



CULTURAL ANTHROPOLOGY

Sample Proposal

Television and Declining Fertility in Brazil

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This project involves the dissertation research of an anthropology student from the University of Michigan. The study tries to explain variations in fertility levels in a developing country--Brazil--through the impact of variations in television exposure. Previous studies have suggested that the medium has a "contraceptive effect", separate from other changes linked to industrialization and urbanization, through the exposure of viewers to new ideas, values, and behaviors. The study will examine the hypothesis that the degree of television exposure affects lifetime fertility and will also focus on the link between TV viewing and attitudes about contraception, the perceived value of children, and notions of ideal family size. The methods include qualitative ethnographic information through participant-observation and intensive interviews, and quantitative data from a survey of 250-300 women in Areembepe, Bahia, as well as 50-80 women in a more rural community with less television availability. The data will be linked to a study on this subject in the region a decade ago.

This project is important because it will shed light on the role that television may play in lowering fertility levels in developing countries, and will elucidate the link between demographic shifts and the exposure to new ideas and information. Advances in our knowledge about the causes of family size are important for planners concerned about world population growth.

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PROJECT SUMMARY

Kottak / Dunn

Television and Declining Fertility in Brazil

Fertility levels in recently industrialized regions throughout the world have declined sharply in recent decades. Although many of the factors associated with fertility decline have been documented, the causal mechanisms underlying these associations are not well understood. Previous studies on the impact of television in Brazil have suggested that this medium may have a "contraceptive effect" separate from other changes linked with industrialization and urbanization. Since television can expose viewers to new ideas, values, and behaviors, the impact of television is believed to be strongest at the ideational level. This study will examine the hypothesis that the degree of television exposure affects lifetime fertility, and will also focus on the link between TV viewing and attitudes about contraception, the perceived value of children, and notions of ideal family size.

Bringing together the individual, social, and cultural levels involved in this demographic process, this research project will employ an anthropological approach to gain access to information about social change and the meanings associated with particular behaviors. Specifically, a microdemographic community-study approach will be used, allowing for the collection of both qualitative ethnographic information about values and perceptions, and quantitative data about individuals and households. To gain a broader regional perspective, and to examine the independent effect of television in several communities, a comparative approach using survey techniques will also be employed. Finally, a longitudinal component will be added to the study by linking these data to those collected in the same region a decade ago.

The results of this study will provide a rich combination of ethnographic and survey data, integrating the economic, social, and ideational facets of cultural and demographic change. Specifically, the data from various sites will help to clarify the connection between TV exposure on the one hand, and fertility levels, ideal family size, and contraceptive practices on the other. In so doing, it will shed light on the role that television may play in lowering fertility levels in other industrializing and urbanizing countries, and will elucidate the link between demographic shifts and exposure to new ideas and information.

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PROJECT DESCRIPTION

Television and Declining Fertility in Brazil

This is a proposal to study the effects of television exposure on fertility levels in northeastern Brazil. It has been prepared by Janet S. Dunn, co-P.I., who will conduct the research under the guidance of Conrad P. Kottak, chair of my doctoral dissertation committee. This proposal builds upon previous research on television in Brazil, and will tie into data previously collected at one of the proposed research sites (Arembepe). The final analysis will form the basis of my doctoral dissertation in Anthropology.

Fertility Decline

The present century has witnessed rapid population growth in most of the developing world --- most notably in Africa, Latin America, and Southern and Southeast Asia --- while in many industrialized nations fertility levels have dropped below replacement levels (Roush 1994). The relationship between declining worldwide fertility and economic development has been extensively investigated in recent decades. Lower fertility levels have been most consistently correlated with increases in educational levels (Cleland 1985, Cleland and Rodriguez 1988, Handwerker 1988, Singh and Casterline 1985, Smith 1989), and particularly with increases in the education of women (Lam, *et al.* 1993, LeVine *et al.* 1991, Silva, *et al.* 1990) and the attainment of higher levels of education by their children (Axinn 1993, Caldwell *et al.* 1985). Other associations between socioeconomic variables and declining fertility have also been noted throughout the world. Among these are higher income levels (Daly 1985, Mueller 1984), urban residence (Bogin 1988, Lee and Pol 1993, Singh and Casterline 1985, Yi and Vaupel 1989), and the availability of modern contraceptives (Alba and Potter 1986, Cleland 1985, Merrick and Berquo 1983). More ambiguous relationships have been noted between women's employment status and fertility decline (Standing 1983, United Nations 1985, Weller 1984), suggesting a link between increases in the status of women and declining fertility levels.

Although many of the factors correlated with fertility decline around the world have been documented, the underlying reasons for these associations remain ambiguous. Likewise, the impact of fertility decline in the lives of individuals has not been extensively investigated. Some researchers, in attempting to untangle the complex web of factors surrounding changes in fertility levels, have focused on economic variables, asserting that changes in modes of production (from a family mode of production to an industrial mode of production), together with increased educational investment in children and increased monetization of local economies, have shifted the cost/benefit balance of children. Because of this shift, the wealth generated over an individual lifespan no longer "flows" upward from children to parents (and grandparents), but rather flows downward from parents to their children, causing children to become a net economic loss to their parents under conditions of rapid economic development (Caldwell 1982). Further, women, who often are the primary caregivers of their young children, pay an additional "opportunity cost" by engaging in child care instead of wage labor (cf. Cleland 1985, Cleland and Wilson 1987, Lee and Bulatao 1983). Sensitive to the economic costs of adding more children to the family, parents thus limit their marital fertility.

Other researchers have focused less on the economics of fertility and more on the societal influences affecting fertility, noting the impact of value shifts on overall fertility. For example, Lesthaeghe and Surkyn (1988) point to changes in the values held by the parents of the "baby boom" generation, and suggest that by not transmitting the cultural ideals of older generations,

these parents may have initiated the value shift responsible for the "baby bust" of subsequent generations. In a similar vein, Rosero-Bixby and Casterline (1993) have focused on the cultural factors that affect fertility levels, suggesting that the norms set by the elite of society diffuse by imitation to other segments of the population. They see the spread of contraceptive use as a form of "contagion," where every new "case" of contraceptive use makes it more likely that contracepting behavior will be imitated by others throughout the area until community norms have shifted to accommodate fertility-limiting behavior (Rosero-Bixby and Casterline 1993). Caldwell (1982) and Nag (1980) have postulated that this imitation process occurs between societies as well, particularly among residents of less industrialized nations who look toward the urbanized and industrialized world for patterns of elite behavior. Caldwell suggests that because Western values are so readily emulated by members of many industrializing nations, the small nuclear families typical of Europe and North America are likely to be imitated in other locales (where this family pattern previously had not been the norm) through the adoption of overt fertility limiting practices. This fertility limiting effect of "Westernization" manifests itself through two main channels: mass education and mass media (Caldwell 1982).

Education is seen as a powerful force against high fertility, because of its economic and ideational consequences. On the economic side, educating children is costly, even where schools are "free," because parents must provide books, supplies, appropriate clothing, and frequently transportation, in order for their children to attend school. Schooling also removes children from participating in the traditional household economy, thereby making children a net cost for a longer period of their pre-adult lives, and encouraging parents to invest in fewer children. Once this investment has been made and the children reach adulthood, those with higher education --- and especially women with at least a primary school education --- often have fewer children, in part because of the cost of educating children, and in part because of the opportunity cost of raising children as opposed to engaging in wage labor. In addition to the economic effects of education, Caldwell also notes that education often imparts Euro/American ideals to young pupils since schools in many industrializing nations closely follow the Euro/North American model of education in which high esteem is given to values such as the nuclear family, the accumulation of material goods, and the valorization of the individual over the family (Caldwell 1982).

Mass media (especially television) can have similar influences, through the transmission of programs and information promoting the values of the industrialized and urbanized world (Caldwell 1982). In addition, because television programs and the values they encompass are transmitted directly into the home, television, unlike education, has the potential of directly affecting every member of the household. Also unlike education, television viewing does not involve the expenditure of substantial sums of money. Aside from the initial expense of purchasing a television set, there is little cost involved in watching TV. Further, neither the costs of running televisions nor the time spent viewing TV programs seem to be consciously calculated in economic terms by television viewers. Thus by possessing the ability to influence ideology without introducing significant economic costs, the effect of television viewing deserves consideration in investigations of social change, particularly in investigations of fertility decline in industrializing countries.

Several researchers have suggested a direct (though complex) link between mass media and ideational change at the community level. Lee and Bulatao (1983) suggest that material

aspirations, which are not easily satisfied, may nonetheless be aroused by the influence of the mass media in less industrialized nations. Cleland adds that the growth of communication media, together with economic development "bring new opportunities, goods, and services, which may affect tastes and aspirations more rapidly" (Cleland 1985: 226). This increased appetite for consumer goods, along with the effect of increased opportunities brought about by the educational system, may lead parents to invest in fewer (but higher "quality") children (Cleland 1985). In a similar vein, Singh and Casterline (1985: 218) note that:

Knodel and colleagues suggest that an intensive family planning programme in rural areas, accompanied and facilitated by the rapid expansion of communication and transportation networks, have together helped to bring about fairly uniform changes in tastes, attitudes, and aspirations affecting fertility control.

Although the work of Knodell and his associates (quoted in Cleland 1985) suggests that the impact of family planning messages can be enhanced by mass media, Lightbourne (1985) suggests that mass media itself, in conjunction with other structural and political changes, challenges "traditional" social systems and creates openings for new patterns of behavior. Finally, O'Reilly (1986), commenting on changing fertility desires in Dublin, alludes to the power of television to influence contraceptive use. He concludes that the wide distribution of television, with programming imported from the United States and the United Kingdom, has helped to instill an ethic of controlled fertility (through contraceptive use) in Irish women. In this sense, television, like the behavior of the elite, can serve as a "contagion," introducing viewers to new behaviors and values, including the concept and practice of birth control.

Though the role of television in bringing about demographic change has been suggested by various In numerous settings, empirical evidence for the "contraceptive effect" (Kottak 1990b) of television --- either by itself or in conjunction with other effects of industrialization and urbanization --- is scarce. One place where the fertility-limiting effects of television can be fruitfully studied is Brazil. Four factors combine to make Brazil the ideal location for investigating the impact of television on fertility: 1) Brazil has recently undergone dramatic declines in fertility levels, 2) the spread of television in Brazil has been extensive, yet recent enough to enable comparisons of communities with varying degrees of TV exposure, 3) most Brazilian programming is produced in Brazil, thereby minimizing the direct effect of foreign influence through television, and 4) the Brazilian government, which has long held a pro-natalist stance, has not used television to promote family planning. Thus the influence of television itself, with its Brazilian-produced programming and its neutral stance on family planning, can be investigated in relation to the dramatic demographic change occurring in the country.

Brazilian Fertility and Television

An enormous country in both population and geographic size, Brazil has in the past several decades undergone rapid changes in fertility patterns. From 1960 to 1984 Brazil's total fertility rate dropped from 6.28 to 3.53 births per woman (Silva, *et al.* 1990). Although this decrease has not occurred evenly throughout Brazil, the fertility rates in all regions of Brazil have been declining consistently since at least 1960 (IBGE 1990, Silva, *et al.* 1990). In the northeastern portion of the country, the region of earliest European settlement and perhaps the most rural area of the nation, fertility declines have been equally dramatic, dropping from a rate of 7.50 in

1950 to 4.96 in 1984 (Silva, *et al.* 1990). By 1991 this rate had fallen to 3.7, with the rate in urban areas dropping to 2.8, while that of rural areas remained at 5.2 (BEMFAM 1992). Much of the decrease in fertility levels in this region of Brazil can be attributed to knowledge and availability of modern contraceptive technology (BEMFAM 1992). Significantly, the rapid fertility decline in Brazil has occurred despite wide fluctuations in the economic health of the country, an economy that has witnessed extremes such as the "Economic Miracle" of the early 1970s, and the hyper-inflation of the 1980s (Lam *et al.* 1993). However, the declining fertility rate has closely paralleled the introduction and expansion of television in time and space (Faria and Potter 1994).

Since it first became available in Brazil in 1950, television has spread continuously to all regions of the country (Kottak 1990b), so that by 1994 it was estimated that 78% of urban households and 38% of rural households owned televisions sets (Faria and Potter 1994). Although the spread of television is not complete, the current Brazilian viewers represent the fourth largest TV audience in the world (Faria and Potter 1994). The success of Brazilian television is largely a function of the enormous success of the serial *telenovelas*, which not only are written, filmed, and produced in Brazil, but also focus on such typical Brazilian themes as family relationships, the urban lifestyle, social status, and upward mobility (Kottak 1990a, b). Part of this success is also undoubtedly due to the orality of Brazilian culture, which, unlike North American and European cultures, does not have a tradition of popular literacy. (For example, until the early nineteenth century there were no printing presses in Brazil [Kottak 1990a].) Without a strong tradition of reading for information or for pleasure, the introduction of TV in Brazil has not been perceived generally as a threat to the literary practices of the population. Further, because Brazilian television programs contain, by design, considerably less violence than television programs in the U.S., TV in Brazil has also not been generally perceived as having a negative influence on children or society (Kottak 1990a). For these reasons, television viewing in Brazil does not carry many of the negative connotations frequently associated with TV viewing in the U.S. While in American popular culture television is often perceived as a "low-brow" form of entertainment, beneath the dignity of highly educated individuals or the social elite, in Brazil television viewing levels do not decrease with increased income or educational level (as it does in the U.S.). Rather, television in Brazil remains a medium in which all social, economic, and educational classes participate (Kottak 1990a).

Remarkably, much of the television viewing in Brazil centers around the largest and enormously successful network *Rede Globo* (Globe Network), which routinely attracts audiences of 60-80 million viewers with its own nightly news and *telenovela* productions (Kottak 1990b). Although these *novelas* have been likened to American soap operas, there are some important differences that affect viewership and audience participation. First, and most importantly, Brazilian *novelas* are aired in the evening, during the prime viewing hours. Thus they can be (and are) seen by most of the viewing public, with the typical audience consisting of male and female viewers of all ages. In fact, it is not uncommon for entire families to watch at least one of the three nightly *novelas* that bracket the evening news broadcast. Second, unlike American soap operas, Brazilian *novelas* have scripted endings. They are not intended to run indefinitely, but instead are designed to have 150- 180 chapters which are shown six nights a week for 5-7 months (Kottak 1990a, b). To maintain audience interest in these programs, particularly during the first several segments of a new *novela*, the beginning and ending dates of these novelas are staggered among the three evening *telenovelas* (Kottak 1990a). In addition, since the evening news is aired during prime time (between the two most highly-watched time slots) there is undoubtedly some spillover in viewership from the news to the *novelas* and vice versa.

Finally, although contraceptives are advertised on Brazilian television, neither the Brazilian government nor the television networks have attempted to use television to convey to the mostly Catholic audiences overt messages about family planning or fertility regulation (Faria and Potter 1994, Kottak 1990b). Likewise, individual viewers seem not to associate particular fertility-limiting messages with television viewing, *per se*. Yet throughout Brazil fertility is rapidly declining as a result of individual choices regarding family size and contraceptive use.

Previous Television Studies in Brazil

Although the effects of television have been widely studied in the United States and Europe, the role of television in fostering social change in less industrialized countries has not been extensively investigated. One large and systematic study aimed at understanding the effects of Brazilian television on national, regional, and community life was conducted by Kottak and others in the mid 1980s. Examining six sites selected from various regions across the country, this study found that viewers who had been exposed to television for long periods of time were more likely to hold liberal attitudes than were those who had had relatively little lifetime exposure to television. Likewise, current heavy viewers were also more likely than light viewers to hold liberal social attitudes (Kottak 1990a, b). Although the study was not designed to investigate the fertility-limiting effects of television, Kottak (1990b) later found that a negative correlation existed between the number of years of television exposure in the home and the number of pregnancies experienced by the female respondents. He found that among age-matched samples of Brazilian women, the number of years of home exposure provided a variable only slightly less powerful in predicting the reproductive histories of women than the factors "education" and "skin color." This same predictive effect was observed within individual communities and within the sample as a whole. Further, both years of exposure to TV and the current average daily hours of TV viewed were better predictors of reproductive histories than were religiosity, household income, and local social class. Kottak (1990b) suggests that the content of the *novelas* themselves may affect fertility desires in Brazil. Since most of the story lines in Brazilian *novelas* center around small middle-class or upper-class urban families, and since television production costs preclude the use of large numbers of children in these long-running series, most of the families shown on Brazilian *novelas* have fewer than three children per family, well below the average number of children in most poorer households (Kottak 1990b). Further, the nightly *novelas* continually expose viewers to middle-class and upper-class lifestyles --- lifestyles seemingly attainable through fertility limitation.

More recently Faria and Potter (1994) have suggested that the rapid expansion of television into the arid northeastern region of the country --- and particularly into the rural sectors of the region --- has had a strong influence on family planning practices in an area where high fertility has traditionally been the norm. They note that the dramatic fertility declines which took place in parts of that region in the last two decades coincides precisely with the increased viewership in that same region. Using data from two Brazilian surveys on family health and family planning done in 1980 and 1991, Faria and Potter (1994) illustrate the dramatic decrease --- among women in every age bracket --- in the desire for additional children, a decrease which corresponds temporally to the rapid increase in television ownership and TV viewing. They note (Faria and Potter 1994) that in the four northeastern states included in these surveys the percentages of households owning television sets jumped from a low of 37% (in the state of Bahia) to a high of

73% (in the state of Par alba), while the percentages of individuals surveyed who reported watching TV in the same four states increased from a range of 40-63% in 1980 to a range of 70-83% in 1991. Faria and Potter (1994) also suggest that television programming --- particularly the *telenovelas* with their portrayal of small nuclear families --- are largely responsible for the decrease in fertility in areas in Brazil which have recently been exposed to television. In spite of the possible impact of television programming on fertility levels, both Kottak (1990b) and Faria and Potter (1994) note that the "contraceptive effect" of television in Brazil has been an unplanned effect.

Research Site and Preliminary Research

In the summer of 1992, in order to gain a better understanding of both the cultural context of fertility decline in northeastern Brazil and the connection between television exposure and fertility decline, I conducted a small pilot study in Aremb epe, Bahia, a coastal town of approximately 4000 year-round residents located near the city of Salvador (Bahia). The purpose of this study was to examine the impact of TV viewing on attitudes about reproduction, fertility, and completed family size, and to discern the means by which individual women achieved lower fertility. Since recent ethnographic research (Kottak, personal communication) had revealed that a significant proportion of women in this community were choosing to undergo surgical sterilization (an apparently common event in some areas of northeastern Brazil), this community provided a rich opportunity for studying the ways in which particular forms of contraceptives are adopted in areas previously marked by high fertility levels. It also was an ideal site in which to study the short-term effects of Brazilian television on local fertility levels, since the community had been electrified only in the late 1970s, and had only had extensive television exposure for about fifteen years (Kottak 1992).

For this study I prepared a lengthy interview schedule (see Appendix A) which I administered in Portuguese to nearly thirty residents of this community whose evolution from small fishing village to lower middle-class tourist town has been chronicled by Kottak (1992). Using these interview schedules I obtained information about each respondent's age, living arrangements, social status, income level, educational level, years of exposure to in-home TV, and television viewing habits. I also gathered data on the respondents' attitudes about life in their own community (versus that in urban centers), and perceptions of their children's lifetime educational prospects. In addition, I used open-ended questions to collect information on the perceived effects of television, radio, print media, tourism, education, the local factory, improved transportation, and the local health clinic on themselves, their families, and their community. I also elicited information about household discussions surrounding *telenovelas*, news programs, and television advertising. Finally, I obtained detailed information about individual reproductive histories, knowledge of and patterns of contraceptive use, and perceptions of ideal family sizes.

The results of this small pilot study illustrated the importance of television viewing in this highly monetized community, and the relative _importance of radio and print media in the everyday lives of Aremb epiros. For example, books, newspapers, and magazines were not commonly indulged in by the people of Aremb epe. Likewise, few people reported listening to the radio on a regular basis, while everyone interviewed reported watching at least a few hours of television per day. The results also suggested that television news and informational programs (many of which provide information about health issues and contraceptive technology) may be important in

shaping attitudes about desired fertility. For example, when questioned about their preferences for small families, few respondents failed to mention the difficulty and economic hardship involved in raising a large family. Most also alluded to the poor state of the Brazilian economy, and some expressed fear about the increasing level of violence in society, reflecting common themes on Brazilian newscasts. Although fear of economic hardship may be lessening under the new Brazilian administration (Kottak, personal communication), the role of news and information programs in shaping attitudes about ideal family size needs further attention.

This pilot study also clearly indicated the preponderance of the desire for small families. Even among those who had borne and raised many children, the stated ideal family size seldom exceeded two children, illustrating the dramatic change in values that has taken place in Arembépe since the time when these older women conceived and gave birth to their children. In most cases, and especially among the younger women, this desired family size was achieved through the use of modern contraceptives, including surgical sterilization. Because of the rapidity with which this change has occurred, the impact of small completed family size on the functioning of the household and on the lives of individual mothers begs additional research.

Because of the small sample size involved, this pilot study can only be suggestive of television's role in shaping attitudes and behavior relative to fertility limitation in northeastern Brazil. To further uncover the complex relationship between exposure to television, social change, and declining fertility, I propose conducting an in-depth study of the effect of television exposure on the attitudes and behaviors relating to fertility control in Arembépe, coupled with a comparison of other communities in northeastern Brazil with less extensive exposure to television and its messages.

Project Objectives and Hypotheses

The proposed project has two major components, one a micro-demographic study focusing on quantifiable measures of fertility decline relative to lifetime television exposure, and the other more purely ethnographic, focusing on individual experiences of fertility regulation, and on the impact of rapid fertility decline on women, their families, and the community. These two portions of the proposed research are mutually complementary, with each segment enhancing the quality and significance of the data obtained in the other portion.

Although it appears that exposure to television as well as individual TV viewing habits influence family size, the exact mechanisms of this effect are unknown. As noted above, both Kottak (1990b) and Faria and Potter (1994) have suggested that the Brazilian-produced *novelas*, which portray small families and offer a glimpse into the world of the elite, influence perceptions of ideal family size and the value of small families. However, it is also possible that television may be most influential through its news and information programs, which provide daily reminders about the state of the Brazilian economy, as well as information about health, nutrition, contraception, and the surrounding world. Further, the effect of television undoubtedly is related to other social changes, such as local and regional development, increased educational opportunities, increased monetization of the economy, and greater access to urban areas and urban ideology.

Following upon the preliminary work of Kottak (1990b) and Faria and Potter (1994), it is hypothesized that fertility levels decrease both with years of exposure to television in the home,

and with the average number of hours (per day or per week) spent viewing television. In addition, I also hypothesize that exposure to television in the home at earlier ages will lead to lower overall fertility than would exposure at later ages. Further, the effect of *telenovelas* on fertility may be different than the effect of news and information programs, particularly in areas well integrated into the regional and national economies. Television news and information may be providing rational reasons and incentives for limiting fertility, while *telenovelas* may be functioning as the "contagion" (Rosero-Bixby and Casterline 1993) which over time changes the community's norms relative to family size and fertility limitation. Finally, although access to television in a community is usually accompanied by access to other "modernization" variables, television, unlike many other variables, is hypothesized to operate principally at the ideational level, changing values and shifting community norms about ideal family sizes, the value of children, and the desirability of contraception. As such, exposure to television is thought to have a measurable effect on fertility, an effect which is linked to, but analytically independent of, other social changes. Thus in comparably sized communities with similar access to schools, roads, and health services, but with differential access to electric power and thus to in-home television, it is expected that the desire for small families and the use of contraceptives will be more prevalent in television-saturated communities than in communities with little or no in-home TV exposure.

To test these hypotheses I propose to conduct an intensive community study in Areembepe, Bahia, Brazil, surveying the behaviors and attitudes of women in a region currently undergoing rapid demographic and technological change. To gain a longitudinal perspective on this topic, these data will be linked to data collected in the same community ten years ago by Kottak and others as part of a country-wide study of the effects of television on Brazilian culture (Kottak 1990a). Finally, smaller comparative studies in two other communities in northeastern Brazil with varying degrees of TV exposure will be conducted to obtain information about the effect of television relative to other "modernization" variables.

Methodology

Because the effects of television are complex and operate alongside other effects of industrialization and urbanization, this project will utilize multiple and complementary methodologies to examine both the influence of television on family size limitation in Brazil, and the impact of rapid fertility decline on the individual, social, and cultural levels of this demographic process. Using a microdemographic community-study approach (Axinn, *et al.* 1991, Caldwell, *et al.* 1987, Fricke and Thornton 1994), qualitative ethnographic information about values, perceptions, and women's individual experiences will be gathered following the systematic collection of quantitative data on individuals and households. Throughout the ethnographic research, special emphasis will be placed on obtaining information about the local perception of recent changes in the social structure, and the meanings associated with fertility-limiting behaviors.

The qualitative ethnographic aspects of this research will be embedded within a larger regional study comparing the fertility-limiting impact of television exposure in three communities in northeastern Brazil. By focusing on the effect of television on fertility levels while simultaneously examining the impact and meaning of rapid fertility decline in this region, this project will bring together under one research plan an investigation of television's potential "contraceptive effect,"

and an exploration of the consequences of radical changes in completed family size.

Television and Fertility Using a questionnaire format, and building upon my own observations and on previous ethnographic research conducted over the last thirty years in Arembepe, Bahia (Kottak 1990a, 1992), I will gather quantitative information from 250-300 representative women in Arembepe (ranging in age from 15 to 60) on such variables as age, length of television exposure, degree of exposure to other media (print and radio), age-specific fertility, contraceptive experience, religiosity, education, income, and social class. In addition, I will elicit information from each respondent about the desire for small families, consumer goods, and urban lifestyles. I will obtain information about individual TV viewing patterns, documenting the current number of hours spent viewing *novelas*, news programs, and other types of broadcasts. Finally, I will gather data from each individual on the perceived impact of television and other media on everyday life. The use of a large sample from a single community (obtained with the assistance of a local research assistant) will permit me to analyze the data according to specific TV viewing habits, allowing an evaluation of the effect on fertility of viewing particular types of programs. This procedure will also allow the data to be analyzed for each of nine five-year age groups, thus permitting an evaluation, by cohort, of the effect of lifetime TV exposure on total fertility and desired fertility.

Although the focus on women alone risks missing valuable data obtainable from men, this approach is justified on four counts. First, by interviewing only one member of each couple, twice as many households can be sampled than if both partners were interviewed. Second, by interviewing only women one can eliminate gender effects while still retaining a fairly large sample size. Third, as Mason and Taj (1987) have pointed out, on average women's and men's responses to questions about desired family size are very close to one another. Finally, most modern contraceptive methods (e.g. the pill, IUD, diaphragm, hormonal injection, and surgical sterilization) require active choice and participation by women, while requiring (with the exception of the condom) little or no participation by men. Women, then, are likely to be major recipients of fertility limiting messages, whether obtained through television or from other avenues.

Since changes in attitudes and behavior are best evaluated longitudinally, this study will also incorporate the individual- and household-level data (including age, education, social class, television exposure, and number of children born) collected in Arembepe in 1984-85 as part of Kottak's Brazilian television study. Thus, all of the 87 women interviewed in Kottak's study who are still alive and living in Arembepe will be re-interviewed for the current project. The use of these data, gathered a decade ago when TV was still fairly new in Arembepe, will provide a check of the retrospective data to be collected in Arembepe in 1996-97, and will allow recent changes in fertility levels and television viewing habits to be documented.

Because the effects of television in Arembepe may also be confounded by the effects of other "modernization" variables present in the community --- namely a school, a health clinic and commercial pharmacy, a paved road allowing regular bus traffic to the capital, a thriving lower middleclass tourist trade, and industrial jobs in Arembepe and in nearby Cama,car~ --- a comparative approach will be used to assess the independent effects of television in the formation of attitudes about contraception and ideal family size. Several non-electrified communities in the rural interior of northeastern Brazil have recently been identified (Kottak, personal communication) as containing only limited television exposure, while simultaneously

having access to modern schools, roads, and health services. With the help of two local research assistants, and using the same structured interview format as in Arembepe, quantitative data will be collected from 50-80 women in an interior community where in-home television is uncommon. Finally, in order to obtain information about the impact of television on family planning attitudes shortly after its widespread introduction into a community, an "intermediate," recently electrified community ---with comparable access to roads, health services, and schools as in the above communities, but with recent and extensive penetration of television in the home --- will also be investigated with the same techniques as in the television-poor area. Here it is expected that both the impact of television and the variability in attitudes will be intermediate between those found in Arembepe and those of the community lacking extensive television access.

The use of comparative sites will allow the data to be analyzed both within and between sites, and will permit television's "contraceptive effect" to be assessed after controlling for other "development" variables. The data collected from the three sites will be analyzed by multivariate analysis to examine not only the correlation between fertility and TV exposure, but also the correlation between fertility and other factors such as education, access to other media, availability of social services and access to urban centers. Further, because age-specific fertility data will be collected, event history analysis (Allison 1984) will be employed to explore the effects of television on individuals of all ages, including those who may not yet have completed their lifetime fertility.

Meaning and Consequences of Fertility Decline

Although quantitative data provide objective measures amenable to statistical analysis, the exclusive reliance on such data can lead to interpretations that do not fully reflect the ethnographic reality. To avoid this problem, the proposed research will include a qualitative component designed to illustrate the effect of social and demographic change in this region of Brazil. Toward this end, in-depth, tape-recorded interviews will be used to elicit information from a subset (approximately 10% to) of the sample from each community.

In these interviews I will explore the perceived effect of factors such as industrialization, urbanization, education, improved transportation, and access to medical and social services on the lives of women, their families, and the community in general. I will also obtain information about the perceived benefits and costs of having children, and the material and social goals these women have for themselves and for their children. In addition, I will investigate how Brazilian women in these communities learn about, obtain, and use --- throughout their individual life courses --- the range of contraceptive methods available to them. I will also assess the particular reasons offered by women for limiting fertility in this region, and will examine the manner in which women and their partners arrive at decisions about ideal family size and the need for fertility regulation. Since Brazil is an overwhelmingly Catholic country, I will also elicit information from individual informants about the ways in which their choices regarding fertility regulation and contraceptive use are reconciled with the views of the Church. These interviews will also focus on the ensemble of meanings associated with reproduction, fertility control, parenthood, childlessness, and the role of children in the family. They will explore possible changes in the functioning of the household as a result of smaller completed family size, and will examine the impact of these changes on the roles of women in the family and in the larger community.

These in-depth interviews, which will be supplemented by my own ethnographic observations of family and community life, will provide valuable insight into the meanings associated with rapid social and demographic change in northeastern Brazil. They will also illustrate the reasons why women of this region are choosing to maintain lower fertility levels than they have in the past. Thus these data will enrich and elucidate the analytical results obtained from the survey portion of this project, providing context and substance for the quantitative data.

Sampling Feasibility The sample size proposed for this project is both reasonable and manageable. Assuming that I will be able to complete an average of ten "quantitative" questionnaires and one-to-two in-depth interviews per week (for my 1992 pilot study I conducted an average of three in-depth interviews per day, with as many as five interviews conducted in a single day), I will then be able to complete 330 questionnaires and 33-66 in-depth interviews in the 33 weeks of research at the field sites. Assuming that each of the three local research assistants can complete an average of eight questionnaires per week for the nine weeks (two months) each is employed, a total of 216 questionnaires could be completed by the research assistants, bringing the potential numbers of questionnaires completed for the project to 546 (plus 33-66 in-depth interviews). Allowing for mishaps, training time, and time spent in other activities, the target of 350-460 "quantitative" interviews and 35-46 in-depth interviews can reasonably be accomplished in the proposed time frame.

Preparation for Research

In addition to being fluent in Portuguese and being familiar with two regions of Brazil, I am well qualified to conduct this research by having had broad-based training in anthropological method and theory, and by possessing a strong background in analytical techniques. As part of my preparation for a Ph.D. in BioCultural Anthropology, I have participated in courses in Brazilian ethnography, demographic anthropology, family and kinship studies, reproductive endocrinology, and statistical analysis, including a summer workshop in Event History Analysis at the University of Michigan's Institute for Social Research. Both in my coursework and for my Master's thesis I have handled complex data sets, and have analyzed data using a variety of statistical packages.

My background in Brazilian studies commenced informally and at an early age while living for eight years with my family in southern Brazil, and continued throughout my childhood as I attended Brazilian schools and participated fully in the life of Brazilian children. My fluency in spoken and written Portuguese was obtained by learning Portuguese at a very early age, and by learning to read and write in Portuguese before learning to do so in English. For these reasons, I have retained a fluency in Portuguese despite a long absence from Brazil. More recently, I have expanded upon my early experiences by reading widely in the area of Brazilian history and culture.

Besides having obtained academic training in the theory and practice of anthropology, my previous work experience has prepared me well for ethnographic research. As an investigator with the U.S. Food and Drug Administration, I routinely interviewed hundreds of individuals --- both cooperative and otherwise --- in a variety of settings. In the course of conducting numerous inspections I observed and recorded oral, written, and physical evidence, documenting each as needed with detailed photographs and extensive written reports.

The skills obtained as an FDA investigator proved invaluable in the 1992 pilot research I conducted in Arembepe, Bahia. With funds obtained from the Department of Anthropology and the Graduate School of the University of Michigan, I completed a small ethnographic study of the impact of television on fertility in this community in northeastern Brazil. Using an extensive interview schedule of my own design, I interviewed in Portuguese nearly thirty individuals while observing day-to-day events as they unfolded in the community and within individual households. Upon completion of this fieldwork I organized and supervised the work of an upper-level undergraduate student who assisted me with the coding and preliminary analysis of the data.

Both in my capacity as a graduate student and in my present professional position, I have trained and supervised numerous individuals with a variety of backgrounds. This experience will facilitate the training and supervision of local Brazilian field assistants (who will assist with data collection) and the overseeing of undergraduate research assistants (who will assist with the coding of the final data and its entry into a database).

Having completed all of my formal course work, and having recently taken my Preliminary Exams, I will become a Ph.D. candidate by the Fall of 1995. In the Summer and Fall of 1995, working closely with members of my dissertation committee who in their own work combine the use of survey and ethnographic methods, I will prepare the questionnaires (for quantitative data) and the interview schedules (for in-depth qualitative interviews) to be used in the field, expanding upon the interview schedule used in the 1992 pilot study (see Appendix A). I will also request a research visa for ethnographic work in Brazil, and will establish a research affiliation with the Universidade Federal da Bahia in Salvador, Bahia, through Professor Carlos Caroso, whose own research focuses on Bahian culture and who has expressed interest in this research project.

A Human Subjects Review Application, to be submitted to the University of Michigan is in preparation. Because the subject of this research is not perceived by the Brazilian informants as sensitive or intrusive, little difficulty is expected in obtaining institutional approval for this project. The only potentially sensitive portion of this research is the single question dealing with abortions/ miscarriages, since induced abortions are still illegal in Brazil. However, since the Portuguese term *aborto* refers both to natural and induced abortions, informants are free to use the all-encompassing term to refer to either (or both) type of fetal loss. To protect the identities of those who choose to discuss their induced abortions, a tear-off coversheet with identifying information will be used; I will retain these data sheets in my possession. All subsequent individual data collected will be identified only with the informant's initials and questionnaire number.

Because of my pre-established contacts in Arembepe, Bahia, I anticipate being able to begin fieldwork immediately upon my arrival at the field site. Half to two-thirds of the time in the field will be spent conducting ethnographic and survey work in Arembepe, while the remaining time will be spent in two interior communities collecting comparative data. Following the fieldwork, and with the help of student assistants at the University of Michigan, I will code and enter into a database all of the questionnaire data obtained in the field, and will transcribe the tapes of opened interviews. Together with my own ethnographic observations, these analytical results will form the basis of my dissertation, which I anticipate defending late in 1997.

Significance of Research

This study of the effects of television on fertility will provide valuable data concerning the relationship between television and fertility decline in northeastern Brazil. Because of the unifying nature of Brazilian culture, and because of the influence of television itself in creating nationwide shared experiences (Kottak 1990a), the results of this study may be usefully extrapolated to other regions of the country.

The results of this in-depth study will provide a rich combination of ethnographic and survey data, integrating the economic, social, and ideational facets of cultural and demographic change. Specifically, the data will help to clarify the connection between television exposure on the one hand, and fertility levels, concepts of ideal family size, and contraceptive practices on the other. The use of parallel methods in several communities will permit inter- and intra-community comparisons, providing insight into the process of fertility change and the means by which values and ideals are modified within a single culture. Additionally, the longitudinal component will add historical depth to the results obtained in the principal research site.

Since television exposure is quickly becoming a worldwide phenomenon, the proposed project will shed light on the role that television (though the transmission of new values, ideas, and information) may play in lowering fertility levels in industrializing and urbanizing areas throughout the world. It will also reveal the attitudes associated with fertility decline, and will illustrate the impact of fertility limitation on individual women, their families, and the larger community. Weaving together the role of ideational change with the individually experienced meanings and impacts of fertility decline, this project will simultaneously consider the individual, social, and cultural levels of analysis necessary for a clear understanding of this dramatic demographic change.

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SCHEDULE

The proposed schedule is for approximately nine (9) months of field research over a fourteen (14) month period, with a break early in the field season to consult with my dissertation advisor about the progress and direction of the research. Following the field research, approximately four (4) months will be spent processing data before engaging in the final data analysis and reporting of results.

Mar 1 - 2, 1996 Depart Livonia, Michigan, U.S.A.; arrive Salvador, Bahia, Brazil.

Mar 4 - 6, 1996 Consult with Professor Carlos Caroso and other anthropologists at the Universidade Federal da Bahia.

Mar 7 - Jul 2, 1996 Ethnographic research in Areembepe, Bahia. Visit comparison sites, and establish contacts there. Arrange for local research assistants.

Jul 3 - 5, 1996 Travel to Rio de Janeiro and consult with officials at BEMFAM

(Sociedade Civil Bem-Estar Familiar no Brasil) about regional

demographic and contraceptive-use trends.

Jul 6 - Aug 22, 1996 Travel to Livonia, Michigan; consult with advisor at the University of Michigan, and begin processing data.

Aug 22 - 24, 1996 Travel to Arembepe, Bahia.

The Effects Of Infertility On Status And Access To Resources Among Wamakonde Women Of Tanzania

Aug 25 - Dec 20, 1996 With local research assistants, continue ethnographic research in Arembepe and conduct ethnographic research in comparison sites.

Dec 20 - 21, 1996 Return to Livonia, Michigan.

Dec 22, 1996 With help of research assistants at the University of Michigan,

- April 30, 1997 code and enter field data, and transcribe tapes of open-ended interviews.

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