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**FERTILITY-INHIBITING STRATEGIES OF SOCIECONOMIC AND
CULTURAL GROUPS IN TURKEY**

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SUMMARY

The fertility of Turkey has been declining seriously since 1950s. During this process the level of total period fertility, declined from the numbers with 6 or 7 to the numbers with 2. However, fertility decline was not uniform throughout the country. The onset and pace of fertility decline has been different among various socio-economic and cultural groups. The subject of this study is to investigate current fertility levels of those socio-economic and cultural groups and their strategies to decline their fertility to those levels.

Socio-economic and cultural groups being used in the study are determined considering debates in theoretical literature on fertility decline. At the end of the literature survey a structure-culture dichotomy were observed, hence variables are collected under these two topic.

While determining the strategies of socio-economic and cultural groups to decline their fertility, "Proximate Determinants Model" of John Bongaarts was employed. The model explains the difference between maximum, potential level of fertility and observed, actual level of fertility with four proximate determinants, namely contraceptive use, marriage, induced abortion, postpartum infecundability.

At the end of the study socio-economic and cultural groups are categorized into three main groups according to their total fertility rates. First category includes groups that reduced their fertility below replacement level (2,1). Groups having total fertility rates between 2,1 and 3 are collected in the second category and the third category includes groups having total fertility rates higher than 3. The effect of proximate determinants, such marriage, contraceptive use, induced abortion and postpartum infecundability, on fertility decline of these groups are examined at the end of the study.

ÖZET

Türkiye'nin yüksek toplam doğurganlık hızı, geçmişteki beklentilerin çok ötesinde bir hızla, düşerek, altılı-yedili rakamlardan ikili rakamlara inmiştir. Doğurganlık seviyesindeki bu azalış toplumun tüm kesimlerinde aynı düzeyde gerçekleşmemiştir. Bu çalışmanın temel amacı, doğurganlıktaki bu hızlı düşüş sonrasında gelinen noktaya, mevcut duruma bakarak hangi sosyo-ekonomik ve kültürel grupların doğurganlıklarını hangi düzeye kadar düşürdüklerini ve bu grupların doğurganlıklarını düşürürken hangi stratejileri izlediklerini belirlemektir.

Çalışmada kullanılan sosyo-ekonomik ve kültürel gruplar belirlenirken, literatürdeki tartışmalar gözönünde tutularak kuramsal bir çerçeveden yola çıkılmıştır. Literatür taraması sonucunda tartışmalara bir 'yapı' ve 'kültür' ikileminin hakim olduğu tespitiyle değişkenler iki başlık altında toplanmıştır.

Sosyo-ekonomik ve kültürel grupların doğurganlıklarını düşürmek için takip ettikleri stratejiler belirlenirken Bongaarts'ın "Ara Değişkenler Modeli" kullanılmıştır. Ara değişkenler modeli esas olarak doğurganlığın maksimum seviyesinden, yani toplam doğurabilirlik hızından, gözlemlenen-gerçekleşen seviyesine, yani toplam doğurganlık hızına inmesinde, ara değişkenlerin katkısını ve etkisini ölçmeyi amaçlamaktadır. Model bu iki düzey arasındaki farkı evlenme, kontraseptif kullanımı, istemli düşük ve emzirme gibi ara değişkenlerle açıklamaktadır.

Çalışmanın sonunda sosyo-ekonomik ve kültürel gruplar, toplam doğurganlık hızlarına göre, 3 kategoriye ayrılarak incelenmiştir. Birinci kategoride doğurganlıklarını yenilenme düzeyinin (2,1) altına çeken gruplar, ikinci kategoride toplam doğurganlık hızları 2,1 ile 3 arasında olan gruplar ve üçüncü kategoride toplam doğurganlık hızları 3'ün üzerinde olan gruplar ele alınmıştır. Bu kategorilerde yer alan grupların doğurganlıklarını 1998 deki düzeye indirirken, evlenme, kontraseptif kullanımı, istemli düşük, ve emzirme gibi ara değişkenleri ne oranda kullandıkları değerlendirilmiştir.

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CHAPTER I. INTRODUCTION

Starting from 1950s, the Turkish Republic experienced a serious fertility decline, miscarrying estimations of all population projections and exceeding expectations. Until the 1970s, the decline was gradual, but since that time the Republic experienced a dramatic decline. During this process the level of total period fertility, declined from the numbers with 6 or 7 to the numbers with 2, in other words a value near to replacement level by 1990s (SIS, 1995).

The fertility decline that took place in Turkey was striking, although fertility decline was not uniform throughout the country. The onset and pace of fertility decline has been different among various socio-economic and cultural groups. So they are at different stages of fertility decline. The subject of this study is to investigate current fertility levels of those socio-economic and cultural groups and their strategies to decline their fertility to those levels.

While determining the strategies of socio-economic and cultural groups to decline their fertility, proximate determinants model of John Bongaarts will be employed. The model explains the difference between maximum, potential level of fertility and observed, actual level of fertility with four proximate determinants, namely contraceptive use, marriage, induced abortion, postpartum infecundability. Socio-economic and cultural attributes of the groups resort to these proximate determinants while reducing their fertility to observed level.

Bongaarts model has been applied to Turkish data before for several times. The first application of the Bongaarts model to Turkish data was carried out by Ferhunde Özbay (1978), who used data from the 1968 and 1973 surveys. The pioneering role of the study of Özbay is undebatable but since the accumulation of knowledge on proximate determinants was insufficient at those times the calculation of the abortion index (Ca) in her study was a bit problematic. The index were including not only induced abortions but also spontaneous abortions.

Afterwards, the model was applied to the 1978 TFS data without showing the full results of application in a United Nations publication. (United Nations, 1987) In 1989 HIPS used the model to project the level of total fertility from 1983 to 1988 (HIPS, 1989). A detailed study related with Bongaart's model was carried out by Hancioğlu (1997), who applied the model to 1978 TFS, 1983 TFHS, 1988 TPHS and 1993 TDHS. This study was important because application of the model to a serial surveys gave way to trend analysis.

The contribution of Özbay and Hancioğlu to familiarize Turkish academicians with the Bongaarts model was very important. However, in the study of Özbay the model has been applied only to the Turkish national total and the calculations of Hancioğlu were limited with Turkish national total and with regional differences.

Bongaarts model has never been used to determine strategies of different socio-economic, cultural groups in Turkey previously. In this study different from the previous ones, we will attempt to apply the Bongaarts model to decipher the strategies of different socio-economic and cultural groups while lowering their fertility to the current levels by using TDHS-98 data.

The thesis consists of seven chapters. A short evaluation of Turkish modernization process and brief presentation of demographic developments and population policies of the Turkish Republic are included in the Chapter II. Chapter III presents different theoretical approaches trying to explain causes of fertility decline. In the Chapter IV the history of the proximate determinants models and explanation of Bongaarts model in detail can be found. Chapter V describes the methodology of the study. Here data source of the study and construction of the indexes of proximate determinants and construction of socio-economic and cultural variables are explained. Socio-economic and cultural groups used in the study are constructed in light of debates in the theoretical literature on fertility. In the Chapter VI components of fertility decline, namely marriage, contraceptive use, induced abortion and postpartum infecundability are given as sub-sections. The calculations

necessary for the Bongaarts model are performed and presented in this chapter. Finally discussion of the findings of calculations and conclusions are included in Chapter VII.



CHAPTER II. DEMOGRAPHIC CHANGES AND POPULATION POLICIES IN TURKEY

Turkey has the oldest modernization process in the region of Middle East. (Behar, 1991, 1995; Shorter, 1995, 1996) The transformation of the Ottoman Empire had begun a long time ago with renovative attempts of Selim III and Mahmut II. The foundation of the Republic was a continuation of the modernization process of the Ottoman Empire, which has been going on nearly two centuries. Tanzimat of 1839, the Declaration of Second Constitutional Monarchy at 1908 and foundation of the Republic at 1923 constitutes some of the rupture points within continuity.

That is to say, the foundation of the Republic became a part of Turkish modernization process that was already continuing. Similarly, demographic transition process of Turkey had not begun with the founding of the Republic. Fertility decline was under way in the big cities of Turkey, like Istanbul, Izmir long since the founding of the Republic. Cross-sectional total fertility rates (TFRs) of Istanbul were 3,5 and 3,8 according to the Ottoman censuses of 1885 and 1907 respectively. Turkey's total fertility rate could reach the rate of Istanbul at that times only in the 1980's. (Behar, 1995)

It is difficult to mention a uniform and simultaneous fertility transition that occurred in all socioeconomic and cultural groups. The onset and pace of the decline has been different among these various groups of Turkey. Consequently, they are at different stages of fertility decline. Therefore in the following sections current situation of socio-economic, cultural groups will be studied separately. Before passing detailed analysis of those groups it would be useful to look at population policies and demographic developments focusing on fertility transition since the founding of the Republic.

II. A. The Problematic Inheritance

When the Turkish Republic was founded, the population of the country had shrunk because of the First World War and the War of Independence. Immediately after a long period of war to rebuild social and economic life it was necessary to overcome the loss of population. Especially the shortage of labour force was an obstacle in front of economic and social development.

Because of these necessities, from the foundation of the Republic to the beginning of the sixties, the population policy of Turkey was directed toward population growth. The quantity of the population was seen as the source of national power. To increase the population fertility rates should be increased, health services should be expanded to decrease mortality rates and immigration should be encouraged. All of these policy applications have been done at this period by national governments. The rationale of pronatalist policies of this period was population growth had a positive impact on economic development.

The Ministry of Health rewarded mothers of six or more children with money or medals at 1930s. Import and sale of contraceptives were prohibited and penalties for abortion have increased at this period. In that manner the new Turkish Penal Code (TPC) changed the title of related article from "The Crime of Induced Abortion" to "Crimes against the integrity and health of the race" (Levine and Uner, 1978; Franz, 1994)

Partially due to population policies of the period but largely as a consequence of the demands of economic and social rebuild process the population of the country increased. After the foundation of the Republic peaceful conditions brought family reunification, a minor declining age of marriage, and increases in rates of reproduction in the whole country. With falling death rates and rising birth rates, the population growth rate increased, rapidly. Between 1923 and 1955, the population almost doubled, increasing from 13 to 24 million. Fertility increased

significantly from around 5,5 children to 7.0 children during this period. It fluctuated between 7,0 and 6,5 until the permanent decline of fertility began during the 1950's.

II. B. 1965 Population Planning Law

During the 1950s, the pointer turned the opposite side. Fertility began to decline and it did not reverse again. A major cause of this decline was rapid urbanization. The cultivatable lands reached its limits and excess of the population in rural areas flowed to the cities. Urbanization and the fertility decline were mutually reinforcing processes. It is a well known fact that as young adults moved from rural areas to urban areas they follow lower fertility regimes. They have less motivation to have many children, and bringing up healthy and educated children gains importance. In addition to rural to urban migration of this period out-migration was also at the highest level at this period.

The population planning law of 1965 emerged as a reply to these socio-economic conditions and has indicated a turning point in terms of population policies of the Turkish Republic. As stated above, till that time except for condom all contraceptives were illegal and pronatalist population policies were being in force.

Family planning was already started to discuss during 1940s and 1950s. In the First Five Year Development plan it was argued that the growth in GNP was undermined by the fast population growth rate. There was a necessity to bring population growth under control. In accordance with this worries, a Law on Population Planning was prepared and enacted. The prohibition of contraceptives under the 1936 Hıfzıssıhha law was lifted. Advertising of contraceptives was not punishable any more. The law also stated strict conditions for abortion and sterilisation that would be allowed only for sound medical reasons.

The aim of the population policies of this period was to decrease fertility rates by increasing contraceptive usage, to decrease mortality rates by increasing health services and to encourage emigration.

In spite of fertility decline population continue to grow during this period. Because decline in fertility rates were still behind decline in death rates. Population doubled from 24 to 51 million between 1955 and 1985.

III. C. The Introduction of the Family Planning Concept in the Turkish Constitution

After the military coup of 1980 the new constitution of Turkey took up the concept "family planning" for the first time in the history of the Turkish constitution. In May 1983, half a year after the adoption of the constitution, the first antinatalist law was revised and more liberal and comprehensive one was accepted. According to "Population Law No 2827";

*Interruption of pregnancies until the tenth week was legalized. (Article 5)
Trained nurses and midwives were authorized to insert IUDs and oral contraceptives. (Article 3) Sterilization were legalized for men and women (Article 4)*

During this period the downward trends of mortality and fertility continued. A distinctive property of this period is declining population growth rate. The growth rate decreased to 2,2 per cent during the five-year period, 1985-1990, in spite of additions due to immigration. (SIS, 1995)

The characteristic of migration of this period was the striking shift in destinations of international migration and increasing weight of urban-to-urban migrations in the volume of internal migration. (İçduygu and Sirkeci, 1998)

To sum up, beginning from 1960s Turkey has applied antinatalist population policies. The rationale of policies has changed with time. Between 1960-65 negative impact of population growth on development has been emphasized. Between 1965 and 1980 the emphasis has been shifted to the negative impact on mother and child health. Finally, after 1980 the most emphasized thing was negative impact of population growth on sustainable human and social development.

Emphasis on quantity of population has replaced with emphasis on quality of population with time.

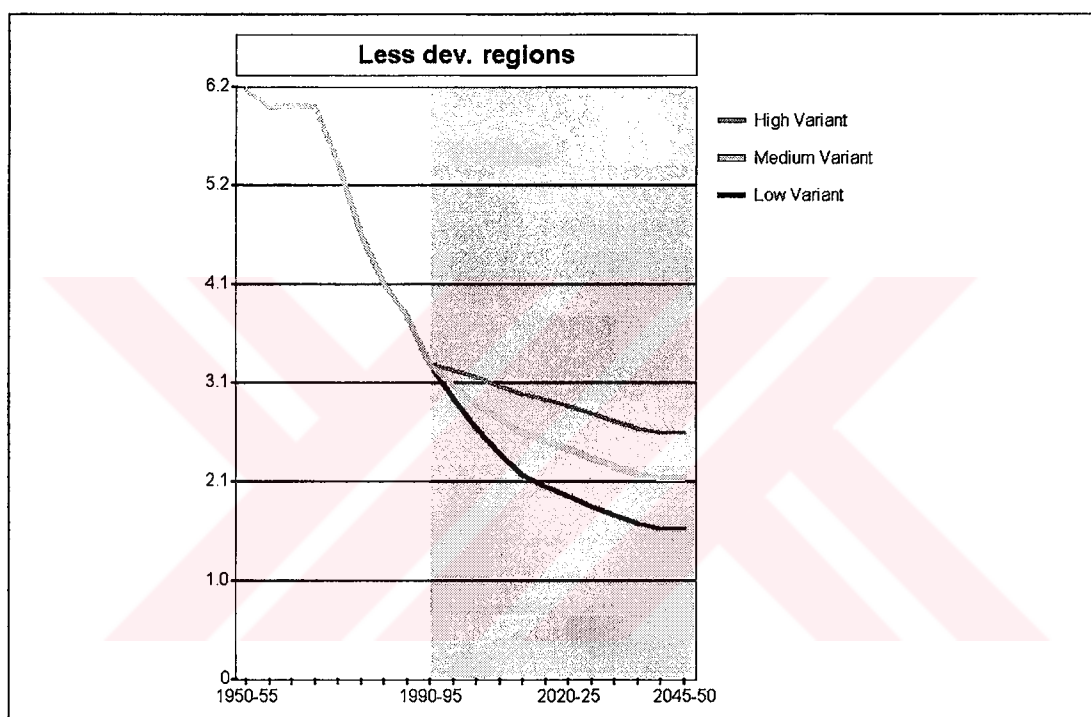
At the beginning of the planning period population issues were discussed in a broader perspective, in socio-economic context. As time passed, in the later stages population issues have been limited to the concept of mother-child health.

If we evaluate effectiveness of population policies applied in Turkey it is difficult to say they are effective. Neither pronatalist policies of pre-1960 period, nor antinatalist policies of post-1960 period couldn't achieve their goals. It should be pointed out that, the decline in fertility levels of Turkey is mainly because of various economic, social and cultural developments. Not because of population policies applied at these periods. We can mention only their indirect effects. (Behar, 1980, 1995) Instead Turkey's demographic transition and fertility decline occurred mainly because of socio-economic changes. In the following chapters these factors will be tried to investigate.

CHAPTER III. THEORIES OF FERTILITY DECLINE

Fertility in all places of the world has declined or has been declining substantially for a long time. Even in developing countries the average total period fertility rate has fallen by half from traditional six or more to near three today (Bongaarts, 2002).

Figure III.1. Total fertility rates in less developed regions



Source: Demographics'96

There was big debate about the causes of this rapid fertility decline for a long time. Many different approaches, theories sprouted from these debates. In a study aiming to explain the causes of fertility decline in Turkey, it would be useful to summarize and compare these different theories briefly.

III. A. Demographic Transition Theory

The most widely accepted theory among demographers has become demographic transition theory for many years. It is known that a theory of social

change is a prerequisite to develop a theory of fertility change. Modernization theory met this need and the demographic transition theory emerged as a derivation of modernization theory. It constituted its main arguments from the discourse of modernization theory.

Firstly, it would be useful to look at the principal assumptions of modernization theories. Bernstein (1971) mentions from two assumptions of such theories.

(1) modernization is a total process that encompasses transformation in economic, social and political organizations at the macro-level and transformation of human personality at the micro-level; and

(2) this process constitutes a universal pattern.

Moore (1974) defines modernization as a “total” transformation of a traditional pre-modern society into the types of technology and associated social organization that characterizes the “advanced,” economically prosperous and relatively politically stable nations of the western world.

In the same way Chodak (1973) says:

“the term modernization denotes a process of bridging the gap between the level of development in a society (or in some spheres of its life) and a more advanced and modern form already achieved in the spheres of life in other societies. It is a process which aims at standards of behavior, modes of action, ways of thinking, which are regarded as more up-to-date, more rational (if fashion is excluded), more profitable and generally more instrumental. It is thus a striving for successes already attained by a reference group or ‘pace setter’”

In accordance with the uni-lineal evolution model of modernization theory all societies follow a path from a simple-primitive traditional society to a complex

modern society. That is to say, the theory assumes that all societies were traditional at a certain stage in the past and ultimately, inevitably become modern passing the same stages that Western countries have already passed.

Similarly, demographic transition theory generalizes the experience of more developed countries, that is Western countries. The theory claim that by looking at the demographic history of Europe we could distinguish a common sequence of events that light the way for predicting future developments elsewhere in the world. It assumes that all societies must follow a similar transition pattern from high birth and death rates to the low levels of both.

Original statements of the demographic transition theory are found in Adolphe Landry (1933) and Frank W. Notestein (1953). The central thesis of demographic transition theory is generally presented in a three-stage model, with the first stage being pretransition societies with high fertility and mortality, a second transitional stage with declining mortality and, after a delay, declining fertility, and a third and final stage of post-transitional societies, which have low mortality and fertility. Advances in technology and science beginning in the 18th century led to a rising standard of living and improved medical care. These forces reduced the level of mortality. At first fertility remained at preindustrial levels. Afterwards, on one hand, lower mortality increased the survival, and thus the supply of children. On the other hand, industrialization and urbanization introduced new life styles reducing the demand for children. With these changes, individuals' lives became more dependent on larger social, economic and political units and less dependent on family, kinship and relatively self-contained local institutions. Changes in these macro developmental variables such as industrialization and urbanization undermined traditional values supporting high fertility by eroding the benefits of children and raising the cost of childbearing.

“The new ideal of the small family arose typically in the urban industrial society. It is impossible to be precise about the various causal factors, but apparently many were important. Urban life stripped the family of many functions in production, consumption, recreation, and education... In

factory employment the individual stood on his own accomplishments. The new mobility of young people and the anonymity of city life reduced the pressure toward traditional behaviour exerted by the family and the community. In a period of rapidly developing technology new skills were needed and new opportunities for individual advancement arose. Education and a rational point of view became increasingly important. As a consequence, the cost of child-rearing grew and the possibilities for economic contributions by children declined. Falling death rates at once increased the size of the family to be supported and lowered the inducements to have many births. Women, moreover, found new independence from household obligations and new economic roles less compatible with childbearing. ” (Notestein, 1953)

Notestein were underlying how fertility declined in response to declining mortality, the reduced role of the family in economic organization, the growing independence of women from traditional roles, and the shift to rationality spurred by popular education. Similarly Petersen (1969) summarized the process as follows:

“Industrialization loosens the social structure of an agrarian society: the sharp increase in both geographical and social mobility means that more and more persons are removed from the influence and control of the extended kin group to the relatively anonymous life of the large city. The normative system of the agrarian society (religious values, family sentiments, etc.) may also be weakened by this loss of its institutional base, which is challenged as well by the higher valuation of rationality in an industrial urban setting. Fertility, in brief, tends to be associated with social structure, technological standards, and specific prescriptions of taboos; all three of these determinants have been markedly changed by industrialization.”

As can be followed from the quotations given above fertility transition of societies has been seen as a consequence of socioeconomic changes that have transformed traditional agrarian societies into modern industrial societies. Classical demographic transition theory gave too much attention to macro-economic

processes, structural factors such as industrialization, urbanization, expanded education as prominent factors having great influence on fertility decline. Likewise, in the late 1960s and early 1970s it was popular to say “*economic development is the best contraceptive.*”

III. B. Economic Theory of Fertility

Another theoretical direction giving primacy to economical factors came on the scene by the application of neoclassical, microeconomic theory to transition theory. The pioneering exponents of the theory were Gary Becker (1960) and T. W. Schultz. Simply stated, neoclassical theory claim that an increase in the price or cost of children will lead to a decrease in the number of children demanded. In the early formulation of the economic theory there was no difference between deciding to have a children and deciding to buy a durable good. In this approach fertility was seen as a result of parental choice under financial constraints. Couples decide to have (or not to have) children in accordance with cost and benefit paradigm.

The neoclassical economic theory represents the antithesis of the classical demographic transition theory. Such that, economic theory of fertility supposes that fertility decision is "*rational*". Either high fertility of pre-modern, traditional societies or low fertility of modern societies was realized by rational choices of couples. This approach was forming a contradiction with classical appropriation that traditional societies are irrational and modern societies are rational.

Afterwards, the theory has been expanded considering other input goods such as time of the mother and the cost of education needed to raise the quality of children in household decision-making. Mincer (1963) shifted the emphasis from income effects to variations in the cost of children by showing that the *opportunity cost* of the wife's time as measured by the wife's wage rate was negatively related to fertility. Cain and Weininger (1973), in their study found a negative relation between fertility and female wages, but a positive relation between fertility and male's income.

Micro-economic theories of fertility have contributed significantly to a better understanding of factors involved in fertility decisions at the household level. These theories were criticized for not considering social, cultural, macro economic factors being effective on decision-making processes of couples. Moreover, explanatory power of the theory was limited with developed countries. Most studies done so far on the economic theory of fertility have used data only from developed countries.

III. C. Cultural-Ideational Theories

In the 1970s and 1980s the findings of two large demographic research directly challenged the hegemony of '*economic determinist*' theories. The first was the surprising findings from the Princeton European Fertility Project. It was surprising because, although the European Fertility Project was designed under the influence of the demographic transition theory, the findings were discordant with that theory. Paul Demeny (1968) attracted attention to the similarity in the timing of fertility decline in England and Hungary in the 1870s. The results were showing that fertility transitions occurred approximately at the same time in the world's most developed industrial economy and one of the most undeveloped countries in Europe. Moreover, the correlation between fertility level and indicators of economic development was modest. Patterns and pace of fertility decline were more associated with regions that shared common languages and culture than common socioeconomic features. It was interesting to observe that in some regions being close geographically and having nearly identical economic characteristics but pertaining to different linguistic groups were at different stages of fertility transition. The importance of linguistic groups paved the way for a cultural interpretation of fertility decline in contrast to the economic factors emphasized by the demographic transition theory.

The second challenge to demographic transition theory came from the results of comparative analyses of data from the World Fertility Survey (WFS) project. The WFS project consisted of cross sectional studies of individual level correlates of fertility behaviours, attitudes, and contraceptive practice in dozens of developing

countries around the globe. Although these studies showed that, in general, fertility was correlated in the expected direction with female education, urban residence, and other socioeconomic variables, the relationships were often modest and many exceptions could be found.

Another important research was carried out by Ronald Lesthaeghe. The findings of his study were indicating that declines in fertility in Europe were mainly because of cultural shift. He explained the fertility decline with the proportion of votes for secular political parties, the proportion of the population absent from Sunday Mass, the proportion of the population in urban areas or engaged in agriculture, family farming, or cottage industry, and the ratio of divorced to married women. Lesthaeghe argues that differences in religious beliefs and practices and in the degree of secularism, materialism, and individuation, that is, in general, cultural differences are responsible for differences in fertility behaviour. This contrasts with the structural influences of socio-economic development, which have been described as 'primary' in classical transition theory.

'the moral and ethical acceptability of fertility control is embedded in a much broader ideological development not necessarily concurrent with economic modernization' (Lesthaeghe, 1983).

Lesthaeghe puts forward that cost-benefit paradigm of microeconomic theories is necessary and explanatory, but not sufficient to understand fertility decline. He adds a theory of '*higher order needs*' to classical economic utility theory. (1983) 'High order needs' refers to psychological non-material needs. Individual wants gain superiority in contrast to community wants. In other words, changes directed towards *individualism* and concepts of *self-fulfilment*. While stating the shift from emphasis on welfare of the collective to welfare of the individual, he uses the concept of "preference map". During the transition process preference map has changed.

III. D. Contribution of Easterlin

The distinction between economic and cultural theories is not strict in all of the theories. Richard Easterlin's framework does not assume either priority or dominance among different socio-economic, and cultural explanations. Easterlin (1969, 1975) has attempted to combine economic and sociological theories of fertility change with his model of the demand, supply of children, and costs of fertility regulation. In the model, demand is measured by desired family size. Desired family size is defined as a function of income, prices of children relative to other goods, and tastes or preferences for children relative to other goods.

Supply refers to the number of children a couple would have 'naturally' in the absence of conscious fertility control. Costs are the monetary, time and psychic constraints in the use of birth control. In accordance with Easterlin's model, if demand for children is less than supply of children couples have motivation to control fertility. And if motivation to control fertility is bigger than the cost of fertility regulation, this means that fertility will be controlled.

Easterlin (1969) emphasized the desirability of a more appropriate concept for dealing with household decision-making on fertility. He proposed the use of a variable "*potential income*", which includes "*prospective*" income, corresponding to the concept of permanent income plus a measure of the opportunity income forgone.

III. E. Caldwell's Wealth Flows Theory

Another attempt to integrate economic, cultural and institutional theories of fertility decline has come from John Caldwell. (1976, 1982) Caldwell shares the idea that pre-transitional fertility behaviour was rational. However he criticizes economic theories for not considering social contexts.

Caldwell's 'intergenerational wealth flow theory' has an important place in the literature. The theory was developed mainly with reference to Third World societies in Tropical Africa and Asia. In accordance with this theory, the basic

dynamic of fertility decline is a change in the direction of 'wealth flows'. In pretransition societies, "wealth" tends to flow from children to parents, making large families and high fertility advantageous to parents. The slogan of economic rationality of those times was '*the more children the better*'. Post-transition societies are characterized by heavy investments that parents make for education of their children and to support them. In this manner the net flow of wealth shifts to the opposite direction. In this situation, being childless is the most rational economic behaviour. But, of course, couples continue to reproduce for social and psychological reasons, though they have many fewer children than former. The theory maintains that as long as wealth flows from children to parents, fertility will remain high since it is economically rational to parents.

"Fertility behaviour in both pretransitional and post-transitional societies is economically rational within bounds set by biological and psychological factors. Two types of societies can be distinguished: one of stable high fertility where there would be no net economic gain acquiring to the family (or to those dominant within it) from lower fertility levels, and the other in which economic rationality alone would dictate zero reproduction. The former is characterized by 'net wealth flow' from younger to older generations, and the latter by flows in the opposite direction. These flows are defined to embrace all economic benefits both present and anticipated" (Caldwell, 1982).

Caldwell linked intergenerational wealth flow theory to modes of production. In peasant society, the familial organization of production strengthened male control over resources as well as reproduction. This control was weakened by the transition from familial to capitalist production, which undermined the economic power of the kin networks and extended families on which peasant society is based. Transition to capitalist mode of production brought nuclear families together with.

While explaining demographic changes that occurred in Africa and Asia he attracts attention to role of 'westernization'. 'Modernization' and 'westernization' are completely different concepts for Caldwell. The former one refers to a structural

transformation, whereas, the latter one refers cultural transformation. The former is valid for developed countries; the latter is valid for developing countries. In the westernization a copying process is under consideration. European concepts of family relationships and life-styles are spread widely in developing countries by radio, film, and the advertisement of consumer products without any correspondence to local economic circumstances. An inevitable relationship between economic modernization and fertility decline is not under consideration all the time. Especially for developing countries primary force creating fertility change is the process of cultural westernization .

III. F. Institutional Theories

Institutional theories explain the changes in reproductive behaviour with changes in socio-political systems. The foremost representatives of this approach are McNicoll (1980, 1994) and Das Gupta (1997). They also relate fertility and “modernization” or “westernization”, but it differs from other theories by giving primacy to institutional transformations. They argue that several aspects of socio-economic development and fertility transition are the result of institutional changes. They reject the idea that socio-economic development is the cause of fertility transition. In this approach socio-economic development and fertility decline are associated facts instead of being sequential necessarily. For instance, high levels of infant mortality and poor standards of living with declining fertility, as has empirically been the case in large parts of the world, can be understood within this framework.

According to them changes in socio-political institutions enabled people to shape their own lives. The breakdown of deeply hierarchical socio-political institutions and establishment of modern governance brought security and predictability of life through impersonal institutions, which is crucial for people to plan their lives. From now on people were responsible for their behaviours and decisions, including their reproductive decisions.

Another distinctive hypothesis of this approach is that entire societies experience changes in reproductive behaviour at much the same time, large behavioural lags between different socio-economic and cultural groups of a given society should not be expected.

As can be seen there are many theories explaining the cause of fertility decline with different factors. The existence of so many theories is the proof of the complexity of causes lying under the fertility decline. All of these different theories are partially true to bring up the causes of fertility decline. They explain different dimensions of the fertility decline.



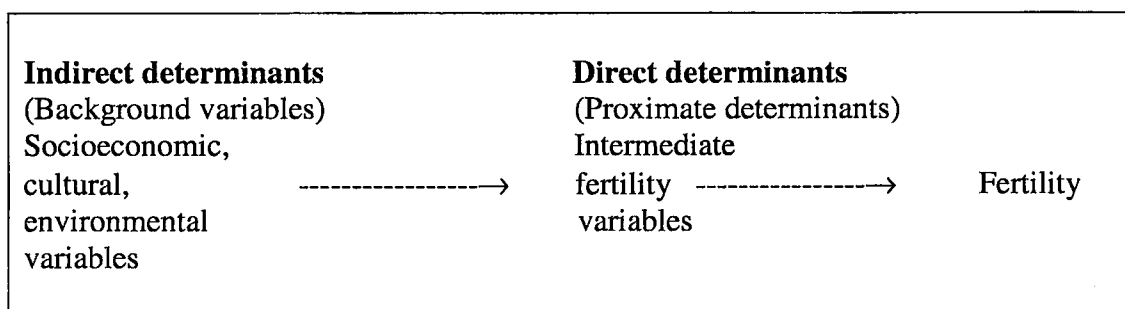
CHAPTER IV. PROXIMATE DETERMINANTS OF FERTILITY

There are many theories trying to bring up the reasons of fertility declines. Some of the theories gave priority to social, economic factors, some others gave priority to cultural, religious, ethnic factors while explaining the fertility decline. There is no doubt that all of these theories are useful for the explanation of fertility decline. But it should be pointed out that all of these determinants of fertility operate through a number of intermediate variables or proximate determinants.

The term *intermediate fertility variables* was used for the first time by Kingsley Davis and Judith Blake (1956). It can be defined as the biological and behavioural factors through which socioeconomic, cultural, and environmental variables affect fertility. They are qualified as 'intermediate fertility variables' by Davis and Blake (1956) because they mediate between fertility and any other variables. Any influence on fertility can occur only by manipulating these factors. Thus, fertility can be viewed as a function of the proximate determinants. It is possible to understand the variations of fertility among different societies by looking at these limited numbers of intermediate determinants.

The intermediate determinants or in other words proximate determinants reduces the fertility level. Due to the inhibiting effects of proximate determinants the level of fertility in a given population falls below its hypothetical, potential level. The essence of the proximate determinant models is to measure the contribution of proximate determinants on fertility decline from potential level to actual, observed level.

The primary characteristic of an intermediate fertility variable is its direct influence on the level of fertility. If an intermediate variable such as, the prevalence of contraception changes, then fertility necessarily changes also, while this is not necessarily the case for an indirect determinant such as income or education. (Bongaarts, 1978)

Figure IV.1. Determinants of Fertility

(adopted from Bongaarts, 1978)

The effect of socio-economic and proximate determinants on fertility may be negative (fertility inhibiting) or positive (fertility enhancing).

Since the term intermediate fertility variable was first introduced by Kingsley Davis and Judith Blake in the mid-1950s (Davis and Blake, 1956), it has been a useful tool to analyze fertility variations among different societies. In the work of Davis and Blake there was 11 intermediate variables indicating three steps of reproduction process, i.e. intercourse, conception and gestation-parturition. These variables are as follows:

I. Factors Affecting Exposure to Intercourse (“Intercourse Variables”).

- A. Those governing the formation and dissolution of unions in the reproductive period.
 1. Age of entry into sexual unions.
 2. Permanent celibacy: proportion of women never entering sexual unions.
 3. Amount of reproductive period spent after or between unions.
 - a. When unions are broken by divorce, separation, or desertion.
 - b. When unions are broken by death of husband.
- B. Those governing the exposure to intercourse within unions.
 4. Voluntary abstinence.
 5. Involuntary abstinence (from impotence, illness, unavoidable but temporary separation).

6. Coital frequency (excluding periods of abstinence).
- II. Factors Affecting Exposure to Conception (“Conception Variables”).
7. Fecundity or infecundity, as affected by involuntary causes,
 8. Use or non-use of contraception.
 - a. By mechanical and chemical means.
 - b. By other means.
 9. Fecundity or infecundity, as affected by voluntary causes (sterilization, subincision, medical treatment, etc.).
- III. Factors Affecting Gestation and Successful Parturition (“Gestation Variables”).
10. Foetal mortality from involuntary causes.
 11. Foetal mortality from voluntary causes.

The reproductive model of Davis and Blake was too complex. 11 intermediate variables were too many to measure their effects on fertility. Because of its complexity, the classification of Davis and Blake did not get wide acceptance.

To solve this problem, following reproductive model builders have used less numbers of intermediate fertility variables in their models. It can be mentioned from the names of Sheps and Menken (1973), Easterlin (1975), Mosley (1982), Bulatao and Lee (1983), Hobcraft and Little (1984) as important users of intermediate variables. However the most widely used and the simplest model is the model of Bongaarts. He popularized the proximate determinants model. There is a huge literature about it and many applications of the model to many countries can be found easily.

The Bongaarts Model

Bongaarts reclassified the list of the fertility variables proposed by Davis and Blake and grouped them in three broad categories (Bongaarts: 1978).

I. Exposure factor

1. Proportion married

II. Deliberate marital fertility control factors

2. Contraception
3. Induced abortion

III. Natural marital fertility factors

4. Lactational infecundability
5. Frequency of intercourse
6. Sterility
7. Spontaneous intrauterine mortality
8. Duration of the fertile period

However, after various studies, Bongaarts realized that some of these factors are more relevant than others in determining the magnitude of fertility change. According to him some of the intermediate variables may be disregarded by reason of their relative lack of contribution to variations in fertility. A variable is relatively uninteresting if fertility is largely insensitive to variations in that variable. In other words, if large variations in the variable produce only minor changes in fertility, it is a less important variable. The extent of a factor's variability among populations, or over time is the second criterion. If the variable varies little between populations, or over time, it can be easily concluded that it's a negligible factor. (Bongaarts: 1978) Applying these two criteria he distinguishes four intermediate variables that deserve sufficient attention for explanation of variations in fertility:

- proportions of women married,
- contraceptive use,
- induced abortion and
- lactational infecundability.

The last variable was not included in Davis and Blake's list. These four factor are the most important in explaining fertility variation, accounting for up to 96% of fertility change in some populations (Bongaarts: 1982;1978)

In accordance with the model of Bongaarts, the fertility-inhibiting effects of the four proximate determinants are quantified by four indices.

- Index of marriage (C_m),
- Index of contraception (C_c),
- Index of induced abortion (C_a) and
- Index of lactational infecundability (C_i).

The indexes theoretically range from 0 to 1. When the index is close to 1, the proximate determinant will have a negligible inhibiting effect on fertility, whereas when it takes a value of 0, it will have a large inhibiting effect. (Bongaarts: 1982)

Four different types of fertility levels may be identified from which the impact of the proximate variables can be derived. As it was mentioned previously, the aim of proximate determinants model was to explain the contribution of proximate determinants on fertility decline from potential, hypothetical level to actual, observed level. The hypothetical level is defined as *total fecundity rate* (TF). In the absence of contraception, induced abortion, breastfeeding, and postpartum abstinence, the average birth interval equals about 20 months. In the 25 years of childbearing that are available between age 15 and the average at the end of the childbearing years at age 40, a woman would bear 15 children if the average birth interval is 20 months; the large majority of populations can be expected to have TFs between 13 and 17 births per woman. Lower TFs are only found in exceptional cases, such as in populations with a high incidence of disease-induced sterility or in populations where spousal separation is unusually frequent or prolonged. Bongaarts and Potter refine their estimate of TF to equal 15.3. (Bongaarts and Potter: 1982)

In sum, if all women were married throughout their reproductive lives, used no contraception, had no induced abortions, and experienced no lactational infecundability, then total fecundity rate would come to approximately 15.3 children. Thus it can be said that total fecundity rate is mainly determined by physiological factors.

With reducing effects of proximate determinants, a population's actual level of fertility is observed and it is measured by *total fertility rate* (TFR).

Other two important rates of the model are *total marital fertility rate* (TM), and *total natural marital fertility rate* (TN). Total marital fertility rate is the number of births a woman would have at the end of reproductive years if she marries at exact age 15 years and remains married all the time from her 15th to her 49th birthdays. Survival of the women is also a necessary condition for the calculation of TM. Total natural marital fertility rate is equal to TM in the absence of contraception and induced abortion.

These fertility rates (TFR, TM and TN) vary widely among populations, but the TF rates of most populations fall within the range from 13 to 17, with an average of 15.3. The TF is relatively invariant because other proximate determinants which determine TF usually only cause modest changes in fertility.

The relationship between these four fertility rates and four indexes is as explained below:

In accordance with the Bongaarts' model the starting total fecundity rate of 15.3 is gradually reduced by the action of the various inhibiting factors. The first of these is postpartum infecundity (Ci), which when applied to 15.3 reduces it to the total natural marital fertility rate:

$$\text{TN} = 15.3 \times \text{Ci} \quad (\text{i})$$

This in turn, when reduced through the effects of Cc and Ca, becomes the total marital fertility rate, or

$$\text{TM} = \text{TN} \times \text{Cc} \times \text{Ca} \quad (\text{ii})$$

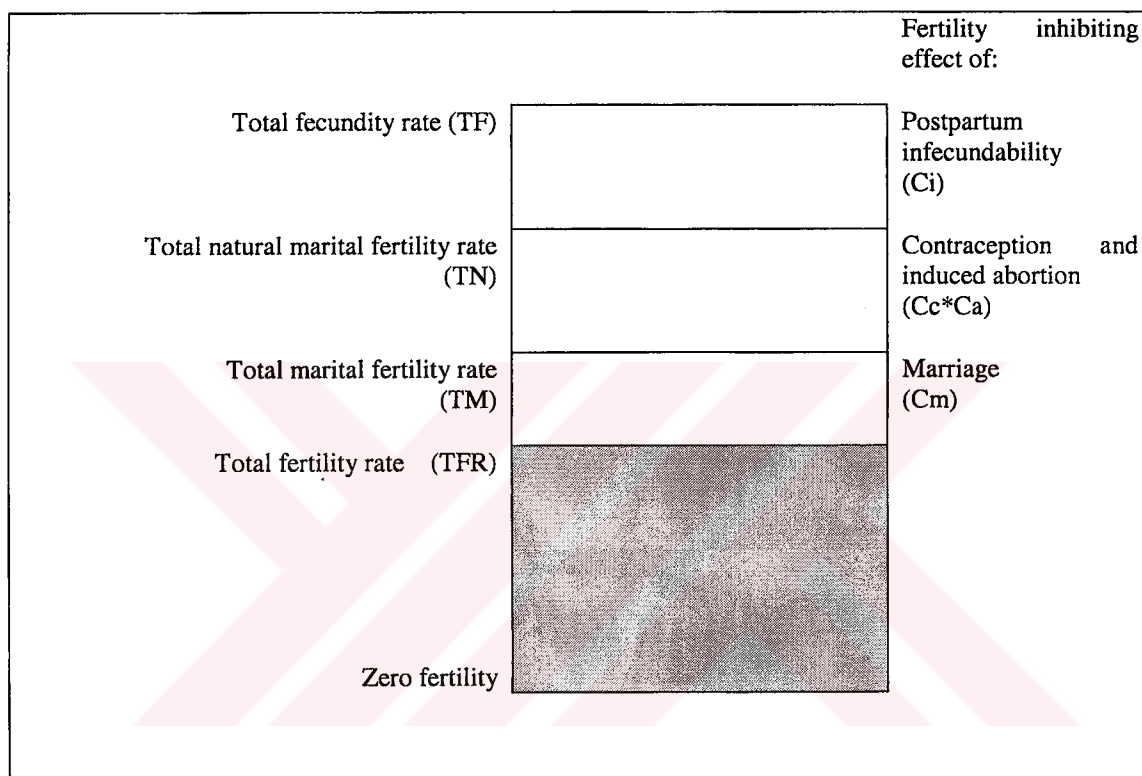
when total marital fertility rate is subjected to the effect of Cm, becomes the total fertility rate, or

$$\text{TFR} = \text{TM} \times \text{Cm} \quad (\text{iii})$$

If we follow these equations we get the main equation of the model:

$$\text{TFR} = \text{Cm} * \text{Cc} * \text{Ca} * \text{Ci} * \text{TF} \quad (\text{iv})$$

Figure IV.2. Bongaarts Model of the Proximate Determinants



Source: Adopted from Bongaarts and Potter (1983)

The indexes can be calculated with these equations if measures of the fertility rates TFR, TM, TN, and TF are available. But generally the situation is not so, the indexes are estimated directly from data by using formulas.

The Index of Marriage (Cm)

The index of marriage determines whether the difference between total fertility (TFR) and total marital fertility (TM) is important or not.

If all women ages between 15-49 were married or cohabiting, the index of marriage is equal to 1. In this case, since non-marriage has no fertility inhibiting effect on fertility total fertility is equal to total marital fertility rate. Undoubtedly this is an extreme case. Another extreme case is under consideration if no women in the reproductive ages were married. The index of marriage is equal to 0 and it would totally inhibit fertility.

In sum, reduction in the index of marriage brings a reduction in total fertility.

The C_m index is not simply equal to the proportion of all women of reproductive age that are married because the fertility impact of marriage also depends on the age distribution of married women. Married women in the central childbearing years contribute more to the TFR than the youngest or oldest women because ASFRs reach their maximum in the central childbearing ages.

Thus the C_m index is estimated as the weighted average of the age-specific proportions of females currently married, with the weights provided by the age-specific marital fertility rates, as follows:

$$C_m = \frac{\sum(g_a m_a)}{\sum g_a} \quad (v)$$

where g_a is age-specific marital fertility rates and m_a is the age specific proportions currently married (or in consensual union) among females.

Since the numerator of C_m equals the TFR, and the denominator equals TM (the total marital fertility rate), C_m may be rewritten as TFR/TM.

$$C_m = \text{TFR/TM} \quad (vi)$$

The Index of Contraception (Cc)

The intention of the index of contraception is to describe the fertility inhibiting effects of contraceptive use on fertility.

The index of contraception is estimated by using contraceptive prevalence and use effectiveness. The index of contraception varies inversely with the prevalence and use effectiveness of contraception practiced by couples in the reproductive age groups. If contraceptive practice is absent or completely inefficient, Cc will equal 1.0. With increasing effectiveness and prevalence, Cc declines below 1.0.

$$C_c = 1 - (1,08 * u * e) \quad \text{(vii)}$$

where u is the prevalence of current contraceptive use among married women of reproductive age, and e is the average use-effectiveness of methods used by couples (male methods are included).

The coefficient of 1,08 in equation is derived by using age specific sterility ratios of Louis Henry. The adjustment factor is located into the equation to remove infecund, sterile women from the equation.

Bongaarts indicates that in the situation that the average use-effectiveness of methods is unknown the value for developing countries can be taken as 0,85. In this situation the index of contraception becomes approximately 1-u.

The Index of Induced Abortion (Ca)

The index of induced abortion is aimed at measuring the fertility inhibiting effects of induced abortion. The index is calculated according to following formulae.

$$C_a = TFR / (TFR + (0,4 * (1 + u) * TA)) \quad \text{(viii)}$$

where TFR is total fertility rate, u is contraceptive prevalence among married women at reproductive ages and TA is total abortion rate, which is equal to the average number of induced abortions per woman at the end of the reproductive period if induced abortion rates remain at prevailing levels throughout the reproductive period. While calculating TA excluding induced abortions to women who are not married shouldn't be forgotten.

While developing the equation above Bongaarts has mostly used assertions of Robert Potter. According to him, an induced abortion always averts less than one birth. Potter explains this situation with two main reasons. First, an induced abortion may be unnecessary because a spontaneous abortion or stillbirth would have prevented the pregnancy from ending in a live birth. Second, and more importantly, with an induced abortion a woman resumes ovulation much sooner than would have been the case if she had carried the pregnancy to term, especially if the pregnancy would have been followed by a prolonged period of infecundability. So, the net effect of an induced abortion must take into account the probability of another conception during the period in which the woman would have been unable to conceive if she had no induced abortion.

The number of births averted per induced abortion is largely independent of the age of the woman. It is strongly influenced by the practise of contraception following the induced abortion. Normally, in the absence of contraception, an induced abortion averts about 0,4 births, when moderately effective contraception is practised, an induced abortion averts about 0,8 births.

If we follow this last finding, the average number of births averted per induced abortion, or b , may be estimated with the equation below.

$$b = 0,4 (1+u)$$

(ix)

Actually, u is equal the proportion protected by contraception among women who have had an induced abortion. But, since this information is rarely available, u should be taken as the proportion of all married women who are currently using contraceptive methods.

If we carry on with this information the equation becomes,

$$A = b * TA = 0,4 (1+u) * TA \quad (x)$$

That is to say, the observed total fertility rate in a population is A birth less than would be the case without induced abortion.

If we turn back our equation, the index of induced abortion (Ca) can be defined as the ratio of observed total fertility rate (TFR) to the estimated total fertility rate without induced abortion (TFR+A),

$$Ca = TFR / TFR+A = TFR / (TFR + (0,4 * (1 + u) * TA)) \quad (xi)$$

The index Ca equals the proportion by which fertility is reduced as the consequence of the practice of induced abortion. The difference between total marital fertility rate (TM) and total natural marital fertility rate (TN) is calculated by taking both the contraception index (Cc) and the induced abortion index (Ca) into account.

$$TM = TN * Cc * Ca \quad (xii)$$

The relationship between TFR and TN becomes as below.

$$TFR = TN * Cm * Cc * Ca \quad (xiii)$$

The Index of Postpartum Infecundability (Ci)

The index of postpartum infecundability (Ci) equals the ratio of the TNs (the total natural marital fertility rates) in the presence and absence of postpartum infecundability caused by breastfeeding or abstinence. First estimate TN as the number of birth intervals that can be fitted between age 15 and the end of the childbearing years. Since postpartum infecundability does not influence the duration of the reproductive years, its effect on fertility operates entirely through modification of the birth interval. The ratio of natural fertility in the absence of postpartum infecundability, thus equals the ratio of the average birth interval with and without postpartum infecundability. If no breastfeeding and and postpartum abstinence are practiced, the birth interval averages about 20 months, which is the sum of 1.5 months of minimum postpartum anovulation, 7,5 months of waiting time to conception, 2 months of time added by spontaneous intrauterine mortality, and 9 months for a full-term pregnancy. In the presence breastfeeding and postpartum abstinence, the average birth interval equals, approximately, 18.5 months (7.5 + 2 + 9) plus the duration of postpartum infecundability.

The index Ci therefore may be estimated according to the equation below.

$$Ci = 20 / 18,5 + i \quad (xiv)$$

where *i* is the mean or median duration of postpartum infecundability caused by breastfeeding or postpartum abstinence. The variation in Ci depends entirely on variation in *i*. The higher the value of Ci, the less the inhibiting effect of Ci on fertility.

If the value of *i* is unknown, then average breastfeeding period (B) can be used to make crude estimations.

As a last note it can be pointed out that this proximate determinant has higher values among developed countries, meaning that in developed countries this

determinant has less of an inhibiting effect on fertility than is the case in developing countries. The other three proximate determinants work the other way.



CHAPTER V. METHODOLOGY

V. A. Data Source

The data source of the thesis comes from 1998 Turkish Demography and Health Survey (TDHS-98). The fieldwork of the TDHS-1998 was conducted by Hacettepe University, Institute of Population Studies. TDHS-98 is a nationally representative survey of 8059 households, 8576 women between ages 15-49 and a subsample of 1971 husbands. The sample of the survey was designed with a weighted, multiple stage, stratified cluster sampling approach. The aim of the survey was to provide information on trends and levels in fertility, infant and child mortality, family planning and maternal and child health. Four types of questionnaires were employed for data collection in TDHS-98. These were household, ever-married women, single women and husband questionnaires. Two of these questionnaires were employed for data collection on women one being for never married and the other for ever-married women. In this study mainly ever-married women questionnaire will be employed.

Information on fertility used in this study is based on retrospective reproductive histories of women age 15-49 interviewed in the TDHS-98. Each women was asked for a history of all her births, including the month and year of each. Based on this information, total fertility rates (TFR) and total marital fertility rates (TM) of socio-economic and cultural groups are examined in this study.

The total fertility rate (TFR) is the average number of children that would be born to a woman by the time she ended childbearing if she were to pass through all her childbearing years conforming to the age-specific rates of a given year. The TFR sums up, in a single number, the fertility of all women at a given point in time. In effect, it says: This is the total number of children a woman would have if the fertility rates for a given year applied to her throughout her reproductive life. The TFR is a synthetic measure; no individual woman is very likely to pass through three decades conforming to the age-specific fertility rates of any single year.

Total marital fertility rate (TM) is the number of live births to married women per 1000 married women ages 15-49 in a given year.

In this study, total fertility rates (TFR) and total marital fertility rates (TM) are calculated by using a SPSS file taken from Macro International Inc. While calculating total marital fertility rates (TM) currently married women are selected from data.

V. B. Construction Of Background Variables

As is stated in the section “theories of fertility decline” a structure-culture dichotomy can be easily observed in the fertility decline theories. To test the validity of this dichotomy we collected our variables in two main topic as socio-economic variables and cultural variables.

V. B. 1. Socio-Economic Variables

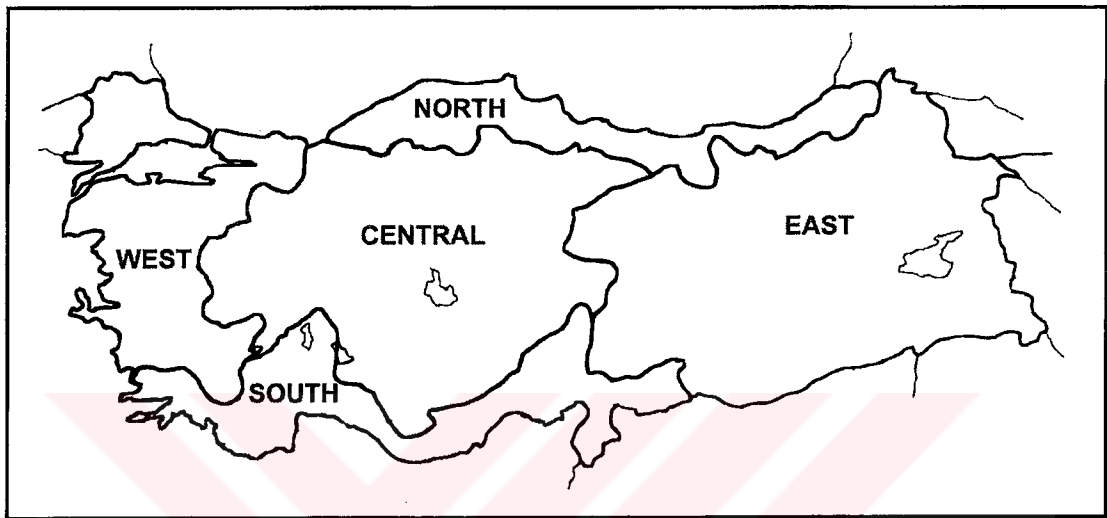
The association between fertility decline and socio-economic variables are concerned in many of fertility studies. Socio-economic theories explain fertility decline with urbanization, industrialization, socio-economic status, education and transformation of families (from extended to nuclear families). Variables such as, current place of residence, migration status, education of women, occupational status's of women, income of household e.t.c are constructed along this line.

Region

Regional disparities have been considered nearly in almost all demographic analysis in Turkey. This variable is used to see which fertility inhibiting factors are used in which region. Regional disparities not only indicates geographical disparities, but also indicates social, economic and cultural differences. (Hancıoğlu, 1997) Turkey was divided into five regions (West, South, Central, North, and East)

according to socio-economic and geographical characteristics. The West region is the most industrialized and the most socially and economically developed region of Turkey. South, North and Central regions follows the West region. The East region is the least developed region of the country.

Figure V.B.1. Five Regions



Current Place Of Residence

Urbanization was one of the social structural changes associated with fertility transition in classic demographic transition theory (Thompson, 1930; Notestein, 1953). Degree of urbanization may be seen as an indicator of development. Urban residence or urban background may reflect differences in attitudes and motivations as compared with the more traditional rural values.

While classifying the settlements as urban and rural the population size of the settlements are taken as criterion. Settlements having populations larger than 10,000 regardless of administrative status are taken as urban and settlements having populations less than 10,000 are taken as rural. The place of residence is determined by the sample point in which the woman is interviewed. The variable is not constructed according to the report of the woman. Since the survey based on de facto sample, visitors were counted at the place in which the interview has taken place. De

facto place of residence of these visitors may be different from the place in which they usually live.

Migration Status

This variable is a more refined version of the previous one. The previous variable does not take into account the length of time a woman has lived in her current place of residence. For instance, a woman labelled as urban may have lived in an urban area for only a short time when she was interviewed. Migration status variable solves this problem and presents a more clear picture.

Migration, especially rural to urban, is important as a factor influencing fertility and birth rates, both directly through its effects on the sex and age structure in the places of origin and destination, and indirectly as an indicator of social, economic and related changes. As regards the latter, migration implies a readiness for change, an attitude that also underlines fertility reduction. Migration changes imply other changes, such as occupational changes, that may be associated with fertility decline. In the literature both fertility inhibiting and fertility enhancing effects of migration on fertility has been emphasized. Most accounts of migration have focused on its fertility inhibiting effects, primarily by reducing the frequency of sexual intercourse through spousal separation (Brockhoff and Yang, 1994). However some attention has also been paid to short-term, fertility-enhancing effects of rural to urban migration (Bongaarts, Frank and Lesthaeghe, 1984). By reducing the duration and frequency of breastfeeding and hence shortening the length of post-partum amenorrhea, by limiting traditional lengthy post-partum abstinence, urban life can enhance fertility of rural to urban migrants.

While constructing migration status a woman's childhood place of residence is compared with current (de jure) place of residence. The childhood place of residence is determined by information supplied by the respondent. In the core questionnaire, the respondent is asked "*whether she spent most of the time until she was 12 years old in 'the city, in a town, or in the countryside'.*" The province of the

place in which the respondent lived is taken by another question. Before constructing the migration status variable the childhood place of residence in standard DHS data set is recoded. “Cities” are considered to be urban and “countryside” is treated as rural. Women whose childhood place of residence was reported as “abroad” were assigned to the “not applicable” category.

The migration status variable includes four categories: if current place of residence and childhood place of residence were urban, the woman is categorized as “urban native”, if the childhood place of residence was urban and current place of residence was rural the woman is put into the “urban to rural migrant” category, in the opposite situation the woman treated as “rural to urban migrant”, and both places were rural the woman is labelled as “rural native”.

Education of Women

Education is among the most common variable being applied in the study of the factors affecting fertility. As it has been shown by a number of studies women’s education has a negative relationship with fertility (Cochrane, 1979, 1983). Increased educational level decreases fertility especially by raising the age at first marriage, by exposing women to new ideas, and by giving opportunity to have better jobs. Educated women control their fertility more consciously and effectively than their less educated counterparts (Ergöçmen, 1997).

In the study, women are classified into three categories according to their educational level. Women with no education or have not completed primary school are put into “*No education/Primary incomplete*” category. The second category, “*Primary completed/Secondary incomplete*”, includes women having completed primary school but not secondary school and the third category, “*Secondary completed or higher*”, refers to the women having completed secondary school and higher.

Women's Labour Force Participation

The women's labour force participation is closely related with fertility. Women's labour force participation, on the one hand directly affects the real income of the household. On the other hand affects time available for having children. Time cost of having children for working women has been emphasised by many writers (Mincer, 1963; Easterlin, 1969, 1975). Therefore, generally labour force participation has inverse relationship with fertility level (Standing, 1983).

The variable includes three categories, "*Not working*", "*Urban labour force participation*" and "*Rural labour force participation*". Urban labour force participation is viewed as an element increasing opportunity costs and individuality.

Women's Occupational Status

Occupational differentiation is another important factor determining the level of fertility. Occupational classification is useful to differentiate agricultural and non-agricultural activities. It is generally observed that women working in service sector or industrial sector tend to have lower fertility. On the other hand, women employed in agricultural sector have higher fertility (Timur, 1973).

Occupation of women were grouped into three categories according to their employment in the *service*, *industrial* or *agricultural* sectors. While constructing occupation variable, variables in standard DHS data set recorded.

Women's Social Security

This variable considers whether the woman works with social security or not. It can be expected a correlation between not having social security and seeing children as old age security. The aim of constructing this variable is to search whether social security creates additional decline in fertility levels of working women or not.

Household Income

Income is another variable most commonly used in studies of fertility. In the literature both income of the woman and income of the husband have been emphasized as important factors influencing fertility. (Becker, 1960; Mincer, 1963; Cain and Weininger, 1973) However there is only information about the total household income in TDHS 1998. Here while constructing income groups total household income has been used. Women are categorized into three categories according to their total household income. Households having less than 100 million TL total income per month is categorized in the “*Low*” group. Households having total income between 100 million and 300 million TL per month are categorized in the “*Middle*” group. And, households having total income higher than 300 million TL per month were categorized in the “*High*” group.

V. B. 2. Cultural Variables

After being neglected for a long time cultural variables gained popularity in the literature of fertility decline (Lesthaeghe, 1977, 1983; Lutz, 1986). In this study the concept of culture is used in a broad context. Culture is the system of shared beliefs, values, customs, behaviours, and artifacts that the members of society use to cope with their world and with one another, and that are transmitted from generation to generation through learning (Bates and Plog, 1980). It refers the whole way of life. Consequently this kind of a description includes reproductive behaviours.

Turkey is a multi-cultural society. Therefore, cultural variables deserve special attention in Turkey. However TDHS 98 questionnaires have limited information on cultural backgrounds of women. The cultural variables in the study are constructed within this limits to capture variations in fertility behaviours according to the cultural background of the respondents.

Ethnicity

Ethnicity defines individuals who consider themselves, or are considered by others, to share common characteristics that differentiate them from the other collectivities in a society, within which they develop distinct cultural behaviour (Marshall, 1994). In this framework it can be said that different ethnic groups develop distinct fertility behaviour (Dündar, 1998).

This variable intends to search fertility differentials between main ethnic groups of Turkey. Mother tongue groups of women were used as a proxy to construct ethnicity categories in the study. The ethnicity variable has three categories. These are “*Turkish*”, “*Kurdish*”, and “*Other*” mother tongue groups.

Religiosity

Religion is an important factor affecting behaviours of most of the people in the society. Reproductive behaviours of the people is also affected by religions. With this variable we intended to see fertility levels of women at different religiosity levels. The variable is constructed by using a proxy, according to the woman’s own idea that religion is against the use of family planning or not. If the woman think that religion is against the use of any family planning methods they are labeled as “*Religious*”, if the woman do not share the idea that the use of family planning methods are against the religion they are categorized as “*Secular*”.

Undoubtedly this is a very crude proxy of religiosity. However, questions to collect information on religious background of women and husbands were too limited and unreliable in TDHS-98 and religiosity is a very important factor on reproductive behaviour of people, using that kind of a proxy were inevitable.

Articulation to the Central System

Modernization changes the life styles of the people by inserting them to new relations of production. The modernization process dissolves traditional relations of production and brings new modern relations of production to life. During this transformation process main tools are increasing urbanization, industrialization and expanding education. Undoubtedly, the transformative power of the modernization is not the same for the whole society. Transformative power of the modernity increases with increasing urbanization, labour force participation and educational level. Prosperity of the people also increases with these changes.

This variable intends to measure the effect of modernization process on fertility behaviour by dividing the women into three categories. The first category, named "*Central*", includes women working with social security. Women having secondary or higher education and living in middle or high income households also take part in this category. The third category which is named as "*Peripheral*" includes not working women or women working without social security and women living in low income households, and less educated (primary or less) women. The remaining women are collected in the second category and it is named as "*Semi-peripheral*". That is if women are educated and living in middle or high income households or working with social security they are at the "Center" of the system; if they have neither of these properties they are at the "Periphery" of the system. If they have some of these properties they are at the "Semi-periphery" of the system.

Table V.B.1. Frequencies and Percent Distributions According to Background Characteristics, TDHS-98

Background Characteristics	Frequency#	Percent##
TURKEY	8576	100
SOCIOECONOMIC VARIABLES		
REGION		
West	2170	37,4
South	1678	14,7
Central	1706	23,1
North	1258	8,1
East	1764	16,8
RESIDENCE		
Urban	5702	66,5
Rural	2874	33,5
MIGRATION STATUS		
Urban native	3770	44,7
*Urban to rural migrant	335	4,0
Rural to urban migrant	2008	23,7
Rural native	2305	27,6
EDUCATION OF WOMEN		
No Education/Primary incomplete	2032	21,7
Primary completed/Secondary incomplete	5042	60,1
Secondary complete or higher	1502	18,1
WOMAN'S OCCUPATION		
Not Working	5328	60,9
Service	933	12,0
Agriculture	1618	18,4
Industry	678	8,8
WOMAN'S LABOR FORCE PARTICIPATION		
Not Working	5328	60,9
Urban labor force participation	1691	20,9
Rural labor force participation	1538	18,3
WOMAN'S SOCIAL SECURITY		
Not Working	5328	60,9
Working with social security	790	10,4
Working without social security	2418	28,6
INCOME OF HOUSEHOLD		
Low	5602	63,4
Middle	2475	31,4
*High	353	5,2
CULTURAL VARIABLES		
ETHNICITY		
Turkish	6879	80,2
Kurdish	1390	16,2
*Other	307	3,6
RELIGIOUSITY		
Religious	1446	17,8
Secular	6284	82,2
ARTICULATION TO THE CENTRAL SYSTEM		
Central	1260	16,2
Semi-peripheral	2389	29,4
Peripheral	4927	54,4

unweighted

weighted

* sample size is too small to analyze

CHAPTER VI. COMPONENTS OF FERTILITY DECLINE

VI. A. Marriage

Delaying marriage is known as a Malthusian method because abstinence from marriage was the method of fertility limitation he advocated. (Malthus, 1970)

Since that times it's a well known fact that marital status is among the most important determinants of fertility level. Marriage is an indicator of exposure of women to the risk of pregnancy. It is a clear fact that a married women has a high "risk" of having sexual intercourse, and high risk of having children. Thus, fertility of married women is much higher than that of single, widowed or divorced women.

Here, the concept of marriage is not limited with legal marriage. Legal marriage is not a good definition in terms of the purposes of analyzing differentials in fertility. The important thing is not whether the couples are legally married or not, but whether or not she is in a steady sexual relationship. In this context, in addition to legally married couples cohabiting couples, that is couples living together as wife and husband, should be treated as 'married'.

The contribution of marriage to fertility decline in Turkey is emphasised by Shorter and Macura (1982). They estimated that 19 percent of the fertility decline taking place between the early 1950s and the mid-1970s is mainly because of changes in marriage patterns.

In Turkey as in many developing countries, marriage is almost universal. As can be seen from the table only 1.7 percent of women remain never-married by the end of reproductive years. Moreover, the proportion of divorced and widowed women are also very low.

Table VI.A.1 Percent Distribution of Women by Current Marital Status, According to Age, TDHS-98

Age	Marital Status					Total	Number of women
	Never married	Married	Widowed	Divorced	Not living together		
15-19	84,5	15,2	0,1	0,0	0,2	100	1720
20-24	39,3	59,3	0,2	0,9	0,3	100	1558
25-29	12,9	85,6	0,4	0,8	0,2	100	1397
30-34	6,5	90,6	1,3	1,3	0,3	100	1202
35-39	2,4	93,8	1,1	1,7	0,9	100	1081
40-44	1,8	89,2	6,1	2,1	0,8	100	885
45-49	1,7	87,9	7,7	2,3	0,4	100	733
Total	27,7	69,0	1,7	1,1	0,4	100	8576

Source: TDHS-98

Calculation of Marriage Index (Cm)

Index of marriage (Cm) can be calculated using total fertility rates (TFR) and total marital fertility rates (TM). As can be remembered there was such a relationship between them.

$$Cm = TFR / TM \quad (i)$$

Total fertility rates were calculated for the single year preceding the survey. While calculating total marital fertility rates, age specific marital fertility rate for the age group 15-19 was taken as 75 percent of the rate for the 20-24 age group, following Bongaarts (1978). By calculating total fertility rates and total marital fertility rates as explained in methodology section marriage indexes were calculated. Table IV.A.2. shows the results of these calculations.

Table VI.A.2. Total Fertility Rates, Total Marital Fertility Rates and Marriage Indexes by Background Characteristics, TDHS-98

Background Characteristics	TFR	TM	Cm
TURKEY	2,76	4,09	0,6758
SOCIOECONOMIC VARIABLES			
REGION			
West	2,08	3,19	0,6533
South	2,56	3,95	0,6487
Central	3,01	4,34	0,6942
North	2,75	4,78	0,5751
East	4,28	5,74	0,7462
RESIDENCE			
Urban	2,57	3,74	0,6880
Rural	3,16	4,84	0,6521
MIGRATION STATUS			
Urban native	2,26	3,54	0,6373
*Urban to rural migrant	4,37	5,95	0,7352
Rural to urban migrant	3,38	3,93	0,8601
Rural native	3,14	4,94	0,6356
EDUCATION OF WOMEN			
No Education/Primary incomplete	4,19	5,22	0,8028
Primary completed/Secondary incomplete	2,77	3,96	0,7000
Secondary complete or higher	1,65	3,24	0,5081
WOMAN'S OCCUPATION			
Not Working	3,40	4,47	0,7611
Service	1,11	2,31	0,4800
Agriculture	2,69	4,34	0,6197
Industry	1,00	2,16	0,4629
WOMAN'S LABOUR FORCE PARTICIPATION			
Not Working	3,40	4,47	0,7611
Urban labor force participation	1,17	2,33	0,5017
Rural labor force participation	2,55	4,30	0,5924
WOMAN'S SOCIAL SECURITY			
Not Working	3,40	4,47	0,7611
Working with social security	1,15	2,46	0,4673
Working without social security	2,00	3,61	0,5540
INCOME OF HOUSEHOLD			
Low	3,17	4,51	0,7032
Middle	2,21	3,45	0,6419
*High	1,81	3,27	0,5532
CULTURAL VARIABLES			
ETHNICITY			
Turkish	2,44	3,74	0,6535
Kurdish	4,32	5,87	0,7367
*Other	4,15	5,15	0,8060
RELIGIOUSITY			
Religious	3,62	4,89	0,7405
Secular	2,64	3,91	0,6757
ARTICULATION TO THE CENTRAL SYSTEM			
Central	1,53	2,81	0,5445
Semi-peripheral	2,28	3,64	0,6264
Peripheral	3,46	4,63	0,7473

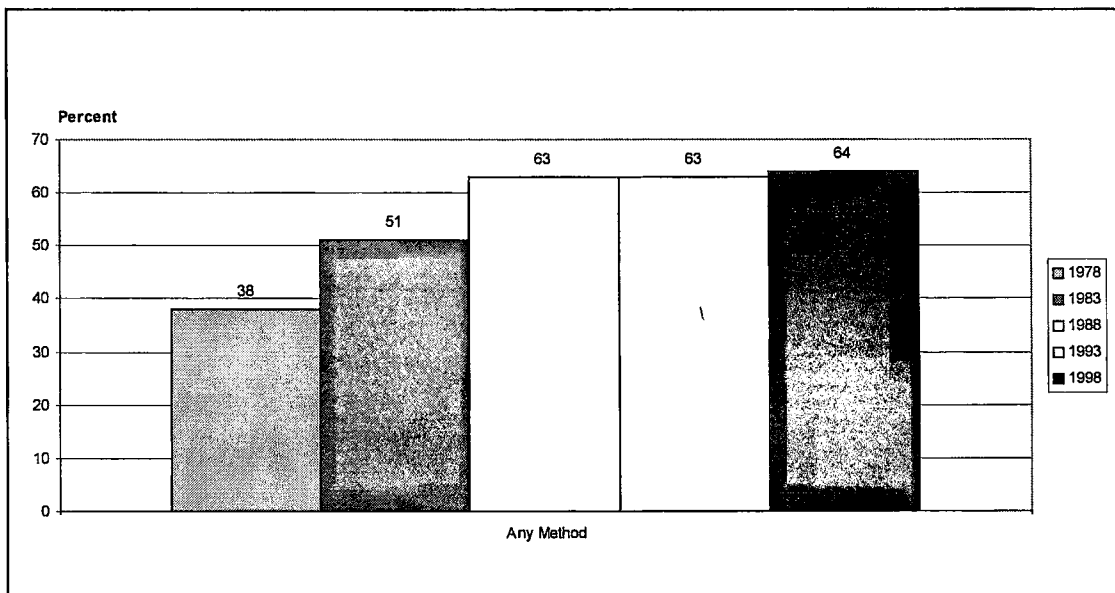
* sample size is too small

VI. B. Contraceptive Use

Contraceptive use is the most important factor affecting fertility in many of the countries. It is known that contraceptive use is not a strange event in the big cities of the Ottoman Empire. Traditional methods of birth control like withdrawal were familiar to people living in the big cities like İstanbul, İzmir (Behar, 1995).

After the foundation of the Turkish Republic since a pronatalist population policy was being in force until the mid-1960s and the import or sale of contraceptives are prohibited, use of modern contraceptives was a rare event. After passing to antenatalist population policy at 1965 contraceptive use became widespread day by day. Contraceptive prevalence rates prior to 1978 is not well known due to limited information. It is difficult to mention exact numbers for those times. The series of surveys conducted by Hacettepe University Institute of Population Studies between 1978 and 1998 let following the trends in contraceptive use. Total contraceptive use among married women increased substantially from 38 percent to 63 percent between 1978 and 1988. Since 1988, overall contraceptive use has reached a plateau at approximately 63 percent.

Figure VI.B.1. Percent Distributions of Married Women Using Any Contraceptive Method, TFS-78, TFHS-83, TPHS-88, TDHS-93 and TDHS-98



From 1978 to 1998 use of modern and traditional methods increased. The increment in use of modern methods was especially striking. While in 1978 users relying on traditional methods nearly doubles users of modern methods, in 1998 percentage of couples using modern methods is clearly higher than that of the 1978.

Table VI.B.1. Percent Distribution of Married Women by Contraceptive Method Used, TFS-78, TFHS-83, TPHS-88, TDHS-93, TDHS-98

Method	1978 TFS	1983 TFHS	1988 TPHS	1993 TDHS	1998 TDHS
Any method	38,0	51,0	63,7	62,6	63,9
Any modern method	13,4	22,6	31,3	34,5	37,7
Any traditional method	24,6	28,4	32,4	28,1	25,5
Not currently using	62,0	49,0	36,3	37,4	36,1
Total percent	100	100	100	100	100

One important characteristics of the Turkish fertility transition is related with the role of men. 'The exceptionally high male initiative, responsibility, and participation is perhaps the most notable characteristic of the fertility decision-making and implementation process in Turkey' (Behar, 1995).

Maybe as a result of its tradition taken over from the past, male methods are still being widely practiced in Turkey. Although modern female methods are being promoted by the official programs since 1965, male methods are still widespread. As can be seen easily from table VI.B.2., in TDHS-98, more than half of couples are using male methods requiring male knowledge and participation like condom and withdrawal nearly in all socio-economic and cultural groups. According to table VI.B.2. male dependent methods are more common among couples in North region. Women having secondary or higher education, women working in service or industrial sector, women living in high income households prefer to use female dependent contraceptive methods more than others. Women working with social security use female dependent methods more than other women. It can be said that female dependent methods are more common among women having high socio-economic status.

Table VI.B.2. Percent distribution of currently married women by specific method of contraception used, Turkey, TDHS-98

Background Characteristics	Not Using	Male dependent		Female dependent			Other
		Withdrawal	Condom	IUD	Pill	Female Sterilization	
TURKEY	36,1	24,4	8,2	19,8	4,4	4,2	2,8
SOCIOECONOMIC VARIABLES							
REGION							
West	29,5	27,6	9,4	20,5	5,4	4,2	3,5
South	39,7	24,3	6,1	21,0	2,2	4,5	2,2
Central	31,7	23,6	9,3	24,2	4,9	3,4	2,9
North	33,1	30,9	9,1	12,4	4,4	8,4	1,7
East	58,0	14,4	5,3	14,0	2,9	3,3	2,2
RESIDENCE							
Urban	33,3	23,9	9,3	21,0	4,6	4,7	3,2
Rural	42,0	25,5	6,0	17,3	3,8	3,3	2,1
MIGRATION STATUS							
Urban native	31,4	22,6	10,3	22,0	5,1	4,9	3,7
*Urban to rural migrant	40,1	25,0	4,0	19,4	5,6	3,2	2,8
Rural to urban migrant	35,8	26,2	7,9	20,3	3,2	4,1	2,4
Rural native	43,6	25,5	5,6	16,1	3,7	3,4	2,2
EDUCATION OF WOMEN							
No Education/Primary incomplete	49,6	21,1	4,0	14,0	3,2	5,6	2,6
Primary completed/Secondary incomplete	32,9	27,3	8,1	21,4	4,4	3,6	2,4
Secondary complete or higher	24,8	18,0	17,0	23,9	6,3	4,5	5,5
WOMAN'S OCCUPATION							
Not Working	37,9	23,5	8,4	19,0	4,2	4,6	2,4
Service	26,9	17,0	13,1	25,4	6,0	5,4	6,2
Agriculture	36,3	30,7	5,9	17,6	3,5	2,9	3,1
Industry	31,7	26,1	6,2	25,2	5,3	3,0	2,5
WOMAN'S LABOUR FORCE PARTICIPATION							
Not Working	37,9	23,5	8,4	19,0	4,2	4,6	2,4
Urban labour force participation	28,9	22,0	10,2	23,9	5,8	3,8	5,2
Rural labour force participation	36,8	30,2	5,5	18,8	3,3	3,2	2,3
WOMAN'S SOCIAL SECURITY							
Not Working	37,9	23,5	8,4	19,0	4,2	4,6	2,4
Working with social security	25,7	17,5	13,1	25,7	6,6	4,3	7,2
Working without social security	35,2	28,8	6,3	19,9	3,9	3,3	2,7
INCOME OF HOUSEHOLD							
Low	39,1	25,0	6,9	18,9	3,8	4,0	2,3
Middle	31,8	23,7	10,7	20,8	5,1	4,5	3,4
*High	26,6	17,9	10,7	25,9	6,6	6,2	6,2

Background Characteristics		Not Using	Male dependent		Female dependent			Other
			Withdrawal	Condom	IUD	Pill	Female Sterilization	
CULTURAL VARIABLES								
ETHNICITY								
	Turkish	31,5	25,9	9,2	21,3	4,7	4,4	3,0
	Kurdish	61,1	16,2	3,5	11,6	2,3	3,5	1,7
	*Other	47,7	21,8	4,1	16,6	3,1	3,6	3,1
RELIGIOUSITY								
	Religious	48,5	23,4	3,9	15,1	2,8	4,6	1,8
	Secular	32,7	24,3	9,6	21,3	4,9	4,0	3,1
ARTICULATION TO THE CENTRAL SYSTEM								
	Peripheral	41,9	22,6	7,0	18,5	3,5	4,5	2,0
	Central	32,5	25,4	9,1	20,7	5,0	4,0	3,3

* sample size is too small

Calculation of Contraception Index (Cc)

To calculate the index of contraception (Cc) prevalence of current contraceptive use among married woman at reproductive ages (u), and average use effectiveness of those methods used by couples (e) are used. While calculating use-effectiveness, first failure rates (f) of the methods are calculated by using calendar data set. While using calendar data set, the DYNPAK computer program package designed by Macro International Inc. is employed. (Curtis and Hammerslough, 1995) After calculating failure rates using the software; use-effectiveness of the methods are calculated by using the following equation:

$$e_m = 1 - [(1 - (1 - {}^mF_{12})^{1/12}) / f] \quad (i)$$

where ${}^mF_{12}$ is the net first year failure rate of method m, and f is fecundability (the monthly probability of becoming pregnant), taken as 0,17 (Hammerslough,1993).

Finally the results of these calculations are put in place of the equation given below.

$$Cc = 1 - (1,08 * u * e) \quad (ii)$$

Table VI.B.3. presents the results of these calculations.

Table VI.B.3. Contraceptive Prevalance Rates, Failure Rates, Contraceptive Use Effectivenesses and Contraception Indexes by Background Characteristics, TDHS-98

Background Characteristics	u	f	e	Cc
TURKEY	0,639	0,082	0,958	0,3387
SOCIOECONOMIC VARIABLES				
REGION				
West	0,705	0,076	0,961	0,2680
South	0,603	0,075	0,962	0,3736
Central	0,683	0,079	0,960	0,2920
North	0,670	0,083	0,958	0,3070
East	0,420	0,113	0,942	0,5729
RESIDENCE				
Urban	0,667	0,077	0,961	0,3078
Rural	0,581	0,093	0,952	0,4024
MIGRATION STATUS				
Urban native	0,686	0,074	0,962	0,2870
*Urban to rural migrant	0,600	0,099	0,949	0,3850
Rural to urban migrant	0,642	0,084	0,957	0,3364
Rural native	0,564	0,093	0,886	0,4606
EDUCATION OF WOMEN				
No Education/Primary incomplete	0,504	0,061	0,969	0,4724
Primary completed/Secondary incomplete	0,671	0,089	0,954	0,3083
Secondary complete or higher	0,753	0,071	0,964	0,2160
WOMEN'S OCCUPATION				
Not Working	0,621	0,079	0,960	0,3563
Service	0,730	0,072	0,963	0,2404
Agriculture	0,637	0,104	0,946	0,3489
Industry	0,684	0,069	0,965	0,2871
WOMEN'S LABOUR FORCE PARTICIPATION				
Not Working	0,621	0,079	0,960	0,3563
Urban labour force participation	0,711	0,073	0,963	0,2606
Rural labour force participation	0,632	0,101	0,948	0,3529
WOMEN'S SOCIAL SECURITY				
Not Working	0,621	0,079	0,960	0,3563
Working with social security	0,743	0,071	0,964	0,2264
Working without social security	0,649	0,092	0,953	0,3321
INCOME OF HOUSEHOLD				
Low	0,609	0,086	0,956	0,3712
Middle	0,682	0,073	0,963	0,2907
*High	0,734	0,057	0,971	0,2300
CULTURAL VARIABLES				
ETHNICITY				
Turkish	0,685	0,081	0,959	0,2907
Kurdish	0,390	0,094	0,952	0,5991
*Other	0,525	0,061	0,969	0,4504
RELIGIOUSITY				
Religious	0,515	0,083	0,958	0,4673
Secular	0,673	0,082	0,958	0,3035
ARTICULATION TO THE CENTRAL SYSTEM				
Central	0,763	0,063	0,968	0,2022
Semi-peripheral	0,658	0,080	0,959	0,3183
Peripheral	0,601	0,087	0,956	0,3798

* sample size is too small

VI. C. Induced Abortion

Induced abortion is another means of birth control. Until 1983, induced abortion in Turkey was prohibited except for reasons related with health and when the life of the pregnant woman was in danger. However, abortion was a widespread practice. Especially, before the mid-1965s the lack of modern contraceptives paved the way for widespread use of induced abortion. In May 1983, the 'Law on Population Planning' was liberalized to provide abortion in a legal and safe manner. With the legalization of the induced abortion, abortion rate increased throughout a five-year period. However, it should not be forgotten that, with the liberalization of the law, women report their abortions more comfortably. Liberalization of the induced abortions eliminated one important factor of underreporting. Likewise, after 1988 the abortion rate began to decrease. At present women may obtain abortion on request up to the 10th week of pregnancy for medical or social reasons.

Table VI.C.1. Number of Induced Abortions Per 100 Pregnancies, Per 100 Ever-Married Women Aged 15-49, and Per 100 Live Births, TFHS-83, TPHS-88, TDHS-93, TDHS-98

Survey	Per 100 pregnancies	Per 100 women	Per 100 live births
1983	12,1	2,8	15,4
1988	23,6	4,5	35,1
1993	18,0	3,1	26,0
1998	15,7	2,5	20,9

Sources: Hacettepe University Institute of Population Studies
(1987,1989, 1994,1999)

It is known that women resort to induced abortions because of obligatory conditions. The negative relation between effective use of contraceptive methods and abortion rates have been emphasized in many studies (Jones, 1989; Westoff, 1998). If women have difficulties to access contraceptive methods or failure rates of contraceptive methods are high number of women resorting to abortion increases.

Calculation of Induced Abortion Index (Ca)

Because of its close relationship with induced abortion the prevalence of contraceptive use is taken into account while calculating the index of induced abortion. The index is calculated according to following formulae.

$$Ca = TFR / (TFR + (0,4 * (1 + u) * TA))$$

In TDHS-98 data on induced abortion were collected inside the questionnaire and additionally five year pregnancy histories were collected in the calendar. While calculating total abortion rates (TA) this calendar section were used. Total abortion rates are calculated for single year preceding the survey. Table VI.C.2 presents the results of these calculations.



Table VI.C.2. Total Abortion Rates and Abortion Indexes by Background Characteristics, TDHS-98

Background Characteristics	TFR	u	TA	Ca
TURKEY	2,76	0,639	0,64	0,8689
SOCIOECONOMIC VARIABLES				
REGION				
West	2,08	0,705	0,66	0,8220
South	2,56	0,603	0,59	0,8721
Central	3,01	0,683	0,65	0,8728
North	2,75	0,670	0,62	0,8697
East	4,28	0,420	0,61	0,9253
RESIDENCE				
Urban	2,57	0,667	0,65	0,8563
Rural	3,16	0,581	0,61	0,8915
MIGRATION STATUS				
Urban native	2,26	0,686	0,52	0,8652
*Urban to rural migrant	4,37	0,600	0,80	0,8947
Rural to urban migrant	3,38	0,642	0,83	0,8613
Rural native	3,14	0,564	0,59	0,8950
EDUCATION OF WOMEN				
No Education/Primary incomplete	4,19	0,504	0,71	0,9074
Primary completed/Secondary incomplete	2,77	0,671	0,64	0,8666
Secondary complete or higher	1,65	0,753	0,56	0,8086
WOMEN'S OCCUPATION				
Not Working	3,40	0,621	0,60	0,8966
Service	1,11	0,730	0,56	0,7395
Agriculture	2,69	0,637	0,85	0,8289
Industry	1,00	0,684	0,43	0,7759
WOMEN'S LABOUR FORCE PARTICIPATION				
Not Working	3,40	0,621	0,60	0,8966
Urban labour force participation	1,17	0,711	0,64	0,7273
Rural labour force participation	2,55	0,632	0,76	0,8371
WOMEN'S SOCIAL SECURITY				
Not Working	3,40	0,621	0,60	0,8966
Working with social security	1,15	0,743	0,58	0,7402
Working without social security	2,00	0,649	0,72	0,8080
INCOME OF HOUSEHOLD				
Low	3,17	0,609	0,71	0,8744
Middle	2,21	0,682	0,59	0,8474
*High	1,81	0,734	0,38	0,8720
CULTURAL VARIABLES				
ETHNICITY				
Turkish	2,44	0,685	0,66	0,8469
Kurdish	4,32	0,390	0,58	0,9305
*Other	4,15	0,525	0,44	0,9393
RELIGIOUSITY				
Religious	3,62	0,515	0,52	0,9200
Secular	2,64	0,673	0,67	0,8546
ARTICULATION TO THE CENTRAL SYSTEM				
Central	1,53	0,763	0,53	0,8037
Semi-peripheral	2,28	0,658	0,47	0,8797
Peripheral	3,46	0,601	0,77	0,8753

* sample size is too small

VI. D. Postpartum Infecundability - Breastfeeding

Postpartum infecundability is the last proximate determinant that we look at. It is well known that although many of the infants are breastfed only for the first few months in developed countries, especially in developing countries breastfeeding is used as a contraceptive method because of its reducing effect on fertility.

By infecundability we mean not to be exposed to the risk of pregnancy. Postpartum abstinence from sexual relations and/or postpartum amenorrhea may create infecundability. That is, infecundable women are either amenorrheic or abstaining. In most societies sexual intercourse is not resumed for a while after the occurrence of birth. This period of abstinence is called as postpartum abstinence. The duration of postpartum amenorrhea is determined by the prevalence and the intensity of breastfeeding. It is well known that breastfeeding reduces the chance that a woman will have a child. While the woman is breastfeeding, ovulation is inhibited. If ovulation does not take place it is impossible to get pregnant for a woman, even she has regular sexual intercourse.

In the TDHS-98, information about postpartum amenorrhea and postpartum abstinence was collected. The median duration of postpartum infecundability was calculated as 4,1 for the national total. The components of postpartum infecundability, that is postpartum amenorrhea and postpartum abstinence was calculated respectively as 3,3 and 1,9.

Table VI.D.1. Median duration of postpartum amenorrhea, abstinence, insusceptibility and breastfeeding

	Amenorrheic	Abstaining	Infecundable	Breastfeeding
Turkey	3,3	1,9	4,1	8
Region				
West	3,2	2,0	3,3	8
South	3,8	1,9	3,9	8
Central	2,8	1,7	3,7	7
North	3,0	1,8	3,2	6
East	3,6	2,2	6,4	10
Residence				
Urban	3,2	1,9	4,1	8
Rural	3,4	1,8	4,2	8

In accordance with the tradition of Turkey couples abstain sexual relations for 40 days following the birth. The values presented in the table VI.D.1. are consistent with this tradition.

Calculation of Postpartum Infecundability Index (Ci)

While calculating postpartum infecundability index (Ci), median durations of infecundability (i) are put into place in the equation given below. Since (i) values could not be calculated for some groups, such as high income households, women working in industrial sector and other ethnic groups, their (i) values are assumed the same with groups having close fertility level.

$$C_i = 20 / 18,5 + i$$

Table VI.D.2. shows the median durations of infecundability and the values of contraception index by background characteristics.

Table VI.D.2. The Median Durations of Infecundability and the Values of Contraception Index by Background Characteristics, TDHS-98

Background Characteristics	i	Ci
TURKEY	4,1	0,8850
SOCIOECONOMIC VARIABLES		
REGION		
West	3,3	0,9174
South	3,9	0,8929
Central	3,7	0,9009
North	3,2	0,9217
East	6,4	0,8032
RESIDENCE		
Urban	4,1	0,8850
Rural	4,2	0,8811
MIGRATION STATUS		
Urban native	3,8	0,8969
*Urban to rural migrant	3,3	0,9174
Rural to urban migrant	4,2	0,8811
Rural native	2,5	0,9524
EDUCATION OF WOMEN		
No Education/Primary incomplete	6,1	0,8130
Primary completed/Secondary incomplete	3,6	0,9050
Secondary complete or higher	3,4	0,9132
WOMEN'S OCCUPATION		
Not Working	4,6	0,8658
Service	4,0	0,8889
Agriculture	3,9	0,8929
Industry	4,0	0,8889
WOMEN'S LABOUR FORCE PARTICIPATION		
Not Working	4,6	0,8658
Urban labour force participation	3,0	0,9302
Rural labour force participation	3,6	0,9050
WOMEN'S SOCIAL SECURITY		
Not Working	4,6	0,8658
Working with social security	3,3	0,9174
Working without social security	3,5	0,9091
INCOME OF HOUSEHOLD		
Low	4,8	0,8584
Middle	3,8	0,8969
*High	3,8	0,8969
CULTURAL VARIABLES		
ETHNICITY		
Turkish	3,7	0,9009
Kurdish	6,5	0,8000
*Other	6,5	0,8000
RELIGIOUSITY		
Religious	7,8	0,7605
Secular	3,8	0,8969
ARTICULATION TO THE CENTRAL SYSTEM		
Central	3,0	0,9302
Semi-peripheral	4,1	0,8850
Peripheral	5,2	0,8439

* sample size is too small

CHAPTER VII. EVALUATION AND DISCUSSION

In the preceding chapter we have looked at proximate determinants separately. In this chapter an overall evaluation and discussion of proximate determinants is presented. Table VII.2. and Table VII.3. presents the application of Bongaarts' "Proximate determinants model" by background variables in TDHS-98. The implied TF values in the tables are calculated by using actual total fertility rates (TFR). The implied total fertility rates are calculated by taking total fecundity rates (TF) as 15,3. Table VII.4. presents relative percentage contribution of each proximate determinant to the total fertility rate and total fecundity rate. The percentage contribution of indexes has been calculated according to the following equation:

$$100 (\log C_x / (\log C_m + \log C_c + \log C_a + \log C_i)) \quad (i)$$

where, for C_x , values of C_m , C_c , C_a and C_i are successively employed. (United Nations, 1987)

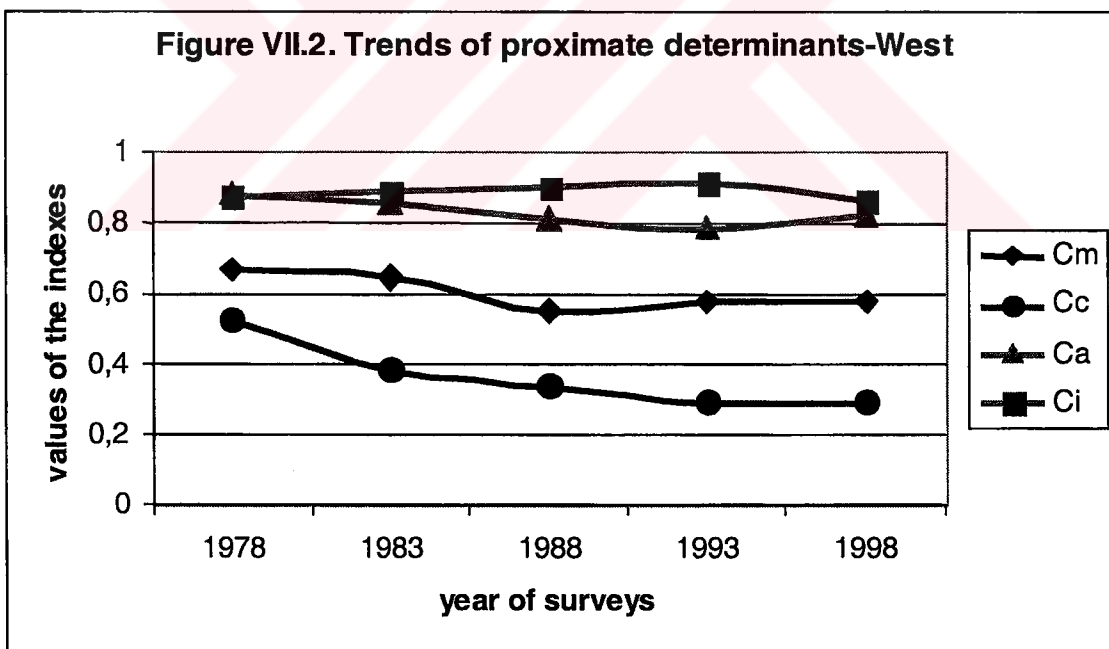
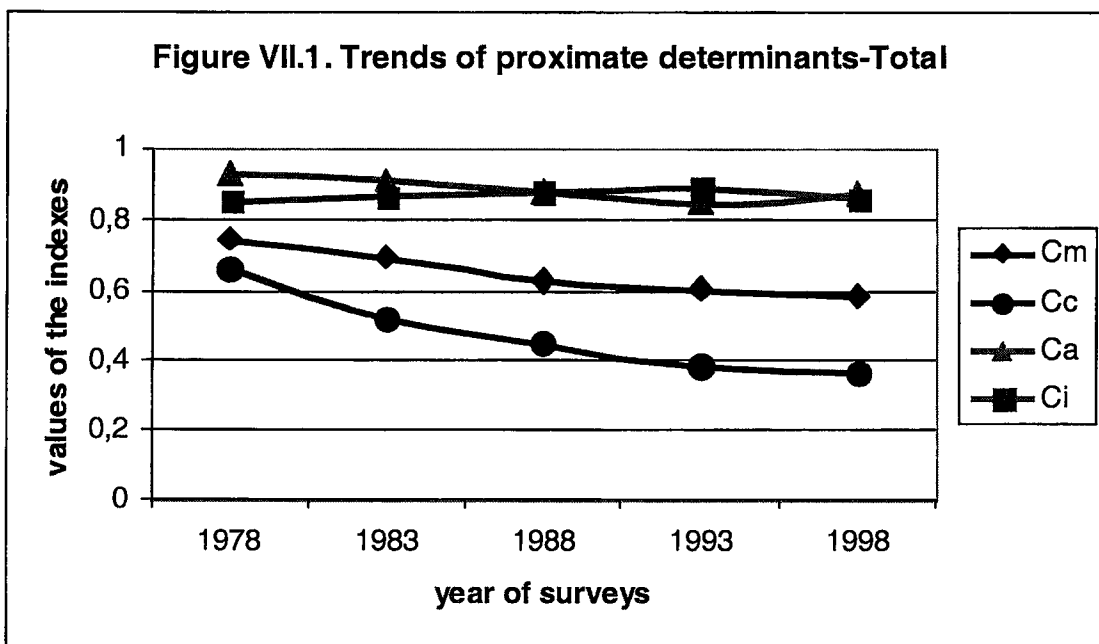
First it would be useful to look at trends of proximate determinants from 1978 to 1998. Table presents the values of proximate determinants of 1978 TFS, 1983 TFHS, 1988 TPHS, 1993 TDHS, 1998 TDHS. The values of proximate determinants prior to 1998 has been taken from the study of Hancioğlu. (1997)

As it can be seen from table VII.1 TFR has declined from 4.3 births to 2,7 births between 1978 and 1998. All regions in Turkey experienced a decline. The fastest decline in fertility has occurred in the Central region. South region and North region followed Central region. The most important proximate determinant in explaining this fertility drop is increment in contraceptive use, followed by marriage postponement. The contribution of induced abortion and postpartum infecundability is smaller than previous two proximate determinants. However the importance of breastfeeding in East region is still substantial. From 1978 to 1998 the contraceptive use has increased. This is especially notable for East region. Women have postpo

their marriages to later ages in all regions. Indexes of induced abortion and postpartum infecundability has not changed so much during this time although there has been some fluctuations.

Table VII.1. Application of the Bongaarts Model, TFS-78, TFHS-83, TPHS-88, TDHS-93, TDHS-98

Survey	Variable	West	South	Central	North	East	Total
1978 TFS	Cm	0,6679	0,6767	0,7518	0,7591	0,8110	0,7403
	Cc	0,5272	0,6674	0,6687	0,6755	0,8322	0,6577
	Ca	0,8840	0,9644	0,8961	0,9362	0,9771	0,9317
	Ci	0,8772	0,8621	0,8197	0,8811	0,8197	0,8511
	TFR	2,9	3,8	4,2	5,0	6,3	4,3
1983 TDHS	Cm	0,6490	0,6432	0,6718	0,6700	0,7777	0,6877
	Cc	0,3875	0,5396	0,5139	0,4991	0,7737	0,5174
	Ca	0,8563	0,9447	0,8746	0,9051	0,9696	0,9102
	Ci	0,8901	0,8745	0,8309	0,8945	0,8309	0,8633
	TFR	2,6	4,5	4,2	3,7	6,5	4,0
1988 TDHS	Cm	0,5557	0,6288	0,6729	0,6159	0,6738	0,6261
	Cc	0,3373	0,4525	0,4460	0,4329	0,6746	0,4469
	Ca	0,8088	0,9034	0,8443	0,8616	0,9535	0,8746
	Ci	0,9038	0,8877	0,8428	0,9079	0,8428	0,8759
	TFR	2,3	4,4	2,9	3,1	3,8	3,1
1993 TDHS	Cm	0,5804	0,5550	0,5936	0,6088	0,6782	0,6025
	Cc	0,2919	0,3761	0,3801	0,3708	0,5767	0,3807
	Ca	0,7811	0,8445	0,8158	0,8605	0,9309	0,8457
	Ci	0,9174	0,9009	0,8547	0,9217	0,8547	0,8889
	TFR	2,0	2,4	2,4	3,2	4,4	2,7
1998 TDHS	Cm	0,6533	0,6487	0,6942	0,5751	0,7462	0,6758
	Cc	0,2680	0,3736	0,2920	0,3070	0,5729	0,3387
	Ca	0,8220	0,8721	0,8728	0,8697	0,9253	0,8689
	Ci	0,9174	0,8929	0,9009	0,9217	0,8032	0,8850
	TFR	2,1	2,6	3,0	2,7	4,3	2,7



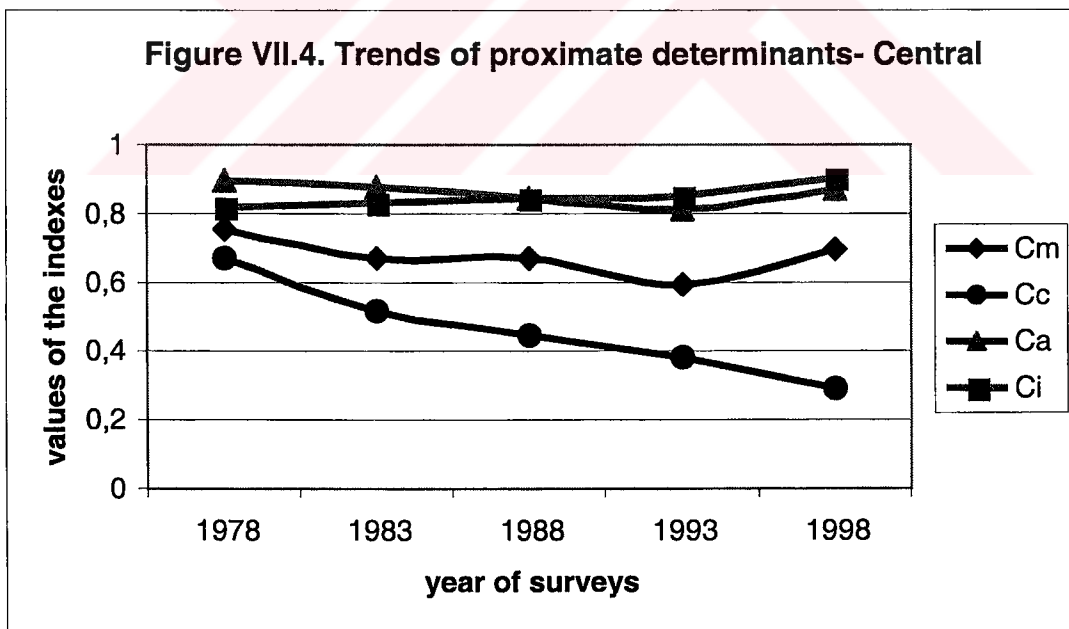
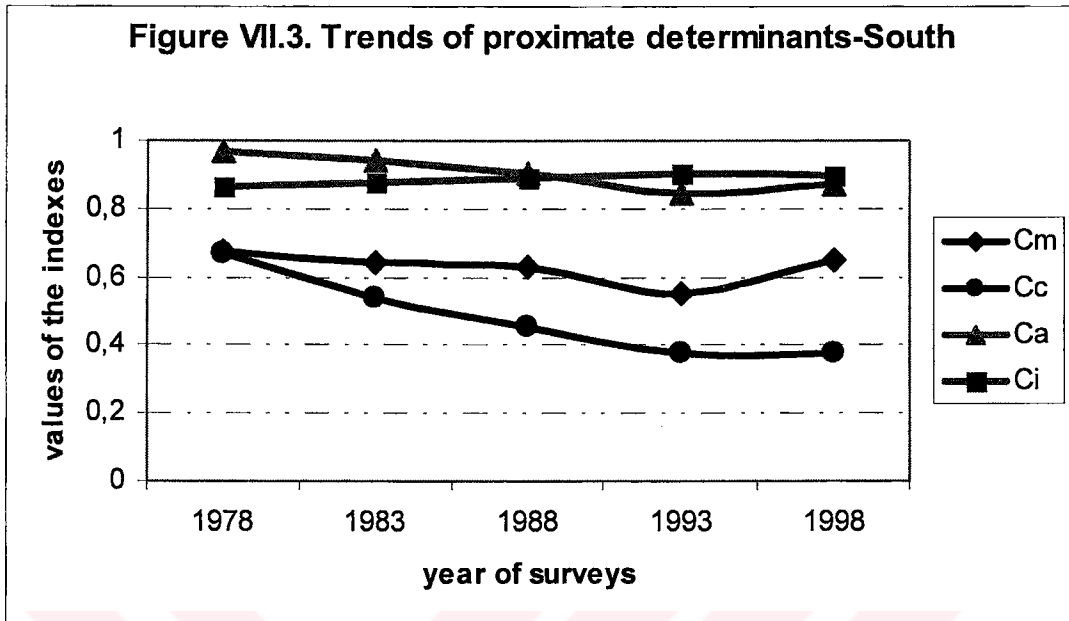


Figure VII.5. Trends of proximate determinants-North

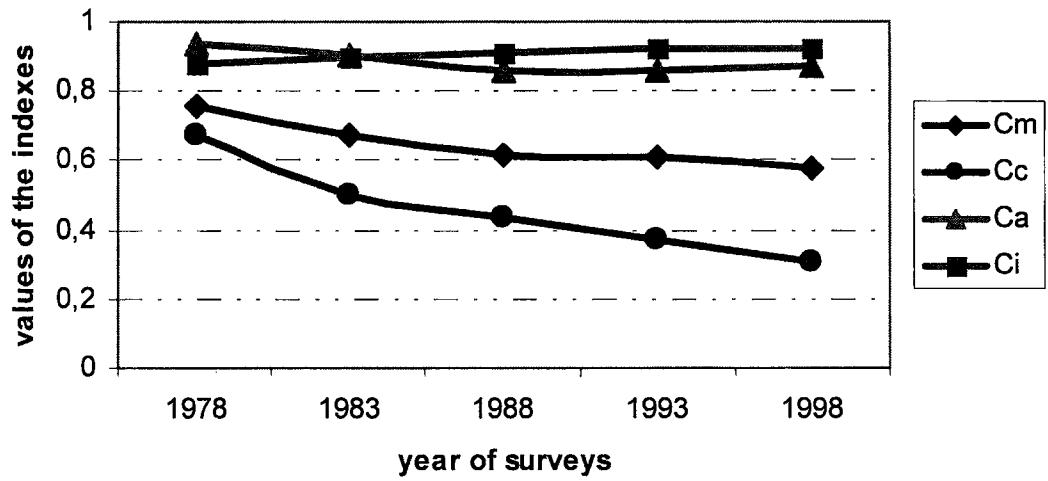
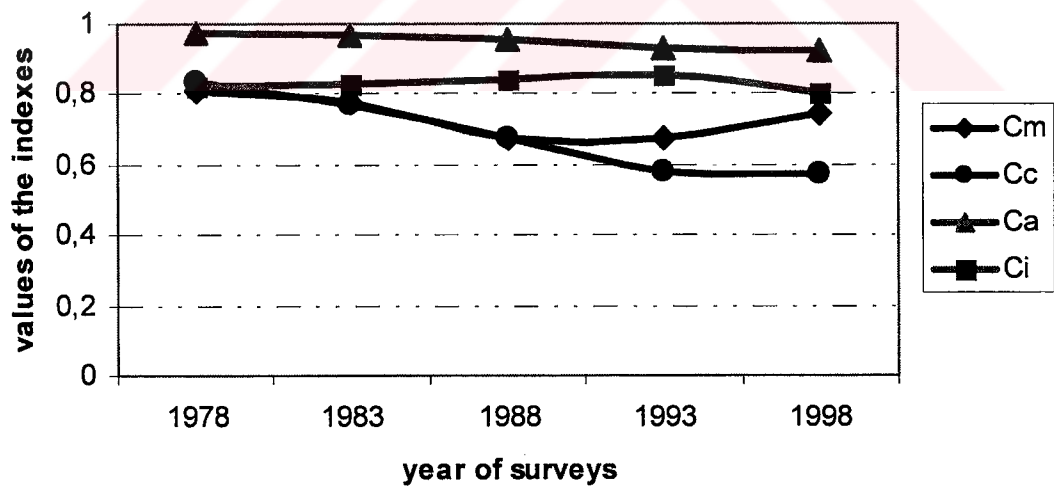


Figure VII.6. Trends of proximate determinants-East



In this discussion section we attempt to discuss the results of calculations. Here, we are not going to discuss all variables in detail. We are going to be content with doing some general evaluations. While following the evaluations below, looking at the figures of age specific fertility rates presented in the Appendix section would be useful, in order to see variations in fertility levels and distribution of fertility according to age groups.

The influence of urbanization on fertility level is well known. However, differences between TFRs of urban and rural residents are not as big as it is expected. Because data on urban-rural residence does not consider the length of time a woman has lived in her current place of residence. For instance, a woman labelled as urban may have lived in an urban area for only a short time when she was interviewed. Migration status variable solves this problem and presents a more clear picture. In general, fertility is expected to be lowest among urban natives and highest among rural natives, with the two migrant groups in between. However Turkish case does not match with this pattern. The difference in TFRs between urban natives and rural natives is clear but fertility of migrants is higher than that of rural natives. Fortunately the situation normalizes a bit when we look at TMs. Urban native women has 3,54 births, women migrating from rural to urban have 3,93 children and rural native women has highest TM, they have 4,94 births. It should be in doubt about the values of urban to rural migrants. Because there are small number of women in this category. The high fertility level of migrants is an indicator of poor urbanization in Turkey. This chronic problem of Turkey requires more detailed studies. Urban native women use contraceptive methods more frequent and more effective. Rural to urban migrant women resort to contraceptives more frequent than rural native women. The percentage contribution of marriage to fertility decline among rural to urban migrants is significant. 72 percent of fertility decline is because of marriage. Induced abortion is also more prevalent among rural to urban migrants. Rural native women breastfeed their children longer than others do.

Table VII.2. Fertility Measures by Background Characteristics, TDHS-98

Background Characteristics	TFR_{actual}	TF	TN	TM	TFR_{implied}	diff
TURKEY	2,76	15,7	13,5	3,98	2,69	0,07
SOCIOECONOMIC VARIABLES						
REGION						
West	2,08	15,8	14,0	3,09	2,02	0,06
South	2,56	13,6	13,7	4,45	2,89	-0,32
Central	3,01	18,9	13,8	3,51	2,44	0,57
North	2,75	19,4	14,1	3,77	2,17	0,58
East	4,28	13,5	12,3	6,51	4,86	-0,58
RESIDENCE						
Urban	2,57	16,0	13,5	3,57	2,46	0,12
Rural	3,16	15,3	13,5	4,84	3,15	0,00
MIGRATION STATUS						
Urban native	2,26	15,9	13,7	3,41	2,17	0,08
*Urban to rural migrant	4,37	18,8	14,0	4,83	3,55	0,82
Rural to urban migrant	3,38	15,4	13,5	3,91	3,36	0,02
Rural native	3,14	13,8	14,6	5,48	3,48	-0,34
EDUCATION OF WOMEN						
No Education/Primary incomplete	4,19	15,0	12,4	5,33	4,28	-0,09
Primary completed/Secondary incomplete	2,77	16,4	13,8	3,70	2,59	0,18
Secondary complete or higher	1,65	20,3	14,0	2,44	1,24	0,41
WOMAN'S OCCUPATION						
Not Working	3,40	16,2	13,2	4,23	3,22	0,18
Service	1,11	14,6	13,6	2,42	1,16	-0,05
Agriculture	2,69	16,8	13,7	3,95	2,45	0,24
Industry	1,00	10,9	13,6	3,03	1,40	-0,40
WOMAN'S LABOR FORCE PARTICIPATION						
Not Working	3,40	16,2	13,2	4,23	3,22	0,18
Urban labor force participation	1,17	13,2	14,2	2,70	1,35	-0,18
Rural labor force participation	2,55	16,1	13,8	4,09	2,42	0,12
WOMAN'S SOCIAL SECURITY						
Not Working	3,40	16,2	13,2	4,23	3,22	0,18
Working with social security	1,15	16,0	14,0	2,35	1,10	0,05
Working without social security	2,00	14,8	13,9	3,73	2,07	-0,07
INCOME OF HOUSEHOLD						
Low	3,17	16,2	13,1	4,26	3,00	0,17
Middle	2,21	15,6	13,7	3,38	2,17	0,04
*High	1,81	18,2	13,7	2,75	1,52	0,29
CULTURAL VARIABLES						
ETHNICITY						
Turkish	2,44	16,9	13,8	3,39	2,22	0,23
Kurdish	4,32	13,2	12,2	6,82	5,03	-0,70
*Other	4,15	15,2	12,2	5,18	4,17	-0,02
RELIGIOUSITY						
Religious	3,62	15,0	11,6	5,00	3,70	-0,08
Secular	2,64	16,8	13,7	3,56	2,41	0,24
ARTICULATION TO THE CENTRAL SYSTEM						
Central	1,53	18,6	14,2	2,31	1,26	0,27
Semi-peripheral	2,28	14,7	13,5	3,79	2,37	-0,09
Peripheral	3,46	16,5	12,9	4,29	3,21	0,25

* sample size is too small

Table VII.3. Fertility Measures and Proximate determinants by Background Characteristics, TDHS-98

Background Characteristics	TF	Ci	TN	Cc	Ca	TM	Cm	TFR
TURKEY	15,3	0,8850	13,5	0,3387	0,8689	3,98	0,6758	2,69
SOCIOECONOMIC VARIABLES								
REGION								
West	15,3	0,9174	14,0	0,2680	0,8220	3,09	0,6533	2,02
South	15,3	0,8929	13,7	0,3736	0,8721	4,45	0,6487	2,89
Central	15,3	0,9009	13,8	0,2920	0,8728	3,51	0,6942	2,44
North	15,3	0,9217	14,1	0,3070	0,8697	3,77	0,5751	2,17
East	15,3	0,8032	12,3	0,5729	0,9253	6,51	0,7462	4,86
RESIDENCE								
Urban	15,3	0,8850	13,5	0,3078	0,8563	3,57	0,6880	2,46
Rural	15,3	0,8811	13,5	0,4024	0,8915	4,84	0,6521	3,15
MIGRATION STATUS								
Urban native	15,3	0,8969	13,7	0,2870	0,8652	3,41	0,6373	2,17
*Urban to rural migrant	15,3	0,9174	14,0	0,3850	0,8947	4,83	0,7352	3,55
Rural to urban migrant	15,3	0,8811	13,5	0,3364	0,8613	3,91	0,8601	3,36
Rural native	15,3	0,9524	14,6	0,4199	0,8950	5,48	0,6356	3,48
EDUCATION OF WOMEN								
No Education/Primary incomplete	15,3	0,8130	12,4	0,4724	0,9074	5,33	0,8028	4,28
Primary completed/Secondary incomplete	15,3	0,9050	13,8	0,3083	0,8666	3,70	0,7000	2,59
Secondary complete or higher	15,3	0,9132	14,0	0,2160	0,8086	2,44	0,5081	1,24
WOMAN'S OCCUPATION								
Not Working	15,3	0,8658	13,2	0,3563	0,8966	4,23	0,7611	3,22
Service	15,3	0,8889	13,6	0,2404	0,7395	2,42	0,4800	1,16
Agriculture	15,3	0,8929	13,7	0,3489	0,8289	3,95	0,6197	2,45
Industry	15,3	0,8889	13,6	0,2871	0,7759	3,03	0,4629	1,40
WOMAN'S LABOR FORCE PARTICIPATION								
Not Working	15,3	0,8658	13,2	0,3563	0,8966	4,23	0,7611	3,22
Urban labor force participation	15,3	0,9302	14,2	0,2606	0,7273	2,70	0,5017	1,35
Rural labor force participation	15,3	0,9050	13,8	0,3529	0,8371	4,09	0,5924	2,42
WOMAN'S SOCIAL SECURITY								
Not Working	15,3	0,8658	13,2	0,3563	0,8966	4,23	0,7611	3,22
Working with social security	15,3	0,9174	14,0	0,2264	0,7402	2,35	0,4673	1,10
Working without social security	15,3	0,9091	13,9	0,3321	0,8080	3,73	0,5540	2,07
INCOME OF HOUSEHOLD								
Low	15,3	0,8584	13,1	0,3712	0,8744	4,26	0,7032	3,00
Middle	15,3	0,8969	13,7	0,2907	0,8474	3,38	0,6419	2,17
*High	15,3	0,8969	13,7	0,2300	0,8720	2,75	0,5532	1,52
CULTURAL VARIABLES								
ETHNICITY								
Turkish	15,3	0,9009	13,8	0,2907	0,8469	3,39	0,6535	2,22
Kurdish	15,3	0,8000	12,2	0,5991	0,9305	6,82	0,7367	5,03
*Other	15,3	0,8000	12,2	0,4504	0,9393	5,18	0,8060	4,17
RELIGIOUSITY								
Religious	15,3	0,7605	11,6	0,4673	0,9200	5,00	0,7405	3,70
Secular	15,3	0,8969	13,7	0,3035	0,8546	3,56	0,6757	2,41
ARTICULATION TO THE CENTRAL SYSTEM								
Central	15,3	0,9302	14,2	0,2022	0,8037	2,31	0,5445	1,26
Semi-peripheral	15,3	0,8850	13,5	0,3183	0,8797	3,79	0,6264	2,37
Peripheral	15,3	0,8439	12,9	0,3798	0,8753	4,29	0,7473	3,21

* sample size is too small

Table VII.4. Relative Percentage Contribution of Each of the Proximate Determinants to the difference Between the Total Fecundity Rate and the Total Fertility Rate by Background Characteristics, TDHS-98

Background Characteristics	Pm	Pc	Pa	Pi
TURKEY	23	62	8	7
SOCIOECONOMIC VARIABLES				
REGION				
West	21	65	10	4
South	26	59	8	7
Central	20	67	7	6
North	28	60	7	4
East	26	49	7	19
RESIDENCE				
Urban	20	64	8	7
Rural	27	58	7	8
MIGRATION STATUS				
Urban native	23	64	7	6
*Urban to rural migrant	21	65	8	6
Rural to urban migrant	10	72	10	8
Rural native	31	59	7	3
EDUCATION OF WOMEN				
No Education/Primary incomplete	17	59	8	16
Primary completed/Secondary incomplete	20	66	8	6
Secondary complete or higher	27	61	8	4
WOMEN'S OCCUPATION				
Not Working	18	66	7	9
Service	28	55	12	5
Agriculture	26	57	10	6
Industry	32	52	11	5
WOMEN'S LABOUR FORCE PARTICIPATION				
Not Working	18	66	7	9
Urban labor force participation	28	55	13	3
Rural labor force participation	28	57	10	5
WOMEN'S SOCIAL SECURITY				
Not Working	18	66	7	9
Working with social security	29	56	11	3
Working without social security	30	55	11	5
INCOME OF HOUSEHOLD				
Low	22	61	8	9
Middle	23	63	8	6
*High	26	64	6	5
CULTURAL VARIABLES				
ETHNICITY				
Turkish	22	64	9	5
Kurdish	27	46	6	20
*Other	17	61	5	17
RELIGIOUSITY				
Religious	21	54	6	19
Secular	21	64	8	6
ARTICULATION TO THE CENTRAL SYSTEM				
Central	24	64	9	3
Semi-peripheral	25	61	7	7
Peripheral	19	62	9	11

* sample size is too small

21,7 percent of women do not have primary education in Turkey. Fertility consistently decreases as the level of women's education rises. After the analysis it is seen that the education of the woman is strongly associated with fertility. The difference in TFRs between women having secondary or higher education and non-educated women is more than 2,5 births. As level of education increases contraceptive use and effectiveness also increase. For example, 75,3 percent of women having secondary or higher education use contraceptive methods. 61 percent of fertility decline (from TF to TFR) is because of contraceptive use in this group. Female dependent methods are widespread among these educated groups. Nearly half of uneducated women do not use any contraceptive methods. Educated women delay their marriages to later ages. Median duration postpartum infecundability has an inverse relationship with increasing level of education. Uneducated women breastfeed their babies much more than educated women do. Median duration of uneducated women doubles that of uneducated women.

The women's labour force participation is another important factor having influence on fertility. Generally, being employed indicates a modern way of life presenting opportunity to control their life. However, it is known that nearly half of the working women is employed in agricultural, rural sector in Turkey. In this situation it is difficult to mention a modern way of life. Likewise to be working creates great differences only if women are working in urban sectors, that is in service and industrial sectors. Women working in urbanized sectors and women working with social security have fewer children than do other women. Women working in the cities in service and industrial sectors use contraception more frequent and more effective. They enter into marriage union later than not-working women or working in agricultural sector. Median duration of postpartum infecundability is shortest among women working in service sector. Total abortion rate is highest among women working in agricultural sector.

Income information being used to construct income of household variable was a bit problematic. The income information was not including *in kind* income in

TDHS-98. Moreover the sample size of high income households is not enough to make reliable analyses. Hence the results should be used carefully. By looking at TFRs it can be said that households having low income has 1,4 more children than households having high income. According to TMs the difference is only 0,9 children. Households having high income use contraceptives more frequent than households at other income levels. Because of this contraception index of this group is 0,2300. Whereas contraception index of low and middle income households are 0,3712 and 0,2907 respectively. They marry at later ages. Households with low income resorts to induced abortion more frequent and breastfeed their babies for longer periods.

Cultural variables also present great variation in terms of their fertility levels. By looking at TFRs it is seen that Kurdish women have 1,88 more births than that of Turkish women. The difference becomes greater when we look at TMs. While Turkish women have 3,74 births, Kurdish women have 5,87 births. Similarly religious women have nearly 1 more children than secular women according to TFs. Contraceptive prevalence rates are higher among Turkish women and secular women. They delay their marriages for a longer period than religious and Kurdish women do. Abortion rate is also higher among Turkish and secular women. Religious women and Kurdish women breastfeed their babies longer period. Kurdish and secular categories are two of the four categories having the longest postpartum infecundability period.

Women at the periphery have nearly 2 more births than women at the center both according to TFR and TM. TFR of women at the center is dropped below the replacement level (1,53), however women at the periphery doubles the TFR of women at the center. This situation implies insufficiency and incompleteness of Turkish modernization process. Modernity changes traditional lives of people by changing relations of production, participating them to labour force, increasing their educational level, and increasing their incomes. 54,4 percent of women are at the periphery according to these criteria. This means that more than half of women are outside the system. Other 29,4 percent of women are at the semi-periphery of the

system. The effect of modernization on these women is also limited. Women at the center use contraceptives more frequent and more effectively. They postpone their marriages more than others. On the other hand, peripheral women breastfeed their babies more and apply to induced abortion more frequent than women at the center.



CHAPTER VIII. CONCLUSION

In the previous chapter evaluations have been done separately for each socio-economic and cultural groups. In this chapter we summarize the findings of the study by categorizing socio-economic and cultural groups into three main groups according to their total fertility rates.

I) *Below Replacement Level (< 2,1)*

Women living in the West region, women having secondary complete or higher education, women working in service or industrial sector (that is in urban sectors), women living in high income households, secular women and women at the center reduced their fertility below replacement level. Education and labour force participation of women in urban settlement are seemed to be most important factors affecting fertility. Their fertility levels are half of the replacement level. While reducing their fertility these groups use especially contraception. Contraceptive prevalence rate is high among these groups and they use contraceptive methods effectively. Second tool they resort to achieve low fertility is marriage postponement. Abortion rate is low among these groups. This situation can be explained by effective contraceptive use. Median postpartum infecundability period of these groups are lower than other groups.

II) *Between 2 – 3*

Women living in urban settlements especially urban native women, women having primary education, women working in agricultural sector, middle income households, Turkish women and semi-peripheral women are in this category. Contraceptive use is again the most important tool they have used to decrease their fertility as in the previous category. However, prevalence of contraceptive use among these women is a little bit less than the previous women. They marry earlier than the previous women. Abortion rate is clearly higher than the previous women.

Median duration of breastfeeding is approximately the same with the preceding women.

III) *Higher than 3*

Rural native women, women migrating from rural to urban, not working women, low income households, religious women and peripheral women have total fertility rates between 3 and 4. Uneducated women and Kurdish women have the highest fertility level. Their TFRs are above the 4. The high fertility level of these women is mainly because of low contraceptive use. They marry at younger ages. They breastfeed their babies for longer periods. They resort to abortion approximately at the ratio with the preceding women.

As a summary of the summary it can be said that both socioeconomic and cultural factors are influential on fertility. The big variations between the categories of socio-economic and cultural variables indicate their importance on fertility. There is no doubt that all of these variables effect each other. They are too much intertwined.

If we turn back to theories of fertility decline we could remember that there were many explanations of the causes of fertility decline. Demographic transition theory, was tying fertility decline to economic and social development, ideational theories were relating the same fact to cultural shift and institutional theories were explaining fertility decline with political development.

These theories gave priority to different components of modernization process to explain fertility decline. As it is well known, modernization process classically includes industrial revolution, formation of nation-state as a result of social revolution as in the case of French revolution and also an enlightenment process preparing intellectual background for cultural transformation. In other words, economic development, cultural transformation and formation of nation-state are parts of the same process, of modernization process.

Therefore, the influences of socioeconomic, ideational and institutional factors need not be considered as opposing hypotheses, but rather as complementary elements of an integrated theory of fertility change. It would be meaningless to search a single cause, and focus on it as the only cause. In reality, socio-economic, cultural-ideational and institutional factors are much too closely intertwined to be isolated.

The most significant dichotomy dominant on debates in the literature, was between “structure” and “culture”. While economic theories attributes primacy to structural factors over cultural factors, ideational-cultural theories emphasizes autonomy of cultural factors from economic structure. This is a paradoxical discussion like an egg-chicken discussion. It is true that, economic structure, infrastructure determines the superstructure, culture at the last instance. At the beginning cultural values born as a product of economic structure. On the other hand, once they emerged they gain autonomy. The life spans of cultural values are not limited with socio-economic structure creating these values. Cultural values have long-term consequences on human fertility that are only slowly (and partially) eroded by socioeconomic changes. To say there is a reciprocal interaction is under consideration between structure and culture would be more true. Likewise after the analysis we saw that both socio-economic and cultural variables are influential factors on fertility.

Another point necessitating to be careful is that same causal variables are not present everywhere. Searching a universal, unilineal, ahistorical, simple model of modernization and fertility decline would be a wrong strategy. It should be accepted that all fertility transitions does not follow a similar path and that the same causal variables are not present everywhere. There are considerable variations between and within societies. The speed and level of socioeconomic development, the role of government, cultural traditions and gender stratification, and the strength of family planning programs are not the same between societies and within socio-economic, cultural groups.

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APPENDIX

