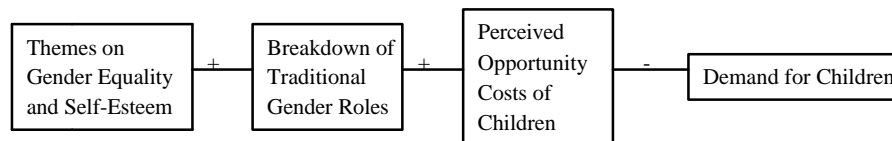
Moreover, young women in rural El Salvador who desire to work outside of the home are by and large compelled to migrate to urban areas. This migration has also been found to be associated with lower fertility rates.²⁰ For the 8 Latin American Countries included in the 1994 Comparative Study of Socioeconomic Differentials in Fertility (Bolivia, Brazil, Colombia, The Dominican Republic, Guatemala, Mexico, Paraguay, and Peru), the average TFR differential between women who have migrated from rural to urban areas and rural natives is 1.76 children.

Before women can come to value alternative roles, women must first see these activities as realistic alternatives for their lives. Themes on gender equality and self-esteem may widen students' perceptions of the alternative roles that they are able to play, leading more young females to then desire and later pursue such roles. Self-esteem and gender equality themes may also affect the demand for children in a theoretically different fashion. By increasing females' perceptions of their ability to play non-traditional roles in society, female self-identity may derive less from the fulfillment of conjugal and maternal roles and thus decrease the desired number of children. This theory, while relying on the same educational themes to achieve its effect, does not depend on opportunity costs for decreasing desired family size.

An increase in the valuing of alternative roles might also lead female adolescents to desire to marry later in life. Age at marriage is considered to be a proximate determinant of fertility, which decreases or increases women's exposure to the risk of pregnancy.²¹ Countries with high proportions married ($C_m > .65$) typically have high fertility rates ($TFR > 5$).²² Also, by delaying marriage and childbearing, the momentum of population growth is reduced in the future.²³ This possible relationship is built however on the potentially erroneous assumption that women who marry earlier do so based on their desires. It has been suggested that early age at marriage is more due to a lack of women's ability to decide when they marry rather than because they actually want to marry younger.²⁴ This raises the possibility that self-esteem and gender equality themes may increase female's perceived ability to make decisions, and thereby lead to later ages at marriage.

Self-esteem and gender equality themes could lesson men's demand for children as well. These themes attempt to break down barriers defining housework and childcare as solely the work of women. By reducing such barriers, male perceptions of the costs of children may increase, thereby decreasing men's demand for children. Model 1 helps to visualize the central aspects of the effects discussed above.

Model 1

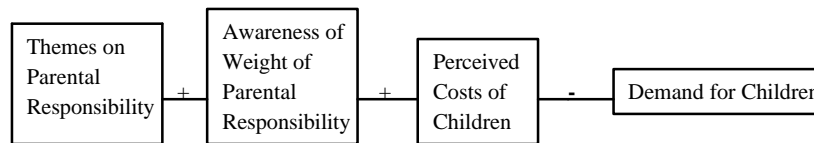


A (+) signifies a positive association with the following variable, while a (-) signifies a negative association.

Much fertility research supports that various conditions such as rural versus urban, level of socioeconomic development, and cultural differences influence perceptions of the values and costs of children and that these perceptions affect fertility preferences and behavior.^{25 26 27} Due to a variety of reasons (such as a lack of high-skill employment opportunities, educational opportunities and imperfect information), many societies in developing countries (especially rural societies) place relatively little

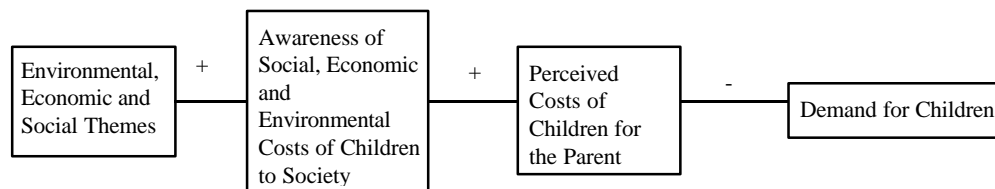
responsibility on parents for providing their children with formal education. The high dropout rates for the schools included in this study (mentioned above) indicate that this is indeed true in rural El Salvador. In addition, while the family unit is typically made up of the wife, husband and children in Asia, this is not the norm in Sub-Saharan Africa, the Caribbean, or in some Latin American societies.²⁸ In much of Central America, for example, it is not only culturally acceptable but also culturally valued for men to demonstrate their virility by fathering children in visiting unions. This is done while sharing very little of the costs of parenthood. By teaching students that both parents have a responsibility to fulfill the physical, psychological and social needs of all their children, Population Education themes addressing parental responsibility may influence the number of children that students' desire by increasing students' perceptions of the costs of parenthood and lowering the net benefit that children provide.

Model 2



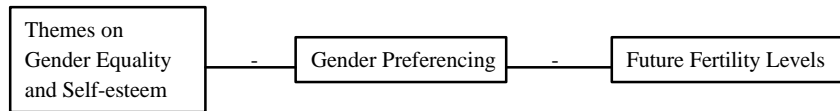
Lessons that teach of the negative socioeconomic and environmental consequences of high fertility rates, as well as teachings on the shared responsibility of all Salvadorans to reduce the nations' fertility rate, may raise students' perceptions of the costs of children, and decrease desired family size. Brackbill and Howell's work found a negative correlation between environmental concern and desired family size among U.S. students from six junior high schools, seven high schools, and three colleges in the Washington, D.C. area.²⁹ Students in the study who believed that couples have a responsibility to limit their families in order to prevent over-population wanted significantly fewer children than those who did not perceive a problem with population growth. It is somewhat less plausible, however, that such a relationship would exist in developing countries in which there are often no substitutes for the security needs that children meet, and where there are greater benefits provided by children, such as low cost labor.

Model 3



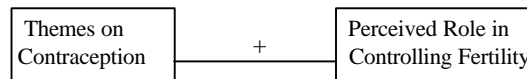
Gender preferencing increases family size.³⁰ In societies where women have relative equality with men in terms of access to economic opportunity, parents are likely to be more indifferent about the sex of offspring for primarily two reasons. First, the level of security that a given number of children can provide parents will be less dependent on the gender of those children. And second, a wife concerned about her economic well being would be better able to support herself in the case of widowhood or separation.³¹ By discussing the ability of women to perform all types of income earning roles, gender equality and self-esteem themes may increase students' perceptions of the level of economic security that female offspring can provide, as well as increase female students' perceptions of the level of security they will be able to provide for themselves. These perceptions would reduce gender preferencing and, consequently, future fertility levels.

Model 4



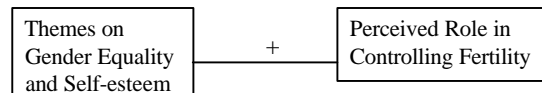
For adolescents not yet perceiving fertility as something to be controlled through conscious choice, Ansley Coale's work suggests that themes on contraception, reproduction, self-esteem and gender equality may increase students perceived role in controlling their own fertility.³² Of all current births in the developing world, an estimated 21% are unwanted.³³ If all unwanted births were avoided from 1990 onward, population in the developing world would reach an estimated 7.8 billion by 2100 - 2.2 billion less than the World Bank projection for 2100 of 10 billion.³⁴ Some Population Education programs, such as Honduras', do not discuss artificial contraception and only briefly mention the rhythm method of birth control. However, El Salvador's program does explain artificial contraception. By discussing at least one contraceptive method, be it natural or artificial, students should become more aware of their ability to control fertility, and may come to view controlling one's fertility as more acceptable. After discussing contraception even briefly, students may become more comfortable discussing and seeking out other alternative means of contraception in the future, which could play an important role where culture and religion discourage contraceptive use.

Model 5



Themes on gender equality and self-esteem may also raise adolescents' assertiveness in controlling their fertility by encouraging students to play a more decisive role in forming the course of their lives. Where fatalism and religion play a large role in decision making, self-esteem themes that encourage students to create their own 'life project' may play a powerful role in this regard.

Model 6



Previous Research on the effects of Population Education

The only study found on the effects of Population Education on attitudes and aspirations is an unpublished dissertation written in 1984 by Marliani Johansyah.³⁵ This study investigated the effect of Population Education on seventh grade students' desired family size in Indonesia using a recursive causal model. While Johansyah's study did provide useful evidence of the effects of family, mass media, and school on desired family size, his research could not provide much direct insight into the effects of Population Education. Johansyah wrote, "Population Education materials which have already been given to the first grade junior high school students is still very small to be able to have a significant effect on the desired family size."³⁶

Research Methods

Measuring the Effects of Population Education

The Johansyah study was conducted under the assumption that students remember everything that affects their desired family size. His research examines the relationship between population knowledge (using a test to measure students' knowledge of subjects related to population) and students' desired family size. We argue here that it is more realistic to assume that the information individuals receive and use to form their opinions is often forgotten, unlike an opinion or attitude, which is internalized. For example, in the process of learning how to calculate the rate of population growth, one may develop the opinion that the rate of population growth is too fast. While it is highly probable that the procedure for calculating the rate of population growth will, over time, be forgotten, the perception of the 'too fast' rate of growth is likely to remain. This study is carried out under the assumption that it is more appropriate to examine how students' exposure to Population Education themes affect attitudes and aspirations rather than how the amount of this education stored in students' long term memory effects attitudes and aspirations.

This multivariate analysis examines the relationships between the quantity of time students have been exposed to the Population Education themes discussed above and students' attitudes and aspirations. To control for other influences on students' attitudes and aspirations, control variables representing student characteristics³⁷, family influences^{38 39 40}, educational quality⁴¹, influences from outside the community⁴², and regional differences were included in the analyses. (All variables used in the study are defined in Table 2.) It was also suspected that the quality of the education provided students might affect the ability of educational themes to influence students' attitudes and aspirations. Three measures of educational quality – the student to teacher ratio, the teachers' average level of teacher training, and days absent from school – were interacted with students' exposure to the various education themes and tested in each of the models below.

Because of the large number of control variables relative to the sample size, all could not be included in the analyses. Only statistically significant control variables and a few statistically insignificant variables believed to be especially relevant for particular models were included. None of the insignificant control variables included in the models substantively change the significance or the magnitude of the effects of the educational themes that are presented in this study.

In all but one of the analyses below, a few students are omitted due to missing values. It was decided that omitting observations with missing values, rather than replacement with averages or predicted values, would best maintain statistical validity. For the variable family income however, this strategy was not used. Only slightly more than half of students' families included annual household income on the parent questionnaire. When statistically significant, a variable considered as a useful proxy for family income was substituted. This variable equals one if the family responded that someone from the home carries water by foot to the house at least once a week and zero if water is carried home less than or equal to once a week. We believe that this variable is a useful predictor of family income due to both its labor-intensive nature and the higher opportunity costs of carrying water for families who are economically better off.

Table 2**Variable Descriptions**

<i>Variable</i>	<i>Definition</i>
Student Characteristics	
Age	Age of student in years.
Desired Age to Marry	Age at which student would like to marry.
Desiring to Work Outside Home After Marriage	Dummy variable equaling one if student desires to work outside of the home after marriage.
Number of Children Desired	Number of children student hopes to have after marriage.
Student with No Religion	Dummy variable equaling one if student reported having no religion.
Catholic Student	Dummy variable equaling one if student reported being catholic.
Evangelical/Protestant Student	Dummy variable equaling one if student reported being Protestant.
Desire to Continue Having More than the Desired Number of Children until a Boy were Born	Dummy variable equaling one if student reported a desire to have more than their desired number of children if a boy had not yet been had.
Desire to Continue Having More than the Desired Number of Children until a Girl were Born	Dummy variable equaling one if student reported a desire to have more than their desired number of children if a girl had not yet been had.
Believing that One Plays a Central Role in Regulating Ones Own Fertility	Dummy variable equaling one if student reported that wife and husband together decide the number of children that will be had, rather than God, if the wife and husband want to have different numbers of children.
Household/Family Influences	
Mother Completed 4 th Grade or Higher	Dummy variable equaling one if the mother has a fourth grade level of education or higher. Fourth grade was selected as the cutoff because it explains the most variation in the models. It is also the minimal level of education found sufficient to guarantee literacy in El Salvador. ⁴³
Father Completed 4 th Grade or Higher	Dummy variable equaling one if the father has a fourth grade level of education or higher.
Father Non-agricultural Worker	Dummy variable equaling one if father does not work primarily in agriculture.
Mother Works for Pay Each Month	Dummy variable equaling one if mother works for pay each month.
# Children Student Thinks Father Desires	Number of children student believes his/her father would have liked to have.
# Children Student Thinks Mother Desires	Number of children student believes his/her mother would have liked to have.
1995 Family Income (Colon) N(F)=36,(M)37	Estimated income that entered the home from all family members in 1995.
Household Carries Water Each Week	Dummy variable equaling one if the family responded that someone from the home carries water by foot to the house at least once a week.
Mother's level of Study (Linear)	1=1 st grade, 2=2 nd grade, 3=3 rd grade, 4=4 th grade, 5=5 th grade, 6=6 th grade, 7=7 th grade, 8=8 th grade, 9=9 th grade, 10=completed high school, 11=completed vocational school, & 12=completed university degree.
Father's level of Study (Linear)	Same as Mother's level of study.
Educational Quality Variables	
Average Student/Teacher Ratio	The average number of students per teacher for all six primary school classes in which a given student studied.
Average Teacher's Education Level	The average level of education of teachers who taught a given student from 1 st through 6 th grades. All Salvadoran public school teachers have one of three levels of education, all of which are qualified to teach grades 1-6. ⁴⁴
# Days Absent from School in 5 th Grade	Number of days the student believes he/she was absent the previous year.
Influences from Outside the Community	
# Hours Watching Television Per Week	Number of hours that student reports watching television per week.
# Hours Listening to Radio Per Week	Number of hours that student reports listening to the radio per week.
# Combined Hours of Radio & TV Exposure	Combined hours of student's exposure to television and radio per week.
Time to Reach Nearest Urban Area	Time needed to reach the nearest urban area using the most used form of transportation in a community.
Regional Differences	
Students in Three Communities in Cabañas	Dummy variable equaling one for students from schools in Cabañas.
Students Exposed to Minor War-related Violence	Dummy variable equaling one for students from communities in which any skirmishes occurred during El Salvador's civil conflict.

Exposure to Population Education Themes

# Hours Gender Equality Themes	Total class hours teachers report teaching subjects related to gender equality from 1 st through 6 th grades. One class hour is 45 to 50 minutes of class time. This time is spent on activities such as class discussion, lecturing, and student exercises.
# Hours Self-esteem Themes	Class hours that teachers report teaching self-esteem themes for grades 1-6.
# Hours Parental Responsibility Themes	Class hours that teachers report teaching parental responsibility themes for grades 1-6.
# Hours Environmental/Population Themes	Class hours that teachers report teaching themes related to the environmental problems associated with population growth for grades 1-6.
# Hours Socioeconomic/Population Themes	Class hours that teachers report teaching themes related to the socioeconomic problems associated with population growth for grades 1-6.
# Hours Environmental & Socioeconomic Themes	Sum of the previous two variables.
# Hours Art. & Nat. Contraception Themes	Class hours that teachers report teaching artificial and natural contraception themes for grades 5-6.

School Selection

Seven schools in the study are from the department of Ahuachapán. Of El Salvador's 14 departments, Ahuachapán was deemed most appropriate for its ruralness (61.5% of Ahuachapán's population works in agriculture.⁴⁵) and because, of all the predominately rural states, it experienced the lowest amount of violence during El Salvador's civil conflict. To avoid any effects that combat related violence might have on students, communities experiencing more than very minor skirmishes during the conflict were not included in the study. (A dummy variable for schools experiencing minor skirmishes was tested for significance in all of the models in this study, but not once was found to be significant.)

All rural schools in Ahuachapán teaching only up to sixth grade and having at least 10 sixth grade students were stratified into three categories: schools having a high degree of program implementation, those having a moderate level of implementation, and those having a low level of implementation. Schools were classified by consulting special teachers in each school district that voluntarily train other teachers in their district in Population Education. Three schools classified as high implementation, and three schools classified as low implementation were then randomly selected. Only one low implementation school from the state of Ahuachapán was eligible for and included in the study.

Due to a shortage of low implementation schools, Population Education trainers working in the western and central regional offices of the Ministry of Education were consulted to locate rural schools that were suspected of having low levels of program implementation. Three schools in the school district of Sensuntepeque, located in the central department of Cabañas, were selected. This district was suspected of having low levels of implementation because it had not had a volunteer Population Education trainer that had actually trained teachers. These schools were located in rural communities that were similar to those already included in the study in terms of access to urban areas, agricultural activities, and exposure to minor and isolated skirmishes during El Salvador's 12 year civil conflict. (In order to control for significant regional differences during the statistical analysis, a dummy variable equaling one for students from Cabañas was tested in each of the models, and included when statistically significant.)

Data Collection

Student questionnaires and focus group interviews were used to collect information on student's perceptions and aspirations. Questionnaires were designed with the assistance of members of the Salvadoran Ministry of Education and piloted several times to insure that questions were not offensive and could be understood by rural 6th graders. Before completing questionnaires, students were told that their responses would be used to see what were their desires and aspirations for their future lives so that the information could be utilized by the Ministry of Education in deciding which types of education would be most useful to help them reach their goals. Sixth grade students who had repeated any of the grades two through six, or had attended grades in other schools, were dropped from the study. These measures helped to control for large differences in learning ability, and facilitate data collection.

All teachers who had taught the 6th grade students for any of the grades one through six were found and interviewed about the number of class hours spent teaching 23 different themes related to Population Education. Before being interviewed, teachers were informed that requested information would be used to examine what effect Population Education themes were having on students' attitudes and desires, and that their responses would not be used to evaluate their work, nor would the analysis include their names nor the names of their schools.

School director interviews and parent questionnaires were also used to collect information on potential influences on students' attitudes and aspirations. Parent questionnaires were sent home with students to their parents. Students were asked to assist a parent or guardian with the completion of the questionnaire if the parent was illiterate.

Sample Characteristics

Table 3 lists the mean, standard deviation, and minimum and maximum value by gender for each variable used in the study. The sample consists of a total of 134 students (69 females and 65 males) from 10 schools.

Despite being only in the 6th grade, the majority of the girls and boys in the study have already entered into young adolescence. All but one female and two male students are older than the median age of early and late puberty for females and males.⁴⁶

It is also interesting to note that females and males are statistically significantly different regarding religious composition.⁴⁷ Nearly as many female students report being Protestant as Catholic (41% vs. 42%). For male students however, Catholicism was by far the most favorite response at 45%, with Protestantism and "no religion" each receiving 26% percent of the responses. One possible explanation for this difference is that Protestant religions may appear less patriarchal to young female adolescents. There are no other statistically significant differences between male and female students.

Table 3**Sample Characteristics, N=134**

<i>Variables</i>	<i>Females</i>			<i>Males</i>		
	<i>Mean</i>	<i>Std.Dev.</i>	<i>Min/Max</i>	<i>Mean</i>	<i>Std.Dev.</i>	<i>Min/Max</i>
Student Characteristics						
% of Sample and Sample Size by Sex	51.5	N=69		48.5	N=65	
Age (years)	13.5	1.68	10.28/20.5	14.0	1.71	10.56/18.1
Desired Age to Marry	23.2	3.11	18/30	22.8	3.26	17/30
% Desiring to Work Outside Home After Marriage	56.5	.50		98.4	.13	
Number of Children Desired	3.1	1.41	1/8	3.7	1.72	1/8
% of Students with No Religion	17.4	.38		26.2	.44	
% of Students Catholic	42.0	.50		44.6	.50	
% of Students Evangelical/Protestant	40.6	.50		26.2	.46	
% Desiring to Continue Having More than Desired	36.8	.49		48.4	.50	
# of Children until a Boy were Born						
% Desiring to Continue Having More than Desired	38.2	.49		44.4	.50	
# of Children until a Girl were Born						
% Believing that One Plays a Central Role in Regulating Ones Own Fertility	57.4	.50		44.0	.50	
Household/Family Influences						
% of Fathers Completed 4 th Grade or Higher	37.7	.49		26.2	.44	
% of Mothers Completed 4 th Grade of Higher	18.8	.39		30.8	.47	
% of Fathers Non-agricultural Workers	13.0	.34		16.9	.38	
% of Mothers Working for Pay Each Month	11.6	.32		12.3	.33	
# Children Student Thinks Father Desires	5.1	2.34	0/11	5.3	2.50	0/12
# Children Student Thinks Mother Desires	5.1	2.29	1/11	4.8	2.51	0/12
1995 Family Income (Colon) N(F)=36,(M)37	7795.5	7908.18	0/27,000	10,799.4	16114.99	0/74,000
% Households Carrying Water Each Week	47.8	.50		56.9	.50	
Mother's level of Study (Linear)	2.9	2.97	0/12	3.1	2.97	0/9
Father's level of Study (Linear)	4.1	3.31	0/11	2.7	2.27	0/9
Educational Quality Variables						
Average Student/Teacher Ratio	32.9	4.3	25.17/39.5	33.2	3.89	25.2/39.5
Average Teacher's Education Level	1.9	.78	1/3	1.96	.83	1/3
# Days Absent from School in 5 th Grade	4.8	7.28	0/25	5.97	6.83	0/25
Influences from Outside the Community						
# Hours Watching Television Per Week	8.80	9.11	0/40	11.9	8.73	0/37
# Hours Listening to Radio Per Week	17.1	17.01	0/72	14.97	11.85	0/55
# Combined Hours of Radio & TV Exposure	25.9	18.95	0/78	26.9	15.67	0/63
Time to Reach Nearest Urban Area (Hours)	.84	.56	.17/2	.84	.51	.17/2
Regional Differences						
% Students in Three Communities in Cabañas	25.6	.43		21.54	.41	
% Students in Communities that Experienced War-related Violence	27.5	.45		10.8	.31	
Exposure to Population Education Themes						
# Hours Gender Equality Themes	34.9	42.50	4/144	35.28	32.12	4/144
# Hours Self-esteem Themes	30.8	28.25	2/100	37.12	30.58	2/100
# Hours Parental Responsibility Themes	58.9	31.20	15/173	74.7	44.12	15/173
# Hours Environmental/Population Themes	47.9	21.45	7/112	55.9	27.36	7/112
# Hours Socioeconomic/Population Themes	48.2	26.73	6/95	56.8	29.89	6/95
# Hours Environmental & Socioeconomic Themes	96.1	45.10	16/207	112.7	55.4	16/207
# Hours Artificial & Natural Contraception Themes	10.6	9.32	0/26	9.0	8.96	0/26

Analysis and Findings

The Effects of Self-esteem and Gender Equality Themes on Desire to Work Outside of the Home after Marriage

The high covariance between students' exposure to educational themes on self-esteem and gender equality does not allow their affects to be measured separately.⁴⁸ Attempting to separate out the effects of these themes would be somewhat of an arbitrary process; many themes relate to both self-esteem and gender equality. For example, teaching that women have the ability to work outside of the home is likely to raise consciousness about gender equality as well as increase self-esteem.

The number of class hours that teachers devoted to self-esteem themes is used in the analyses as a proxy for both self-esteem and gender equality themes. This is because the multivariate statistical models containing self-esteem themes explain slightly more of the variance in the study's dependent variables than do models using either gender equality themes or the sum of gender equality and self-esteem themes as the proxy.⁴⁹

In order to assess whether self-esteem and gender equality themes are affecting rural Salvadoran female students' desire to take on nontraditional roles, a logistic regression model was used in which female students responding that they wanted to work outside the home after marriage received a one for the dependent variable. Salvadoran students understand working outside the home to mean paid employment outside the home. Table 4A contains the results for this model. Self-esteem education is significant at the 95% confidence level and is associated with large increases in desire to work outside of the home after marriage. When the two statistically insignificant variables included in the model - mother's education above 3rd grade and mother works for pay - are omitted, there is no substantive change in either the significance or the magnitude of self-esteem education themes.⁵⁰

For an 'average' female receiving only two hours of self-esteem education (the lowest number of hours received by any of the students in the sample), the probability of wanting to work outside the home is 27%.⁵¹ (One way of visualizing this probability is that of 100 'average' female students receiving two hours of self-esteem education, about 27 of those 100 would desire to work outside of the home after marriage.) Each additional class hour of self-esteem education increases the probability of wanting to work outside the home by approximately 1% until around 40 hours of self-esteem education have been received. From this point, the effects of each additional hour of education slowly decrease. By the 100th hour of self-esteem education (the maximum number of hours for any student in the sample), the probability of wanting to work outside of the home has risen to 98% (or 98 out of 100 average female students would desire to work outside of the home.) At this point, the additional increase in the probability of wanting to work outside the home associated with an additional hour of the self-esteem themes is only about one tenth of one percent. Table 8 shows the effects of two increases in the quantity of self-esteem education on the 'average' female students' desire to work outside of the home. Each increase is equal to one standard deviation - 28 class hours.

Table 4A

Regression Models: Effects of Self-esteem and Gender Equality Education Themes, and Effects of Female Students' Non-traditional Aspirations (Ordered Probit Thresholds are in Table 4B.)

+ = significant at 99% ** = significant at 95% * = significant at 90%

	<i>Females' Desire to Work Outside of the Home After Marriage (Logistic)</i> N = 68	<i>Females' Desired Number of Children (Order Probit)</i> N=61	<i>Females' Desired Age to Marry (OLS)</i> N = 57	<i>Males' Desired Age to Marry (OLS)</i> N = 58	<i>Males' Desired Number of Children (Order Probit)</i> N = 55
Intercept	6.9 (3.5)**		-289.5 (89.5)+	213.3 (104)**	
Class Hours of Self-esteem Education	.0485 (.0211)**		.2723 (.2305)	-.433 (.316)	-.24 (.08)+
Self-esteem Education²			-.01468 (.0078)*	.016 (.010)	
Self-esteem Education³			.00011 (.0001)**	-.0001 (.00006)	
Desire to Work Outside Home After Marriage		.24 (.32)			
Educational Quality Variables					
Average Student/Teacher Ratio	-.173 (.09)*	-.04 (.05)	19.56 (5.39)+	-11.272 (6.209)*	3.70 (1.44)+
Average Student/Teacher Ratio ²			-.297 (.801)+	.17 (.09)	-.0569 (.0219)+
Average Teacher Training Level	-1.04 (.53)**	-3.77 (2.35)			
Average Teacher Training Level ²		.89 (.57)			
Students' Days Absent from School in 5 th Grade		.13 (.08)			
Students' Days Absent ²	.101 (.048)**		-.033 (.058)	.064 (.063)	.031 (.024)
Students' Days Absent ²		-.004 (.003)			
Interactions of Educational Quality and Self-esteem Education					
Self-esteem & Student/Teacher Ratio					.0056 (.0219)+
Student's Age			-.76 (.28)**		
Household/Family Influence					
Carry Water Home/Week	-1.7 (.7)**		1.06 (.7)*	-.60 (.93)	.487 (.339)
Mothers' Education Above 3 rd Grade	.26 (1.0) ⁵²		-1.446 (1.048)	1.53 (.91)	
Mothers' Level of Study (Linear)		-.03 (.06)			-.025 (.059)
Fathers' Level of Study (Linear)		-.06 (.05)			
Whether Mother Works for Pay	.76 (1.2)				
Number of Children Father Desires		.21 (.08)+			.075 (.074)
Influences from Outside of the Community					
Radio Listening per Week	.0808 (.0349)**	-.016 (.014)			.032 (.016)**
Time to Reach Nearest Urban Area	-1.8 (.9)**	1.1 (.6)*	11.86 (3.91)+	-7.9 (4.9)	2.9 (.9)+
Community Differences					
Three Schools in Cabañas		-1.8 (.9)**			
Log Likelihood/R²	-32.17	-69.68	.5008	.1377	-62.41

Table 4b**Thresholds for Ordered Probit Regressions**

	<i>Females' Desired Number of Children</i>	<i>Males' Desired Number of Children</i>
Between 1 or 2 Children and 3 Children Desired	-3.5173 (2.86)	60.4899 (23.6)
Between 3 and 4 Children Desired	-2.7687 (2.85)	61.4505 (23.68)
Between 4 and 5, 6, 7, or 8 Children Desired	-2.0956 (2.84)	62.0226 (23.69)

Young Female Adolescents' Non-traditional Aspirations, Perceived Opportunity Costs of Children, and Desired Family Size

An ordered probit statistical model was used to test whether female students' desire to work outside the home after marriage affects the number of children that they desire. This type of statistical model is used when the variable that is believed to be under effect has between 2 and roughly 10 values, and these values possess a 'natural ordering'. Because of the small number of students on both ends of the distribution of the number of children desired, responses to this question were grouped into four categories. The 1st category equals 1 or 2 children desired. The 2nd category equals 3 children desired. The 3rd equals 4 children desired. And the 4th equals 5, 6, 7, or 8 children desired.

Using the model in Tables 4A and B, desire to work outside of the home is insignificant as a predictor of desired family size. (Another ordered probit model also found that self-esteem themes have no direct effects on female student desired family size.) This suggests that young rural Salvadoran female adolescents do not yet calculate in or fully perceive the opportunity costs incurred with having additional children when considering their desired family size.

Yet, it is important to note that the DHS data presented in the Review of Literature strongly suggest that rural Salvadoran female students that achieve their aspirations of working outside the home or migrate to urban areas in search of work will realize the opportunity costs of additional children later in life and have fewer children. While the cultural norms in El Salvador are not identical to those of Bolivia, Brazil, Ecuador, Guatemala or Mexico (all of the Latin American countries for which the relevant data exists), there is no reason to suspect that the large differences in fertility between women who work for pay outside the home and women who do not that is present in each of these countries would not exist in El Salvador. Likewise, it is unknown why the large differences in fertility between women who have migrated from rural to urban areas and rural women who have not migrated that exists in all 7 of the Latin American countries in the DHS study would not exist in El Salvador. If rural female students' desire to work is a good predictor of female Salvadorans actually working outside the home and/or migrating to urban areas in the future, then it can be expected that themes addressing gender equality and self-esteem will reduce future Salvadoran fertility levels. However, it is important to note that due to a likely continued diffusion of smaller family size norms from urban to rural areas, and from working to non-working women, the effects on fertility of increases in female employment and/or migration may not be as great in the future as they would be if they occurred today.

Students' Desired Age to Marry

To analyze the effects of self-esteem themes on desired age to marry, an OLS (Ordinary Least Squares) regression model was used. In the model, shown in Table 4A, themes on self-esteem have a negative nonlinear effect on female students' desired age to marry. Self-esteem education, self-esteem education squared and self-esteem education cubed are jointly statistically significant at the 99% confidence level. Just self-esteem education squared and cubed are jointly significant at the 95%

confidence level. Neither of the two insignificant control variables included in the model substantively alters the magnitude or the significance of the effect of self-esteem education on desired age to marry.

While contrary to the theory presented in the Review of Literature, a decrease in females' desired age to marry associated with greater exposure to self-esteem themes is plausible. The predominant role of married women in rural El Salvador is that of the homemaker and mother, subservient to the husband, with little or no assistance from the husband in her responsibilities. Themes on self-esteem and gender equality teach that marriage is a relationship between two equal individuals, both of who participate in decision making, maintaining the home, caring for children, and working outside of the home. The statistical model suggests that marriage becomes more attractive to young rural female Salvadoran adolescents as exposure to such perceptions of equality increases.

When using average values for the control variables, the model in Table 4A indicates that when exposure to self-esteem education remains relatively small (from 2 to 30 class hours), the average female student desires to marry at about 30 years of age. As the number of class hours devoted to self-esteem and gender equality themes increases beyond 30 hours, the desired age to marry for the average female begins to decrease from age 30 by about 0.2 to 0.4 years per each additional hour of education. This continues until approximately 70 hours of education on gender equality and self-esteem are received, at which point the average female student's desired age to marry levels off at about 18 years of age. Table 8 presents the effects of two increases in exposure to self-esteem education on the average female students desired age to marry.

Table 4A also contains the regression results for male student's desired age to marry. Self-esteem and gender equality education does not have a significant impact on males desired age to marry. However, the standard errors are not large and it is possible that, with a larger sample, self-esteem education would be significant. The coefficients suggest that the relationship might be the opposite of that for females, indicating that males receiving more self-esteem and gender equality education would find marriage less attractive and thus desire to marry later in life.

The Effects of Themes Related to Parental Responsibility, and the Environmental and Economic Problems Associated with Population Growth on Female Desired Family Size

Exposure to themes on environmental problems related to population growth and themes on economic problems related to population growth highly covary for female and male students.⁵³ Also, exposure to these environmental and economic themes and themes on parental responsibility highly covary for both males and females.⁵⁴ For female students, the individual effects of these themes cannot be discerned. (The effects for male students are discussed below.)

Using the ordered probit model in Tables 5A and B, themes on parental responsibility substantially increase female students' desired family size – contrary to the theory presented in the Review of Literature. This relationship is significant at the 99% confidence level. In societies where women believe that they are limited to conjugal and maternal roles, an increased perception that more children provide more responsibility may mean that more children provide more purposeful and meaningful roles. There is no reason to suspect why themes related to the environmental and economic problems associated with population growth would increase desired family size. Due to the high covariance between these themes and themes on parental responsibility, this statistical model also indicates, however, that the economic and environmental themes do not decrease female student desired family size. The effects of parental responsibility themes on female desired family size, calculated from the model in Tables 5A and B, are shown in Table 9. Using the probabilities calculated in Table 9, the 'average' female students' desired family size is calculated to increase from 2.31 for a female student who has received 15 hours of education in parental responsibility themes to 3.59 for female students receiving 90 hours of education on parental responsibility themes.

Table 5A

**Regression Models: Effects of Themes related to Parental Responsibility, and the Economic
and
Environmental Problems Associated with Population Growth**

+ = significant at 99% ** = significant at 95% * = significant at 90%

	<i>Females' Desired Number of Children (Order Probit) N=61</i>	<i>Males' Desired Number of Children (Order Probit) N=55</i>
Parental Responsibility Themes	.0126 (.005)+	
Environmental & Economic Impact of Population Growth Themes		.0135 (.013)
Class Hours of Self-esteem Themes		-.2312 (.08)+
Educational Quality Variables		
Average Student/Teacher Ratio		3.93 (1.48)+
Average Student/Teacher Ratio ²		-.0607 (.0226)+
Students' Days Absent from School in 5 th Grade	.1906 (.085)**	.0237 (.025)
Students' Days Absent ²	-.0062 (.003)*	
Interactions of Educational Quality and Self-esteem Education		
Self-esteem & Student/Teacher Ratio		.005 (.002)**
Household/Family Influence		
Carry Water Home/Week		.4757 (.34)
Mothers' Level of Study (Linear)	-.0386 (.056)	-.0263 (.059)
Fathers' Level of Study (Linear)	-.0639 (.05)	
Number of Children Father Desires	.1805 (.07)+	.0744 (.075)
Influences from Outside of the Community		
Radio Listening per Week	-.0090 (.01)	.0301 (.016)*
Radio/Television Exposure per Week		
Time to Reach Nearest Urban Area		3.319 (1.01)+
Log Likelihood/R²	-69.74	-62.16

Table 5B

Thresholds for Ordered Probit Regressions

	<i>Females' Desired Number of Children</i>	<i>Males' Desired Number of Children</i>
Between 1 or 2 Children and 3 Children Desired	1.3175 (.6042)	-.6664 (11.36)
Between 3 and 4 Children Desired	2.0783 (.6269)	.1898 (11.36)
Between 4 and 5, 6, 7, or 8 Children Desired	2.7479 (.6456)	.9870 (11.34)

The Effects of Themes Related to Self-esteem, Gender Equality, Parental Responsibility and the Environmental and Economic Effects of Population Growth on Male Students' Desired Family Size

The problem of covariance among educational themes is different for males than females. Only for male students is there high covariance between themes on parental responsibility and self-esteem (covariance = .75 for males vs. .36 for females). For males, while self-esteem themes highly covary with parental responsibility themes, and parental responsibility themes highly covary with environmental and economic themes, self-esteem themes do not highly covary with environmental and economic themes (covariance = .56). This incomplete triangle of high covariance among these three sets of themes has been utilized to separate out some of their effects. An ordered probit model of male's desired number of children on self-esteem education is used to determine what effect themes on self-esteem, gender equality and parental responsibility have on male students desired family size. And a separate ordered probit is used to determine the effects of environmental and economic themes on male desired family size.

The ordered probit model of males' desired number of children on self-esteem education, shown in Tables 4A and B, indicates that some combination of themes on self-esteem, gender equality and parental responsibility decrease the number of children that male students desire. This result is significant at the 99% confidence level. The effects of self-esteem themes on male students, shown in Table 8, vary by the student's average primary school classroom size. If, for example, a student has studied in primary school classrooms having an average of 33 students, an increase in self-esteem education from 2 to 68 hours decreases the probability of wanting 5,6,7, or 8 children from 96% to 5%, increases the probability of wanting 4 children from 3 to 9%, increases the probability of wanting 3 children from 1 to 30%, and increases the probability of wanting 1 or 2 children from 0 to 17%. The decreases in desired family size are found to be still greater when class sizes are smaller. (See Table 8.) But due to high covariance, it is uncertain to what degree this reduction in desired family size can be attributed to self-esteem and gender equality themes, or to parental responsibility themes. It is possible that both reduce male desired family size.

Because environmental and economic themes do not highly covary with self-esteem themes, their effects on male desired family size are measured separately. The ordered probit model in Tables 5A and B indicates that themes related to the environmental and economic problems associated with population growth do not effect male students desired family size.

The Effects of Gender Equality and Self-esteem Themes on Gender 'Searching'

Students were asked, "Imagine that in your marriage, you and your spouse have already had the number of children that you previously indicated that you desire, but you have not yet had a baby boy. Do you think you would continue having more children until you had a boy?" The same question was asked in reference to having a baby girl. These questions are aimed at understanding students' willingness to 'search' for specific genders.

The logistic regression models in Table 6 indicate that themes related to gender equality and self-esteem reduce female students' willingness to search for both male and female children. When two hours of class time are devoted to self-esteem themes, the probability of an 'average' female student indicating that she would continue having children beyond her desired number until a boy were born is about 78%. After 2 hours of subjects related to self-esteem, each additional hour of class time devoted decreases the probability of male gender searching by 1 to 1.5 percent. This rate of decrease continues until around 45 hours of exposure have been reached, at which point the probability of male gender searching has dropped to 20%. From 45 hours on, the effects of each additional hour continually decrease. At 80 hours of self-esteem education, one additional hour further reduces the probability by only two tenths of a percent, but the probability of desiring to search for a male child has already dropped to about 3%.

At two hours of exposure to self-esteem themes, the probability of an ‘average’ female student desiring to search for a female child is 59% - much lower than the probability of desiring to search for male child. At 58 hours, the probability of female gender searching drops to 21%. And at 99 hours, the probability is 7%, at which point one additional hour reduces the probability by only two tenths of a percent. Table 8 further illustrates these effects.

For male students, self-esteem themes do not significantly affect the desire to search for children of either gender, although the standard error for the coefficient of self-esteem themes on male gender searching is not large. The statistical insignificance of these relationships may be due to the small sample size.

Table 6

Logistic Regressions: Self-esteem and Gender Equality Themes’ Effects on Gender Searching.

+ = significant at 99% ** = significant at 95% * = significant at 90%

	<i>Probability of Female Believing She Would Continue Having More Than Her Desired Number of Children Until a Boy Were Born N = 54</i>	<i>Probability of Female Believing She Would Continue Having More Than Her Desired Number of Children Until a Girl Were Born N = 54</i>	<i>Probability of Male Believing He Would Continue Having More Than His Desired Number of Children Until a Boy Were Born N = 47</i>	<i>Probability of Male Believing He Would Continue Having More Than His Desired Number of Children Until a Girl Were Born N = 47</i>
Intercept	-8.8258 (4.0426)**	-4.6787 (3.116)	-8.8732 (3.94)**	-5.4986 (3.09)*
Class Hours Self-esteem Education	-.0594 (.0239)+	-.0302 (.017)*	-.0309 (.0275)	-.0015 (.016)
Educational Quality Variables				
Students’ Days Absent	.1756 (.0612)+	.0452 (.0438)	.4088 (.213)*	.3463 (.19)*
Students’ Days Absent ²			-.0235 (.012)**	-.018 (.01)*
Student’s Characteristics				
Age	.5032 (.29)*	.2714 (.2305)	.4287 (.25)*	.2838 (.217)
Household/Family Influence				
Fathers’ Level of Study (Linear)	.1709 (.1186)	.1777 (.1025)	.4245 (.226)*	.1764 (.16)
Influences from Outside of the Community				
Time to Reach Nearest Urban Area	2.1813 (1.09)**	.5668 (.79)	2.7482 (1.8)	.3244 (1.03)
Log Likelihood	-24.5313	-31.3645	-24.1628	-28.2011

The Effects of Gender Equality and Self-esteem Themes on Students' Perceived Roles in Controlling Future Fertility

In order to investigate students perceived roles in regulating their fertility, students were asked, "If a husband wants to have a different number of children than his wife wants, who should decide how many children will be had?" Students were able to respond by marking that either the husband, the wife, the husband and wife together, or God decides. Only one female and two male students responded that the husband alone decides, and two males responded that the wife alone decides. The remaining students responded that God decides (31 boys and 29 girls) or that the wife and husband together decide (26 boys and 39 girls).

Students responding that the husband and wife decide together were considered to perceive that fertility is something that can and should be regulated, and that they themselves should play an active role in that regulation. The two male students responding that the husband should decide are also considered to believe that they themselves are capable of controlling, and should control, their fertility (albeit in an uncompromising manner). Students responding that God should decide are believed to perceive that childbearing is not a personal decision or undertaking which should necessarily be controlled, but rather an occurrence or blessing which will be dealt with. It is difficult to determine what role the remaining three students - a female responding that the husband decides and two males responding that the wife decides - believe they are capable of playing in controlling their fertility. For example, should the two male students responding that the wife should decide be thought of as indicating that they are incapable of controlling their fertility, or that the wife alone should decide how many children the family will care for? Due to this uncertainty in how to interpret these three responses in this context, they were omitted from this analysis.

Students indicating that one should play an active role in controlling their fertility were assigned a one for the dependent variable in two logistic regression models – one for males and one for females. Both models are shown in Table 7 with calculated effects from these models presented in Table 8. For an 'average' female, the probability of believing that one should play an active role in regulating her or his fertility remains at zero until 45 hours of self-esteem education are received. From this point, the probability increases rapidly for each additional hour of education until a probability of 93% is reached at approximately 65 hours of self-esteem education. By 75 hours of self-esteem education, the probability for females increases to 99%. A similar relationship exists between self-esteem education and male students' perceived role in controlling their fertility, only that the rapid rise in probability does not occur until 55 hours of self-esteem education have been received. And the 90% probability mark is not reached until 75 hours of self-esteem education have been taught. At 83 hours of self-esteem education, the probability that an 'average' male student perceives that one should play an active role in regulating fertility has reached 99%.

Three insignificant variables related to religion and family influences were included in the two models (See Table 7.) When these variables are omitted from the regressions for both male and female students, there is no substantive change in either the magnitude or the significance of the effects of self-esteem education.

Themes related to artificial and natural contraception were found to be insignificant in predicting male and female students' perceived role in controlling fertility. (See Table 6 for logistic regression models.) The sum of class hours devoted to teaching human reproduction and contraception was also found to be insignificant for both genders. Thus while education on contraception provides students with the knowledge of how to control fertility, it does not appear to increase their perceived role in doing so. For this, education on gender equality and self-esteem is needed.

Table 7**Logistic Regressions: Self-esteem, Gender Equality, and Contraception Themes' Effects on Perceived Roles in Controlling Fertility.****(1 = Wife and Husband Decide Together, 0 = God Decides)**

+ = significant at 99% ** = significant at 95% * = significant at 90%

<i>Variable</i>	<i>Probability of Female Believing that Wife and Husband Together Decide the Number of Children that Will Be Had</i> <i>N = 68</i>	<i>Probability of Male Believing that Wife and Husband Together Decide the Number of Children that Will Be Had</i> <i>N = 59</i>	<i>Probability of Female Believing that Wife and Husband Together Decide the Number of Children that Will Be Had</i> <i>N = 68</i>	<i>Probability of Male Believing that Wife and Husband Together Decide the Number of Children that Will Be Had</i> <i>N = 59</i>
Intercept	577.33 (217.84)+	531.48 (198.08)+	486.85 (214.99)**	553.53 (472.95)
Class Hours of Self-esteem Education				
Class Hours on Contraception	.351 (.119)+	.27 (.09)+	.31 (.11)+	.236 (.08)+
Educational Quality Variables				
Average Student/Teacher Ratio	-34.79 (13.02)+	-32.46 (12.12)+	-29.25 (13.06)**	-34.23 (30.04)
Average Student/Teacher Ratio ²	.53 (.196)+	.495 (.185)+	.439 (.199)**	.528 (.48)
Student's Characteristics				
Catholic Students	-2.2 (4.08)	-2.42 (3.19)	.217 (4.9)	.5629 (2.75)
Protestant Students	-.66 (3.53)	2.2 (3.0)	-1.66 (5.1)	-1.128 (2.98)
Household/Family Influence				
Mothers' Education Above 3 rd Grade	-.35 (2.69)	-.99 (1.5)	-1.3 (2.8)	-2.53 (2.18)
Influences from Outside of the Community				
Time to Reach Nearest Urban Area	-25.14 (8.98)+	-20.04 (6.30)+	-22.47 (8.76)+	-21.148 (14.75)
Log Likelihood	-6.9251	-9.1101	-6.2902	-7.0036

Table 8**Effects of One Standard Deviation Increases in Exposure to Educational Themes Related to Self-esteem and Gender Equality on ‘Average’⁵⁵ Students.**

For female students, a one standard deviation increase equals 28 class hours. For male students, a one standard deviation increase equals 31 class hours.

+ = significant at 99% ** = significant at 95% * = significant at 90%

<i>Effect on:</i>	<i>Students with Minimum Level (2 hours) of Self-esteem Education</i>	<i>Students with Average Hours (31 for females and 37 for males) of Self-esteem Education</i>
Probability that Female Desires to Work Outside of the Home After Marriage	From 27 to 58%, or a total of 31%.**	From 60 to 85%, or a total of 25%. **
Females’ Desired age to Marry	From 30 to 30 years, or a total of 0 years. **	From 30 to 19 years, or a total of 11 years. **
Probabilities of Males’ Desired Number of Children When Average Student - Teacher Ratio is at its Sample Mean of 33.2.	1 or 2 children - 0 to 5%. + 3 children - 1 to 20%. 4 children - 3 to 20%. 5,6,7,or 8 children – 96 to 54%.	1 or 2 children - 8 to 17%. + 3 children - 24 to 30%. 4 children - 22 to 9%. 5, 6, 7, or 8 children - 46 to 5%.
Probabilities of Males’ Desired Number of Children When Average Student - Teacher Ratio is at 29.3 (1 Std. Dev. Below Sample Mean.)	1 or 2 children - 0 to 36%. + 3 children - 4 to 37%. 4 children - 9 to 15%. 5, 6, 7, or 8 children - 86 to 12%.	1 or 2 children – 48 to 99%. + 3 children - 34 to 1%. 4 children - 11 to 0%. 5, 6, 7, or 8 children - 7 to 0%.
Probability of Female Believing that She Would Continue Having More Than Her Desired Number of Children Until a Boy Were Born	From 77 to 38%, or a total of 39%.+	From 37 to 10%, or a total of 27%.+
Probability of Female Believing that She Would Continue Having More Than Her Desired Number of Children Until a Girl Were Born	From 58 to 38%, Or a total of 20%.*	From 37 to 20%, Or a total of 17%.*
Probabilities of Female Believing that Wife and Husband Together, Rather than God, Should Decide the Number of Children to Be Had	Probability remains at zero. +	From zero to 99%. +
Probability of Male Believing that Wife and Husband Together, Rather than God, Should Decide the Number of Children to Be Had	Probability remains at zero. +	From zero to 61%. +

Table 9

Effects of One Standard Deviation Increases in Exposure to Educational Themes Related to Parental Responsibility on the ‘Average’ Female Student’s Desired Number of Children

For female students, a one standard deviation increase equals 31 class hours.

+ = significant at 99% ** = significant at 95% * = significant at 90%

<i>Effect on:</i>	<i>Students with Minimum Level (15 hours) of Parental Responsibility Themes</i>	<i>Students with Average Level (59 hours) of Parental Responsibility Themes</i>
Probabilities of Females’ Desired Number of Children	1 or 2 children - .62 to 46%.+ 3 children - 24 to 29%. 4 children - 10 to 16%. 5,6,7,or 8 children - 4 to 9%.	1 or 2 children – 40 to 26%.+ 3 children - 30 to 29%. 4 children - 19 to 24%. 5, 6, 7, or 8 children - 12 to 21%.

Students’ Perceptions Regarding the Effects of Population Education

The most important effects of any education program are those had on the lives of students. In assessing the consequences of the program for young rural Salvadoran adolescents, it is essential that students themselves be given a major voice. Interviews were conducted with 6th grade students in three rural primary schools in the summer of 1996. In each school, Rocío Lemus, a teacher trainer/technician in the Salvadoran Ministry of Education, interviewed groups of 6 to 7 female students while I (Richard) interviewed groups of 6 to 7 male students.

During interviews, Students responded that several Population Education subjects have important consequences for their lives. Students pointed out that learning about the role of communication between parents and children – a theme relating both to parental responsibility and family life education – has helped them to better appreciate the need for parental guidance. “Parents give good advice,” said one student, “and help solve the problems that we have during adolescence.” “It’s important that children feel that they can talk to their parents,” added another male student. Girls believed that the family life aspects of themes relating to gender equality help to transform their homes into places where males and females share responsibilities more equally. “These lessons are important because they teach boys to help with the household chores,” said one female student. A logistic regression model analyzing the effect of self-esteem and gender equality education on male’s attitudes towards family decision making supports their claim. It found that male students receiving 68 class hours of self-esteem themes versus 2 class hours were 35% more likely to respond that either the wife or the wife and husband together should decided whether the wife will work outside the home as opposed to the husband alone deciding.⁵⁶

Themes on reproduction were considered to be an important component of primary school education by both boys and girls. “It’s important to know your body and its organs to remove any doubts about reproduction,” said one girl. Another girl more vividly explained the significance of themes on reproduction: “It helps girls to be more aware so that they can’t be deceived. They (men) are already looking for us. My mother doesn’t teach me anything. We students are going to be mothers and this education will help us to orient our children.” In the 1992 Census, one out of every 100 fourteen year old girls were reported to have mothered a child, as were nearly one (.8) out of every 200 twelve year old girls, and nearly one (.9) of every 200 thirteen years old girls.⁵⁷ Due to the potential embarrassment in reporting teenage pregnancies, actual figures may be higher.

The students thought themes on contraception were important as well. “They help both the man and the woman,” said one boy. They help us to “avoid illnesses” and “avoid having many children,” said another. “When you ask your father about them, he scolds you.” Some girls who felt

that their teachers had not taught them enough about contraceptive methods said they wanted to learn more about them because “if I decide not to have more children, I’ll know how to avoid them, to plan a time before having children.”

What is also important about students’ comments is what was not said. Despite our questioning whether any of the themes were inappropriate or should not be taught, and our assurances that teachers would not hear their comments, no student said that any of the themes that we discussed were inappropriate or should not be taught. In fact, many girls thought that themes on reproduction should be taught before 6th grade because, “at times, girls become pregnant very young and this should be prevented.” Many rural Salvadoran girls and boys begin school late or are delayed during primary school, thus making it not uncommon to see rural girls of reproductive age in 3rd grade.

All of the girls and one boy from the focus groups thought that themes on contraception should also be taught before 6th grade. According to the boy, “Some students cannot stay in school until 6th grade, and they wouldn’t be able to learn about these methods.” As mentioned above, for all schools included in this study, only 40% of those students beginning 1st grade in 1991 were still attending those schools in 6th grade in 1996. Most boys, however, believed contraception is best taught in 6th grade. “If it were taught earlier,” said one student, “boys would take it as a joke.” This difference in opinion among most girls and boys of course suggests that the ideal would be to teach girls about contraception at an earlier age than boys.

Conclusion

Findings

El Salvador’s Population Education program aspires to improve the quality of life of Salvadorans on many fronts. Program themes related to gender equality and self-esteem are potentially the most influential components in regards to advances not only in social justice and fertility decline, but in regards to economic wellbeing as well. Education on gender equality strives to create a social environment in which females are treated more equally by parents distributing limited resources and assigning work among their children, by employers evaluating the worth of their employees, by husbands during decision making processes, and by women themselves, as they work and plan to better their lives. Greater equality between men and women in these social spheres would improve the education, health, and productivity of both genders. Such improvements would in turn lead to further reductions in fertility.⁵⁸

The analyses conducted in this study suggest that El Salvador’s Population Education program is likely to affect the future fertility of young rural adolescents in a variety of ways. But not all of these effects are negatively associated with fertility. For female students, education on themes related to gender equality and self-esteem are found to increase the desire to work outside of the home after marriage, increase the desire to play an active role in controlling one’s fertility regardless of differences in desired family size among spouses, reduce the desire to ‘search’ for both male and female children after reaching a desired family size, and decrease the desired age to marry. Also, themes on parental responsibility are found to increase female student’s desired number of children. For young male adolescents, education on themes related to self-esteem, gender equality, and parental responsibility lower desired family size and increase perceived roles in controlling one’s fertility.

While it cannot be assessed with certainty what the net effect of these changes in aspirations and attitudes will be on rural Salvadoran students’ future fertility levels, several insights regarding the relationships among the attitudes and aspirations suggest that the end effect will be negative. It is not expected that female students’ desire to marry at an earlier age will greatly increase the fertility levels of rural Salvadorans. The increase in the willingness of both females and males to play an active role

in controlling their own fertility should 'cancel out' much of the additional 'risk' of any earlier marriage that actually occurs (so long as reliable forms of birth control are available).

Increases in female students' desire to work outside of the home may be the most telling of the relationships in regards to future fertility. If female adolescents achieve their goals of working outside the home for pay, or at least migrate to urban areas in the hopes of finding employment, the DHS data in the Review of Literature indicates that future fertility levels will be substantially lower than that of their classmates who do not find employment or migrate. It is likely that this decrease in fertility would occur regardless of the number of children desired during early adolescence; desired family size of adolescents is likely to decrease later in life after realizing the opportunity costs associated with additional children – especially for those students who migrate to urban areas. To some degree however, the ability of a desire to work outside of the home to affect fertility will depend on the performance of El Salvador's economy. Without growing job opportunities, rural migrants will be unable to find jobs, and fewer individuals from the rural areas will migrate to urban areas.

As mentioned, females receiving more education on parental responsibility themes desire more children. This is presumably due to an increased value that perceptions of parental responsibility place on traditional maternal roles. But just as female adolescents who desire to work outside of the home are unable to realize the opportunity costs that children will come to represent, it is likely that female adolescents do not yet perceive the increased opportunity costs of children that themes on parental responsibility imply. While parental responsibility themes increase female students desired family size now, these same themes may decrease desired family size later in life after students realize the loss of opportunities that parental responsibility entails. Again, this loss in opportunity is dependent on the existence of alternative roles for women.

The effects of Population Education themes on males' attitudes and aspirations will also play a role in determining future fertility levels. In El Salvador, as well as in other societies of the developing world, men are active and often decisive, either directly or indirectly, in making fertility decisions. Due to this reality, both the observed decreases in male desired family size and the increased willingness of males to play an active role in controlling one's fertility are important findings.

Validity

Because the varying levels of exposure to Population Education themes could not be randomly assigned to the various schools/communities included in the study, the question will always remain whether the observed effects were caused by the education themes or by some other factor. Due to a lack of variation in the amount of exposure to themes within the schools/communities included in the study, dummy variables could not be included to control for any other unidentified influences on students attitudes and aspirations that were not already included in the study, but might be inherent to specific communities.

Also, the effects on fertility proscribed here are dependent upon young adolescents acting in the future in accordance with their attitudes and aspirations of today. Will a thirteen-year-old female that wants to work outside of the home actually look for employment, migrate to an urban area, and find employment? These questions largely cannot be answered. Nonetheless, there is likely no other single variable that would be a better predictor of the probability of a rural Salvadoran female migrating to an urban area to find work than her desire to do so. It is possible that even such desires alone, regardless of whether they are fully realized, could affect fertility.

Generalizing these findings to other countries should be undertaken with caution. This is especially true when considering what effects such a program will have in developing countries in which women are confronted with institutional barriers to gender equality not present in El Salvador. It is uncertain whether themes related to gender equality and self-esteem - which have been found here to

decrease male students' demand for children and increase female students' perceptions of the roles which they are able to play in society - will have the same effects in countries where institutions such as family formation systems, belief systems, legal and political institutions, and the division of labor allow little room for optimism among young women aspiring to live a life much different from that of their mothers.

The barriers to an increase in women's status in El Salvador were never as large as in many other developing countries, and, in fact, appear to be diminishing further. Opportunities in El Salvador's urban work force for women are increasing, Protestant religions are strongly challenging Catholicism (which might be considered as a more patriarchal religion), and few laws still endow women with a second class status. It is difficult to imagine what effects similar education programs might have in countries in Sub-Saharan Africa where corporate kin groups and polygamy are important aspects of society, or in some countries of the Middle East where women's status is clearly considered by religion and law to be different than that of men's. Nevertheless, it is possible that Population Education could play a role in raising levels of social and economic justice, and reducing unwanted pregnancy and desired family size in other societies.

Students have alluded to some of these improvements through their cogent comments above.

¹ Proyecto Interdisciplinario y de Cooperación Enteregencial de la UNESCO: Educación e Información sobre Medio Ambiente y Población para el Desarrollo Humano, "La Educación Para La Vida Familiar en Los Programas de Educación Formal en Países Seleccionados de América Latina y El Caribe," (UNESCO, Paris, 1996), p. 9.

² United Nations Department of Economic and Social Information and Policy Analysis, "Population Policies and Programmes," (United Nations, New York, 1993), p. 98.

³ Proyecto Interdisciplinario y de Cooperación Enteregencial de la UNESCO: Educación e Información sobre Medio Ambiente y Población para el Desarrollo Humano, "La Educación Para La Vida Familiar en Los Programas de Educación Formal en Países Seleccionados de América Latina y El Caribe," (UNESCO, Paris, 1996), p. 9.

⁴ Jairo Palacio, "Population Education: The Case of Latin America and The Caribbean," *International Review of Education*, vol. 39 (1-2): 108-113, 1993.

⁵ These countries are Bolivia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panamá, Paraguay, and The Dominican Republic.

⁶ M. F. Moyano, "La Educación en Población. Objeto, Métodos y Estrategias," (EAT-FNUAP/UNESCO, Santiago, 1994) p. 9.

⁷ *Ibid.*, p. 17.

⁸ "Política de Población," *Presencia* (El Salvador), vol. 1 (1988) pp. 152-66.

⁹ Joshua Lederberg, "Infection Emergent," *Journal of the American Medical Association*, vol. 275, no. 3 (17 January 1996).

¹⁰ Dennis A. Ahlburg, "Population Growth and Poverty," in Robert Cassen, ed., *Population and Development: Old Debate, New Conclusions* (New Brunswick, New Jersey: Transaction Publishers, 1994).

¹¹ Andrew P. Dobson, *Conservation and Biodiversity* (New York: Scientific American Press, 1996).

¹² United Nations, *Demographic Yearbook*, 1994.

¹³ Resumen de Resultados de Los Censos Nacionales V Censo De Poblacion y de Vivienda. Ministerio de Economía, Dirección General de Estadística y Censos Digesto, San Salvador, 1995.

¹⁴ Palacio, Jairo, Telephone interview Central American Director of the UNFPA, 1996.

¹⁵ Cochrane, Susan. 1988. Effects of Education and Urbanization on Fertility. Chapter 16 in Determinants of Fertility in Developing Countries Volume 2. Academic Press Inc.

¹⁶ Department for Economic and Social Information and Policy Analysis, *Women's Education & Fertility Behavior*, (Population Division, United Nations, 1995).

¹⁷ Department for Economic and Social Information and Policy Analysis, *Women's Education & Fertility Behavior*, (Population Division, United Nations, 1995).

¹⁸ Oppong, Christine. 1983. Women's Roles, Opportunity costs, and Fertility. Chapter 17 in Supply and Demand for Children.

¹⁹ Calculated from Demographic and Health Surveys, 1994 Comparative Studies 13: Socioeconomic Differentials in Fertility, Macro International Inc., Calverton, Maryland, p. 10.

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- ²⁰ Calculated from Demographic and Health Surveys, 1994 Comparative Studies 13: Socioeconomic Differentials in Fertility, Macro International Inc., Calverton, Maryland, p. 14.
- ²¹ Cain, Mead. 1984. Women's Status and Fertility in Developing Countries: Son Preference and Economic Security. World Bank Staff Working Papers, No. 682, p 47.
- ²² Bongaarts, John, "A Framework for Analyzing the Proximate Determinants of Fertility," p. 109.
- ²³ Bongaarts, John, "Population Policy Options in the Developing World," Science, Vol. 263 (February 11, 1994), p. 776.
- ²⁴ Cain, Mead. 1984. Women's Status and Fertility in Developing Countries: Son Preference and Economic Security. World Bank Staff Working Papers, No. 682, p 16.
- ²⁵ Bulatao, R. A. 1981. Values and Disvalues of Children in Successive Childbearing Decisions. Demography 18:1-25.
- ²⁶ Callan, V.J. 1980. The Value of Children to Australian, Greek and Italian Parents in Sydney. Paper No. 60-C. Honolulu: East-West Population Institute.
- ²⁷ Kee, P. K. 1980. Fertility Values of Children and Parents in Peninsular Malaysia: A Cross-cultural Study of Malays, Chinese, and Indians.
- ²⁸ Cain, Mead. 1984. Women's Status and Fertility in Developing Countries: Son Preference and Economic Security. World Bank Staff Working Papers, No. 682, p 17.
- ²⁹ Brackbill, Y., and Howell, E. M. 1974. Religious differences in family size preferences among American teenagers. Sociological Analysis 1:35-44.
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- ³¹ Cain, Mead. 1984. Women's Status and Fertility in Developing Countries: Son Preference and Economic Security. World Bank Staff Working Papers, No. 682, p 17.
- ³² Coale, Ansley J. 1973. The Demographic Transition Reconsidered. In International Population Conference, Liège, 1973, vol. 1, pp. 53-72. Liège: International Union for the Scientific Study of Population.
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- ³⁴ Bongaarts, John, Mauldin, Parker, and Phillips James 1990. "The Demographic Impact of Family Planning Programs," Studies in Family Planning, Vol. 21, 6: 306.
- ³⁵ Johansyah, Marliani. 1984. Population Awareness, Mobility Attitudes and Desired Family Size of High School Students at Banjarmasin: A Case Study in Indonesia. Dissertation at the Florida State University.
- ³⁶ Johansyah, p. 128.
- ³⁷ Brackbill, Y., and Howell, E. M. 1974. Religious differences in family size preferences among American teenagers. Sociological Analysis 1:35-44.
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- ³⁹ Johansyah.
- ⁴⁰ Gustavus, S. O. 1973. The Family Size Preferences of Young People: A Replication and Longitudinal follow up study. Studies in Family Planning, 4 No. 12: 335-342.
- ⁴¹ In developing countries, variables used to measure the quality of education have been found to be important determinants of student achievement. Student achievement is likely to affect students' aspirations regarding their future roles in society. (Mangindaan, C. S., Sembiring, L.D., and Livingstone, I.D. 1978. National assessment of the quality of Indonesian education. Jakarta, Indonesia: BP3k Department of Education and Culture.)
- ⁴² Johansyah.
- ⁴³ Department for Economic and Social Information and Policy Analysis - Population Division. 1995. Women's Education & Fertility Behavior. United Nations, New York. p. 8.
- ⁴⁴ Salvadoran teachers must obtain a docencia 1 level of training. Then teachers can go on to obtain docencia 2, which enables teachers to teach grades six through nine. Teachers hoping to teach at the secondary level must go on to obtain the highest level - docencia 3. This level also aids educators in acquiring administrative positions in the educational system.

As the average level of teachers' training increases, the first model in table 4A indicates that female students' aspirations actually decrease - the opposite effect of what might be expected. Placed in context however, this relationship is not contradictory. This relationship suggests that teachers who have obtained the first level of teacher training are sufficiently trained to teach primary school as the teacher-training curriculum aspires. The relationship also suggests that teachers in rural El Salvador who have obtained higher levels of

teacher training have done so because they desire to teach somewhere else than the rural primary school in which they are actually teaching. Due to an oversupply of teachers with advanced teaching degrees, many overqualified teachers work in rural primary schools that would prefer to be in more urban areas. Teachers who have achieved a docencia 2 or 3 level of education in order to teach in urban, higher level schools may not teach rural primary school with the same interest nor provide the same quality of teaching as do teachers who have trained and aspired to teach primary school. The results from this regression support this theory.

⁴⁵ Ministerio de Economía y Estadística, Datos Preliminares del Censo 1992, 1996.

⁴⁶ Early puberty occurs around age 8 in girls and age 9 ½ in boys. Late puberty occurs around age 13 in girls and age 13 ½ in boys. Steinberg, L. (1996). Adolescence. McGraw-Hill, Inc. New York.

⁴⁷ The difference between the proportions Catholic for males and females is significant at the ten-percent confidence level.

⁴⁸ For females, the covariance of self-esteem and gender equality themes is .89. For males, the covariance is .83.

⁴⁹ This was determined by comparing the log likelihood functions and the R²s for the various regressions.

⁵⁰ Without mother's education above 3rd grade and mother works for pay, self-esteem education remains significant at the 95% confidence level, and its coefficient decreases from -.0485 to -.0468.

⁵¹ The predicted values and probabilities presented for 'average' students were generated by using the average values for all variables included in the regressions.

⁵² Including whether the mother works for pay does not substantively change the magnitude or the significance of the effect of self-esteem education.

⁵³ The covariance for female students is .76. For males, the covariance is .87.

⁵⁴ The covariance for females is .90. For males, the covariance is .75.

⁵⁵ The predicted values and probabilities presented for 'average' students were generated by using the average values for all variables included in the regressions.

⁵⁶ This relationship was significant at the 90% confidence level.

⁵⁷ Calculated from Resumen de Resultados de Los Censos Nacionales: V Censo de Población y IV de Vivienda. Ministerio de Economía, Dirección General de Estadística y Censos Digestyc, San Salvador, 1995.

⁵⁸ For a concise discussion of these relationships, see The World Bank. 1995. Toward Gender Equality: The Role of Public Policy. Washington, D.C.