

**T.C.
MARMARA ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ
İKTİSAT ANABİLİM DALI
İKTİSAT (İNG) BİLİM DALI**

**MICRO AND MACRO ASPECTS OF
HEALTH ECONOMICS IN TURKEY**

Doktora Tezi

Z.GÜLDEM ÖKEM

İstanbul, 2007

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Advisor: Prof. Dr. FATMA DOĞRUEL

İstanbul, 2007

Marmara Üniversitesi
Sosyal Bilimler Enstitüsü Müdürlüğü

Tez Onay Belgesi

İKTİSAT Anabilim Dalı İKTİSAT (İNG.) Bilim Dalı Doktora öğrencisi ZEYNEP GÜLDEM ÖKEM nin tez çalışması ,Enstitümüz Yönetim Kurulunun tarih ve sayılı kararıyla oluşturulan jüri tarafından oy birliği / oy çokluğu ile Doktora Tezi olarak kabul edilmiştir.

Öğretim Üyesi Adı Soyadı

İmzası

Tez Savunma Tarihi : 6.2.2007
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Thesis and Date : PhD – February, 2007
Key words : Health Economics, Equity, Growth, Convergence

ABSTRACT

MICRO AND MACRO ASPECTS OF HEALTH ECONOMICS IN TURKEY

There has been a major shift in economic policies in Turkey after 1980. The Structural Adjustment Policies implemented in this context required an increased role for the market and a reduced role of the state in economic activities. These policies caused increased poverty, impeded social development, particularly in terms of the health services. A significant observation as to the post 1980 health sector in Turkey has been inequity in finance and provision of health care. The government health expenditures could not be reduced and health service provision could not be improved.

Equity is both an analytical tool for assessing public responsiveness to the health care needs of the population and an objective for the health sector. Due to imperfections in the functioning of the health care market, there is a need for government activity. As such, equity guides government in areas requiring intervention to improve finance and provision in health services. Health care resources should be allocated according to need, where they are needed most. In this way, improved equity in health sector brings increased efficiency. Based on the data derived from a Health Services Utilization Survey (1992), the findings of the equity analysis of the health sector in Turkey indicated that access to health services has been significantly restricted in terms of financial status and geographical location.

The study also queries the relevance of health status, as representative of human capital, in testing convergence in growth rates among provinces in Turkey. A Chronic Disease Index (CDI) is derived from the aforementioned equity analysis and used in convergence estimation. The findings suggested that the differences in health status have been effective in explaining conditional convergence among provinces. The CDI also constitutes a better indicative, as compared to conventional development indices, for sector specific intervention requirements. This implies that an equity-based measurement provides a better guidance in meeting sectoral requirements.

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Tez Türü ve Tarihi	: Doktora – February, 2007
Anahtar Kelimeler	: Sağlık Ekonomisi, Hakkaniyet, Büyüme, Yakınsama

ÖZ

TÜRKİYE’DE SAĞLIK EKONOMİSİNİN MİKRO VE MAKRO BOYUTLARI

Türkiye’de ekonomi politikalarında 1980 sonrasında önemli bir değişim olmuştur. Bu çerçevede, pazarın rolünün artmasını ve devletin rolünün azalmasını öngören Yapısal Uyum Politikaları uygulanmıştır. Bu politikalar yoksulluğu artırmış, özellikle sağlık sektörü açısından sosyal kalkınmayı geciktirmiştir. 1980 sonrası Türkiye’de sağlık sektöründe göze çarpan bir özellik, sağlık finansmanı ve hizmet sunumunda hakkaniyetsizliktir. Devletin sağlık harcamaları azaltılamamış ve sağlık hizmeti sunumu geliştirilememiştir.

Hakkaniyet, devletin toplumun sağlık hizmeti ihtiyaçlarının devletçe karşılanabilmesinin değerlendirilmesinde analitik bir araçtır. Aynı zamanda sağlık sektörünün ulaşmak istediği bir hedeftir. Sağlık hizmet pazarının serbest piyasa koşullarından farklılaşması nedeniyle, devletin etkinliğine gereksinim vardır. Bu kapsamda hakkaniyet hedefi, devletin sağlık hizmetleri finansmanı ve sunumunun geliştirilmesinde etkinlik göstermesi gereken alanların belirlenmesinde yol göstericidir. Hakkaniyetin sağlanmasında, sağlık sektörü kaynakları en çok ihtiyaç duyulan alanlara ve ihtiyaçlara göre dağıtılmalıdır. Böylelikle, sağlık hizmetlerinde hakkaniyetin geliştirilmesi, verimlilikte de artış getirecektir. Bu çalışmada Sağlık Hizmetleri Kullanım Araştırması (1992) verileriyle yapılan Türkiye sağlık sektöründe hakkaniyet analizinin sonuçları, sağlık hizmetlerine ulaşılabilirliğin finansal ve coğrafi yerleşim açısından oldukça kısıtlı olduğunu göstermiştir.

Bu çalışmada ayrıca, beşeri sermayeyi temsil eden sağlık statüsünün, Türkiye’de illerin büyüme hızlarının yakınsaması testinde anlamlılığı da sorgulanmıştır. Yukarıda anılan hakkaniyet analizinden bir Kronik Hastalık Endeksi (KHE) elde edilmiş ve yakınsama tahmininde kullanılmıştır. Sonuçlar, iller arasındaki koşullu yakınsamanın açıklanmasında sağlık statüsündeki farklılıkların etkili olduğunu göstermektedir. Ayrıca, sektörel müdahale gerekliliklerinin belirlenmesinde, KHE’nin gelişme endekslerine göre daha iyi bir araç olduğu gösterilmiştir. Bu, hakkaniyete dayalı ölçümlerin sektörel ihtiyaçların karşılanmasında devlete daha yol gösterici işlev gördüğü anlamına gelmektedir.

To my loving mother and father,
my dear husband and sons, Alp and Can

ACKNOWLEDGEMENTS

I would like to express my deepest gratitude to my advisor Prof. Dr. Fatma Doğruel for her guidance, encouragement and patience throughout this research.

I wish to thank Prof. Dr. Suut Doğruel and Assoc. Prof. Dr. Alpay Filiztekin for their useful suggestions and comments.

I am grateful to my mother and father for their unwavering support and belief in my success. I thank to my husband and children, Alp and Can for their patience and love.

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LIST OF ABBREVIATIONS

BUT	Bütçe Uygulama Talimatı (Budget Implementation Directives)
CDI	Chronic Disease Index
DI	Development Index
DPT	Devlet Planlama Teşkilatı (State Planning Organization)
ES	Emekli Sandığı (Government Employees Retirement Fund)
GC	Green Card
GDP	Gross Domestic Product
GNP	Gross National Product
HUS	Health Services Utilization Survey
SAP	Structural Adjustment Policies
SSK	Social Security Institution (Sosyal Sigortalar Kurumu)
MoH	Ministry of Health
OLS	Ordinary Least Squares
SPO	State Planning Organization
TDHS	Turkey Demographic and Health Survey
TUIK	Türkiye İstatistik Kurumu

1. INTRODUCTION

Can poverty reduction help sustained economic growth in a developing country? In an age when neo-liberal strategies are criticized for having caused worsened income distribution and increased poverty, what are the possible remedies, other than sketchy poverty reduction schemes, to the negative impact of the structural adjustment policies (SAPs) on social sectors? If increased poverty is a major consequence of the neo-liberal strategies, including the SAPs in developing countries, then, is not poverty reduction both a problem posed and a solution suggested by neo-liberalism itself?

In the 1950s and 1960s, the approach toward poverty alleviation was growth oriented. However, the practical experience in different countries proved the ineffectiveness of this approach and the agenda shifted on to the importance of the improvement of human capital for development. In the 1970s, the debate focused on directly targeting the poor, accompanied by a parallel debate on the provision of basic needs and redistribution with growth (Pfeffermann, 1991). The basic needs approach broadened the scope on poverty alleviation and emphasized the importance of social indicators, such as health status and literacy, which were considered as important as income growth in poverty reduction (Carrin and Politi, 1996).

The criticism toward the neo-liberal growth strategy in the 1980s focused on the increased number of the poor. The growth process had produced an opposite effect on poverty by increasing the gap between the poor and the rich. Most of the public intervention and investment promoted the relatively better-off sections of the society and resulted in an exclusion of the poorest (Kurian, 1989). Hence, poverty reduction has always been a most debated component of the neo-liberal growth strategy as well as its most frequent consequence.

Can health status be a meaningful component of human capital in the neo-classical growth formula? If so, can equity in health sector provide a reliable mediation? In the context of developing countries, may equity in health sector be considered mutually exclusive with poverty reduction schemes?

There are numerous societal factors affecting the health status; population health dynamics, economy, education, social infrastructure and environment as well as the availability of health services (Carrin and Politi, 1996). In order that the social and economic policies influence the level of health status, first, the development strategies and policies at the macro level should be *equity-oriented*. These must ensure human capital development as well as economic development through health services and education (Gunatilleke, 1995). Secondly, social sectors should be protected in economic restructuring by more liberal market-oriented policies (Ranis et al, 2000). Gunatilleke (1995) emphasized the significance of expanding access to health care and primary education in attaining higher levels of well-being. Hence, the equity oriented development should comprise primary health care and primary education for effectively reducing poverty.

Why is equity in health sector so significant? What is its relevance, particularly in a medium income country like Turkey, which has been “structurally adjusting” for over two decades that aimed at reducing government expenditures by encouraging “cost-effectiveness” and “efficiency” in public services including the health sector? Despite its extensive discourse on equity, has the health reform in Turkey since the early 1990s succeeded in ensuring its enhancement?

In trying to understand the framework drawn by the questions above, this study aims at investigating micro and macro aspects of health economics in Turkey with particular reference to equity in health sector. In doing so, the context of the study has been framed over Turkey’s experience with the SAPs since the early 1980s in terms of their effects on health sector.

Within this contextual framework, we have analyzed equity in health sector in Turkey, considering its basic dimensions including finance and provision of health services. This analysis is based on data derived from the Health Utilization Survey (HUS) conducted in 1992. The main objective of this analysis has been to demonstrate structural inequalities in health sector in Turkey. This has been instrumental in understanding how and why equity can be relevant in enhancing the responsiveness of the health sector to the health care needs of the population.

We have also tried to carry our findings from the above mentioned analysis over to a larger framework involving the relevance of equity in enhancing health status, hence human capital.

The scope of this study is not unrestricted as to the analysis of the effects of the SAPs. There has been an extensive literature regarding the SAPs and their effects on income distribution, employment, prices and so on. We have relied on the evidence provided by various studies analyzing these effects and avoided an extensive endeavor in this respect. Similarly, the scope of our analysis remains in a more limited context as to the health sector in Turkey rather than an attempt to assess the economic policies in the past three decades. Nor it claims an analytical introduction to the public expenditures in general. We have also refrained from assessing every dimension the health status or the health system may have involved in Turkey. Hence, our concern in this study excludes other important dimensions of the health sector such as the service quality or other aspects that affect the health status such as environmental pollution, food safety, sanitation, security and life style.

This study, therefore, is a contextual analysis that tries to locate equity among the central aspects in ensuring the enhancement of responsiveness of the health system to the needs of the population. While doing so our basic arguments will suggest the following.

Firstly, despite their declared objectives in ensuring sustainable growth while reducing public expenditures, the SAPs have brought adverse outcomes in many countries, including Turkey (Rapley, 1996: 80; Cornia *et al.*, 1987; Arıcanlı, and Rodrik, 1990; Kanji

et al., 1991; Huddle, 1997; Handa and King, 1997 and 2003; Cleaver, 2000; Çalışkan, 2005). Since the early 1980s through the early 2000s, the government expenditures in health have increased, but there has been no improvement observed neither in efficiency nor equity in health services. As in many other countries, the SAPs brought increased poverty and poverty alleviation schemes consecutively in Turkey. A most striking example has been the Green Card (GC) scheme in 1992, which, in turn, has been a major cause of increased health expenditures in time. The GC, on the other hand, has failed to address effectively the poor. The SAPs also brought a reform need in the health sector which could not be translated into a comprehensive framework with clearly defined policy preferences and measurement capabilities. Equity has not been immune to these deficiencies, despite the intensive discourse on its significance. It was neither clearly defined, nor any effective measurement mechanism and criteria have been devised for its operation. We would argue that an equitable health care would bring efficiency in both provision and finance as well as it would address the health needs of the population, hence, it would render poverty alleviation schemes like the GC unnecessary.

Secondly, in developing countries, there is a problem of welfare which extends beyond the concerns of economic growth. In a medium income country like Turkey, there are geographical locations and socio-economic groups that completely lack basic welfare benefits, such as primary schools, health units, roads, electricity, water and sanitation. Hence, the issue for the population concerned is more of an existential nature than the efficiency or effectiveness of an existing service, which does not exist. Addressing these needs naturally require government intervention. The extent, timing and targeting of such intervention can be measured and defined by an equity analysis. Hence, equity is always

relevant and significant in terms of the responsiveness capability of the government to the needs of the population, even if it lacks adequate resources to redistribute.

Thirdly, it should be borne in mind that the basic assumption of the neoclassical theory that presumes perfect market conditions may not explain fully the nature of health care market. There is imperfect information in the market due to a vast asymmetry of information between the providers and users (Maynard, 1979). Users also lack the capacity of knowing when, what and at which cost their needs would occur, hence the demand is uncertain. There is also an induced demand outside the control of the user himself. The providers, i.e. doctors, determine the extent of demand. In health economics, this is called an 'agency relationship' to denote the suppliers of health care are also act as an 'agent' of the demanders. Due to his knowledge and power, physicians make both supply and demand decisions (Williams, 1986: 5). Furthermore, entry and exit in the 'market' is restricted. Users and providers meet over normatively defined, i.e. professionally determined needs, rather than felt needs (Le Grand, 1987; McGuire *et al.* 1992; Culyer and Wagstaff, 1992a). Hence, goods and services in the health sector cannot be traded and treated in perfect market conditions. Health and health care create externalities. Therefore, some degree of government regulation is essential in the health sector (Klein, R., 1988; Donaldson and Gerard, 1994: 21; Culyer, 1991; Culyer and Wagstaff, 1992b). Yet, none of the above implies that individuals irrational in seeking health care. Their rational choice, however, is restricted to their knowledge.

A fourth point in line involves that an efficient allocation of resources in provision and finance in health sector may not be sufficient in producing the desired impact toward the improvement of the overall health status (Gilson, 1988). Due to the limited nature of the public resources, the government intervention in health sector needs to be a calculated one which also takes into account the health care needs of the population. Equity provides this capability by increasing the responsiveness and targeting capacity in the health sector. In an equitable health system the government maintains a constant information and measurement mechanism as to the sectoral and geographical needs requiring intervention.

Fifth, increased health expenditures do not mean an improvement in health status (The WB, 1993: 54; Murray *et al.* 1994). On the other hand, if equity means an enhanced responsiveness to the health care needs of the population, then any improvement in equity will mean improved health status. This will in turn reflect positively on the human capital. Human capital, which has become an important issue in the neo-classical growth literature, is often perceived as education. Health, however, as suggested by some scholars, should also be considered as an important factor in the composition of human capital (Schultz, 1961; Mushkin, 1962). The problem then, given the peculiarities of the health care market referred above, is how should we make a desired improvement in health status measurable? Equity in health care provides an answer by defining sectoral intervention areas in a calculated manner.

Lastly, the neo-classical interest in human capital as to its contribution to growth may be worth a reconsideration from another angle. That is, how can economic growth contribute to the improvement of human capital and hence, the health status. We believe

equity can play a two way function here. With a growth induced improvement in the provision and financial capabilities of the public sector, the health care needs can be responded with an enhanced fairness and efficiency. Hence, equity is a two way framework that may help to redistribute growth to those who need.

In the following chapters we have initially tried to provide a framework to understand the relevance of equity in health sector in Turkey in a historical context since the 1980s. In Chapter Two, the effects of the SAPs on the health sector in Turkey have been categorized into direct and indirect effects. As to the direct effects, it has been revealed that the government expenditures in health sector followed a gradual downfall until the mid-1980s as originally intended. However, a recovery observed toward the end of that decade continued, apart from the years of financial crises. A consideration of the composition of the health expenditures revealed that this increase was mainly induced by the indirect effects of the SAPs, such as increases in salaries and the costs of imported pharmaceuticals due to continued inflation and devaluation respectively. The financing pattern, on the other hand, started to restructure as the share of government financed health services relatively decreased, premium financed share increased. In the meanwhile, the overall coverage started to expand which was further accelerated by the introduction of the GC scheme in 1992. The GC scheme was originally intended as an anti-poverty measure as it did not cover ambulatory care and drug expenses. The composition of government expenditures by type also changed at the expense of preventive services. This meant that the resources have been allocated to more costly curative services and drug expenditures. The preventive services which form an essential part of the public responsibility in health sector have been fatally neglected. In almost more than two decades, there has not been any

improvement in health service provision indicators, such as population per doctor and per bed. Similar findings also applied to basic health indicators. Regional disparities persisted in the allocation of health care resources.

Chapter Three involves an assessment of equity in health sector in Turkey. To do so, we have introduced a conceptual framework reviewing the theoretical origins and operational dimensions of equity. Equity in finance and provision of health services in Turkey is assessed by using data derived from the HUS conducted in 1992. Equity in finance should not be separated from its impact on health service provision. The type of financing mechanism determines who benefits by how much, for what and through which mechanism in a health system (Cumper, 1986). The structure of a financial system has effects on suppliers via the payment methods and users through the incentives or disincentives created by the system.

The assessment of equity requires determining who is bearing the financial burden to access health services and who benefits from health services. In terms of finance, it is measured as *the percentage of insurance coverage of the population* and *out-of pocket payments* made by different socio-economic groups in financing health services. In terms of provision, equal provision ensures equal opportunity to access to the health services within the population. Individuals from different socio-economic groups or regions should not be adversely affected neither in expressing their health needs, nor in their access to and utilization of health services. The consumer choice as to the *type of health services* available (public or private) and *equal utilization for equal need* among different groups in the population are the measurement criteria for equity in health service provision. Factors

in expressing health care needs and utilization patterns of health services can be determined by logistic regression estimates. Based on these estimation, we have drawn a chronic disease index (CDI) for each province in Turkey. This index has served us an illustration of the health care needs of the population incorporating all socio-economic effects and regional disparities.

The inequity problem in Turkey arises mainly from the inequalities in health insurance coverage and the geographical distribution of health care resources. The health insurance is linked with employment status and having regular jobs. Even among the insured there are inequalities in the utilization of health services. The intensity of out-of-pocket payments especially in the lower income quintiles indicates high inequalities in finance. This is also valid for the insured. Having insurance does not necessarily provide a protection against the costs of health services. The financial problems have been the most frequently expressed reason for not using health services. The health system in Turkey has not been responsive to the health care needs of the population.

The fourth chapter is an attempt to test the role of health status as a representative of the human capital in convergence in growth rates among the provinces of Turkey. The CDI is used as an indicator for health status in each province. It reflects the effects of socio-economic variables, demographic variables and regional variations in probability of reporting chronic disease. An overall comparison of the provinces in terms of the CDI indicates the inequalities in the health care need. The simple ordinary least squares (OLS) results suggest that there has been a convergence in gross value added per employee among the provinces conditional on health status (i.e. the CDI) and when steady state factors are

controlled with regional dummies. The result supported the need to improve equity in the health system which will also improve convergence in growth rates of provinces.

While drawing our framework in the above, we have considered the viability of reversing the relationship between the health status as a component of human capital and growth. Does growth improve health status? The effects of an increase in GDP can be inequitable and may not result in an improvement in the living conditions of the people. This is particularly a chronic problem for the vulnerable sections of the population (Kurian, 1989). There are many studies proving that economic growth does not always lead to an improvement of the well-being indicators. Having attained important GDP growth rates, Brazil and Pakistan were unable to improve their health and educational indicators compared to other countries with similar GDP per capita (Syquire, 1993). Despite their positive growth rates in the 1990s, most of the countries in Latin America could not reduce poverty (Birdsall and Londono, 1997). Countries with severe inequalities have not been successful in reducing poverty due to distribution and access problems in basic services, such as health and education (Lipton, 1997). Hence, the key to understand the analogy that flows from economic growth to health status is a more equitable health system.

Similarly, in order to understand the mechanism for inducing growth by improving health status, equity also constitutes a useful analytical tool. In the absence of such analysis, we may easily run the risk of oversimplification. Atun and Gürol (2005) argue that, health expenditures contribute to economic growth and should be seen as an investment. However, as per the findings of our analysis, we shall argue that it would be misleading to

assume increased expenditures bring improved health status, unless equity is included as a primary objective for the health sector.

We believe health economics constitutes a viable and indispensable area of research. It should be studied more extensively and in larger detail in developing countries where the problems of equity and efficiency persist.

CHAPTER 2.

A FRAMEWORK FOR AN APPRAISAL OF THE HEALTH SECTOR IN TURKEY AFTER 1980s

In the decade preceding the 1980s, most of the developing countries operated on sizeable balance of payments deficits, because the cost of imports required for the industrialization process were not fully met by export earnings. This deficit was covered by capital account surpluses, caused by a resource transfer from developed nations in the form of private loans, private investments by multi-national corporations and foreign aid.

In the early 1980s, current and capital account deficits increased sharply in the developing countries. The current account deficit was related to the trends in the volume of trade in 1970s. The capital account deficit was mainly due to the debt crisis in the Third World in the early 1980s, particularly in the Latin American countries. In terms of the donor countries and institutions, the debt crisis resulted in an overall caution and reduction in the international development assistance. Hence, the introduction of “structural adjustment policies” (SAPs) proposed by the World Bank for the heavily indebted Third World countries had originally been a precautionary policy measure.

The 1980s witnessed broad changes in the economic policies of Turkey as well as other developing countries. The rationale behind these was to achieve a sustainable growth through stable macro-economic conditions and to restore internal balance. The former import substitution policies which relied heavily on the state role in economic activities were replaced by an export led industrialization strategy which relied extensively on market forces. As a traditionally borrowing country, Turkey's macroeconomic policies needed to be consistent with the SAPs, which required a modification of the structure of the economy through an increased role of the market. This could be achieved through trade and financial liberalization, a reduction in aggregate demand and a strong regulatory role for the state in economic activities. A tight fiscal policy, i.e. the so-called austerity measures, accompanied by a limited public spending, brought contraction in public sector investments, employment opportunities, suppression of wages and social expenditures, especially in education and health.

Ever since their introduction, the structural adjustment policies have been a cause of concern about their effects on social development. In Turkey, the size of contraction in the public sector through reducing employment opportunities and social expenses resulted in high levels of unemployment and a widening gap between the poor and the rich. The decline in education and health spending hampered the improvement of human capital. The measures also led to a reduction of private consumption in the short run through changes in trade and exchange rate regimes, taxes and subsidies. Continued devaluation adversely affected the income distribution. Increasing price of the imported goods led to higher costs in imports. As the wages were kept constant, the purchasing power of workers declined and

consequently, the domestic demand contracted. Another distributional effect of the devaluation was a rise in exporters' earnings and importers costs. In the long term, the devaluation sharply increased the cost of borrowing from abroad, which further led to a decline in the economic activity and a rise in the price level. Reducing the role of the state in economic activity and promoting privatization in order to improve efficiency reinforced monopolistic profits that further deteriorated the income distribution (Rapley, 1996: 80ff). Hence, in parallel to the reduced public expenditure, private spending for health especially among the poor increased due to worsened income redistribution.

The foregoing criticism suggests that the success of the said policies required complementary and regulatory role for the government in economic activity in order that the destructive effects of a sheer economic liberalization on income distribution could be alleviated. The government needed to improve the operation of the market, to develop a sufficient infrastructure and to ensure that the investments kept apace. It had to strengthen the industry without retarding the agriculture. More importantly, government was to guarantee a better income distribution. For a successful 'adjustment', investing in people was necessary. The government expenditures on health and education must not only be protected, but also be allocated in a way to expand these services to the poor.

This chapter aims at providing a general framework for an analysis to the impact of macroeconomic adjustment and stabilization policies on social development with particular reference to the health sector in Turkey after 1980. Following a brief

consideration of the role of the public sector as a spending agent in line with the SAPs, the discussion will extend on to the public sector as a producing agent in health services. In doing so, we shall provide an overview of the health services to consider the pattern of health expenditures in Turkey. We will then try to assess the health expenditures based on their finance and provision. We shall present the main health status indicators which are affected by the said policies in order to explore more on welfare implications of the SAPs.

2.1 An Overview of the Implications of the Structural Adjustment Policies on Human Capital

A reduced role for the state both as a spending agent and as a producer of goods and services carries with it an in-built concern that the stabilization and adjustment results in lower health expenditures and adverse effects on health status, particularly of the poor. One line of argument typically represented in a well-known study by Cornia *et al.* titled *Adjustment with a Human Face* (1987) emphasizes that the adjustment affect adversely the level of living conditions of the poor. The study, basing on ten cases, concludes that the adjustment have generally caused an erosion in the living conditions of the poor and deteriorated nutritional status of children. The criticism leveled by Cornia *et al.* in their study targets the early adjustment policies and suggests the need to look at alternative approaches that protect the most vulnerable groups in the society.

In a counter argument titled *Adjustment Lending Revisited*, published by the World Bank in 1992, Corbo *et al.* (1992) concluded that adjustment contributed to a growth in the gross domestic product (GDP) of the countries that used adjustment lending intensively and hence the living conditions improved toward the late 1980s. Their findings, however, were contradictory as the share of investment in GDP actually decreased in these countries, hence the government education expenditures and school enrollment fell in some other cases. A lower income level, increased prices and reduced government expenditures deteriorated the living conditions, which in turn were reflected in infant mortality rates, worsening nutritional status of the children and falling literacy rates (Kanji *et al.*, 1991).

The implicit consensus in these studies is the need for investing in people for a sustainable development and a successful structural adjustment. It follows that the public expenditures on health and education need to be protected and expanded to the poor. Correspondingly, since the early 1990s, a greater emphasis has emerged for poverty alleviation in the World Bank agenda. Earlier lending had primarily aimed at improving health services through spending directly on hospitals, health centers, medical supplies and equipment (Summers and Pritchett, 1993). Since these facilities were mostly serving the better-off, this strategy exacerbated the inherent inequalities and inefficiencies in the health sector. Hence, a social conditionality was introduced in the adjustment loans. In fact, the idea of the role of human development in growth process through human capital accumulation acquired primary importance in the late eighties. This idea suggested that the social costs of adjustment could be reduced through the introduction of *social safety nets*

and a reallocation of public social spending to primary education and primary health care without increasing the fiscal burden (Birdsall and Londono, 1997).

In a report published in 1990, the World Bank recommended a new strategy, emphasizing poverty reduction and short-term poverty elimination (World Bank, 1990). This strategy encompassed the acceleration of economic growth, the provision of social services targeting the poor and creation of social safety nets. One of the main recommendations in the 1990 report for rapid and sustainable progress on poverty alleviation was the provision of basic social services to the poor.

The emphasis on poverty by the World Bank in the early 1990s was followed by the Bank's affirmed stance on *investing in health*, which was also chosen as the main topic for the 1993 World Development Report (The World Bank, 1993). The 1993 report focused on the improvement of health status in developing countries. In order to allow for a 'cost effective' increase in public spending, particularly in primary health care, family planning, nutrition and primary education, the report proposed three policies. The first one aimed at promoting growth to ensure income gains for the poor and expand investment in education. The second proposal involved health resources be directed toward more cost-effective programs and the last one encouraged the private sector involvement and competition for the finance and delivery of health services. Hence, reforming their health sector accordingly was an ultimate objective set for the developing countries.

As the emphasis on health continued through the nineties, in a report titled *Health, Nutrition and Population Sector Strategy*, the Bank proposed a three-pillar scheme which entailed the protection of the population from illness, malnutrition and high fertility. In addition, equitable access to health services and sustainability of health care financing were to be encouraged. (de Beyer *et al.*, 2000).

Labonte and Schrecker (2004), however, refer to the fact that, despite the growing literature on health reforms, the World Bank itself has also acknowledged the dramatic decline in the health status in Central Europe and the former Soviet Union in a bid to reform their health services. Indeed, the recent trend toward globalization has brought new facts and risks in health status. Globalization, when defined as growing interconnectedness of the world economies and societies, has affected health status by changing the structure of the national economies and the household, the health systems and related risks. The increasingly free movement of capital and labor affects health status in medical and economic terms. The developing countries are more prone to those risks, to the economic ones in particular, since the financial crises induced by rapid capital movements have accelerated the growth of poverty (Kickbusch, 2000). Hence, the G7 countries who also dominate the IMF and the World Bank, have tried to address the said decline and risks by announcing in 2000 the “international development goals”, later known as the “Millennium Development Goals”, which included health-related objectives and poverty reduction in the world (Labonte and Schrecker, 2004).

2.2 Analyzing the Cost of Adjustment to the Health Sector

Health status primarily depends on access to health services (Evans and Stoddart, 1990). However, the link between health and socio-economic variables cannot be ignored as these factors are highly influential to the access and demand for health services. Individuals belong to lower socio-economic groups (low level of education, unemployed, low income) have worse health status on average. However, they have lower access and demand for health services than those with higher socio-economic groups (Maynard, 1979; McPake, 1993; Burström, 2002; Jowett *et al*, 2004). Government directly affects health status by financing of health services and providing health care. In addition, government influences health through the policies connected with household income and educational level (Mesa-Lago, 1997).

The nature of the health care market differs from others in terms of its goods and services as a government involvement is needed in the health sector. Health constitutes an externality and has public good characteristics. Due to the externalities involved, health and health care cannot be traded purely on market terms and cannot be treated as consumption goods. There is imperfect information in the market, where consumers do not have enough knowledge about health and the nature of the service they need, inducing an asymmetry of information between the health care providers and patients. Moreover, the high uncertainty

in the demand for health care leaves the individuals with no knowledge as to when they will need health care and how much it will cost (Self and Grabowski, 2003; Le Grand, 1987; Klein, 1988; Culyer, 1991; Black et al., 1982). Due to these market failures, the government intervention has been generally regarded as necessary in most health systems in the world. Such intervention may range from selectively imposed taxes and subsidies to a full public provision of health care, transfer programs and/or regulatory frameworks (Self and Grabowski, 2003). The degree of intervention varies in different countries, but the governments retain a responsibility in provision and finance. In the United Kingdom, a taxed based system is applied, in most of the OECD countries a social health insurance operates, whereas in others like the Netherlands, the government maintains a strong regulatory role (Saltman, 2004: 26).

As regards to the market-side dynamics, due to the advances in medical technologies and the economic and political strength of the producers, the costs in health services have been increasing rapidly. This has exacerbated the problem of control over health service provision in an imperfectly functioning market. Aging population and institutional inefficiencies have added to this problem and led to expansionary pressures on public budgets. Hence, many countries have initiated health sector reforms that sought for a restricted role for the government, particularly in health service provision. This tendency has become more acute in the reforming countries like Turkey who received outside financial assistance, which required the implementation of the SAPs.

The impact of the SAPs on health and health sectors can be categorized into direct and indirect effects. The direct effects arise from a reduction in the public expenditures. Less public resources mean less input into health services. The government expenditures on health services (the share of public health expenditures in GDP) may cause a decrease in the quality and quantity of services provided. Public health services are likely to run on fewer staff with reduced real wages, inadequate equipment and supplies, resulting in lower quality in health services (van der Gaag and Barham, 1998).

Any analysis on the direct effects needs to address the issue of whether the process of adjustment has (i) affected the per capita public health expenditure and the share of public financing in health services, (ii) improved the quality and quantity of the service provided (iii) enhanced the provision by the private sector. Our analysis here will mainly focus on the first issue, whether the SAPs have altered the government involvement in the health sector. The question of whether there has been any shift to the private spending in response to the changing role of the government, however, is as important as the change in the public spending in itself.

The indirect effects of the SAPs are reflected in the ability of households to demand health care due to changes in aggregate consumption and income distribution. In addition, a decline in education and health spending will necessarily hamper the enhancement of human capital, resulting in a rise in the level of unemployment. The gap between the poor and the rich widens, due to wage depression and unemployment. Large

deficits, overvalued exchange rates, high taxes, inflation and so on adversely affect income and consumption patterns. Due to worsened income and employment conditions, government revenues from taxes and social security are reduced. The governments are forced to move the tax system from progressive to regressive (indirect, sales) taxes that further reduce the public sources for health. These factors may be more harmful on social welfare than the reduction in the size of the government (Peabody, 1996).

Policies aiming at reducing the aggregate demand and employment, and promoting private sector may also indirectly affect the health status. As argued earlier, these policies may worsen the income distribution and reduce aggregate consumption, which in turn reduce the ability of household demand for health and health care. The deterioration in income distribution produces more pressures on low income earners in their decisions to seek health care than the rich (Musgrove, 1987; McPake, 1993; Peabody, 1996). It also affects the individuals' choices in seeking care. They tend to apply more to public services. However, public provision may have been reduced due to direct effects, i. e. reduced public expenditure. Therefore, the poor has been adversely influenced more than the rich, who still has an access to private health services.

The causality underlying the changes in health and their relation to the health system in general and the health expenditures in particular, can be difficult to observe due to various reasons. Firstly, the health status is affected by a wide range of historical, cultural, political and geographical factors as well as social and economic factors. It is

difficult to track the specific impact of each of these factors on the health status. Secondly, the social costs of reducing demand and employment, suppressed wages and salaries, raising prices and reducing government role in public services other than health services (i.e. reduced education expenditures, particularly primary education, deterioration in nutritional status, less government spending on water and sanitation projects) mostly appear in the long run. The overall health status depends on the stock of capital, i.e. the medical infrastructure, safe water, sanitation, that accumulates over a certain period of time (Musgrove, 1987). Last, but not the least, there may be inefficiencies in the health care system that may impede an overall enhancement in the health status. If, for instance, the health expenditures are overwhelmingly allocated to curative services provided in urban hospitals, they are less likely to improve the health status, which is generally measured by life expectancy or infant mortality (Self and Grabowski, 2003; Handa and King, 2003).

As the task of examining the effects of the SAPs on output, employment, factor payments and prices lay beyond the scope of this thesis, our analysis will not cover the indirect effects of the SAPs on health sector and health status. Instead, we will focus on the analysis of the direct effects.

2.3 Government Involvement in the Health Sector in Turkey

After 1980

A ‘structural adjustment’ in public sector requires the restriction of the public sector involvement in economic activities, especially on investment, production and employment. One of the most important changes in the role of the state in the post-1980 era in Turkey was the abandonment of formal planning. Although five-year plans have still been in place, they no more guide the implementation as they did in the 1970s. In terms of the implementation, the shift from import substitution industrialization to an outward-oriented development strategy reduced the role of the state in industrialization process. In addition, public investment in manufacturing and investments by the state-owned enterprises were also reduced.

Despite these changes, what the post-1980 experience in Turkey actually witnessed was a restructuring rather than a reduction in the role of the state. Throughout the 1980s, the share of current and transfer expenditures in public expenditures increased, while the share of investments decreased. The public investments shifted from manufacturing to infrastructure and continued to account for more than 50% of the total investments. The share of public enterprises in manufacturing output and the share of public ownership in the banking sector did not change (Ekinici, 2000). Hence, public sector

reform and privatization, as the most important aspects of the structural reform, failed to have been fully accomplished.

In the period between 1981 and 1990, the wages and salaries accounted for around 25 percent of the budgetary expenditures, whereas the share of the interest payments was around 15 percent, and incentives and tax rebates accounted for 12 percent. Bond financing became almost a single source for financing deficits following the financial liberalization in 1989. After 1990, interest payments on domestic debts made up almost 50 percent of the government budget that caused increased share of transfer expenditures while the share of current public expenditures decreased in addition to low investment expenditures (Soral, 2003). Although, size of the government budget seemed to have increased, when the interest payments were deducted, the real expenditures had been reducing (Yılmaz and Susam, 2001).

2.3.1 Health Sector Expenditures

Any reduction in the size of the government relative to the size of the economy will have negative consequences for public health expenditures (van der Gaag and Barham, 1998). Health expenditures¹ are probably the best qualitative and quantitative indicator of

¹ The definition of health care expenditures in this study comes from an operational definition which includes all expenditures incurred on preventive and curative services for individuals and on population-based public

the public resources directed to health care in a country. The composition of health expenditures complement the analysis of the government role in the health sector, as it affects the provision of health services, i.e. public/private mix and the composition of spending and the source of financing.

The question as to whether the public involvement in health sector declined during the adjustment depends on the analysis of trends in the real growth of the GDP, the share of health in total government expenditures, in GDP and per capita health expenditures. Trends in the share of health expenditures indicate whether the health expenditures were kept stable during the period when overall public expenditures declined. Per capita health expenditures show whether the required changes in available resources for health care can keep up with population growth.

A cut in government expenditures may result in an increase in the cost of health services. This might be due to lower subsidies to health services implying that individuals must use lower quality public services or higher priced private/public health services. The cost of imported drugs and technology would rise as a result of currency devaluation, higher import barriers or the elimination of import subsidies. There may be a significant reduction in remuneration and the number of staff working in the health sector (Sahn and

health programs (Murray et al., 1994). Programs that indirectly affect health, such as food and environmental programs related to water and sanitation are excluded.

Bernier, 1995). Hence, the allocation of limited health budgets by activity, such as primary² and secondary³ health services and by type (such as capital and current expenditures), and within current expenditures the share of salaries, drugs and other supplies may change (Govindaraj et al., 1997).

The composition of health expenditures is significant also for comparative analysis in terms of the main components of the health care services. In the first instance, the salaries of the health personnel account for most of the public health expenditures in many countries. Here, if the increase in health expenditures is mainly induced by an increase in the salaries of the health personnel, this should not be interpreted as an expansion in health care services. Rising salaries, on the other hand, may bring an increase in quality and quantity of the service provision as this would increase the work satisfaction and restrict personnel outflow to the private sector. Secondly, if the share of drugs and medical supplies are high in health expenditures and most of them are imported, the rise in health expenditures can be induced by an increase in the cost of the imported drugs merely due to devaluation.

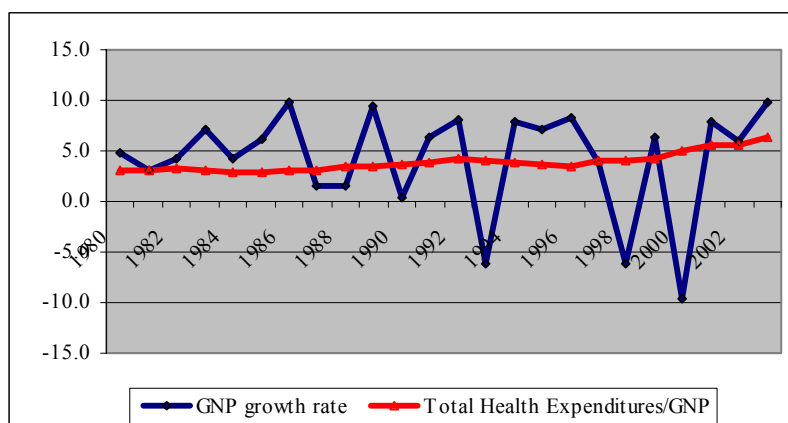
The economic crises in the years 1994, 1999 and 2001 caused the growth rates sharply fell to negative rates (-6.1, -6.1 and -9.1 percent respectively). It may be said that the long term objectives of the SAPs have failed (Çalışkan, 2005). The resources devoted to

² Primary health services (sometimes referred to as preventive) mainly refer to non-hospital based services.

³ Secondary (otherwise referred to as curative) usually refers to hospital-based services.

the health sector in Turkey had traditionally been considerably low as compared to other OECD countries where the average is around seven percent. In Turkey, the share of the health expenditures in GNP remained around 3 to 4 percent during the 1980s and 1990s (see Figure 2.1), with a gradual fall to 2.9 percent in mid-1980s. It started to increase toward the late 1990s with a peaking 7.7 percent in 2004, but still remained lower than the OECD average of 8.9 percent (OECD, 2006).

Figure 2.1: The GNP Growth Rate and the Share of Health Expenditures in Turkey

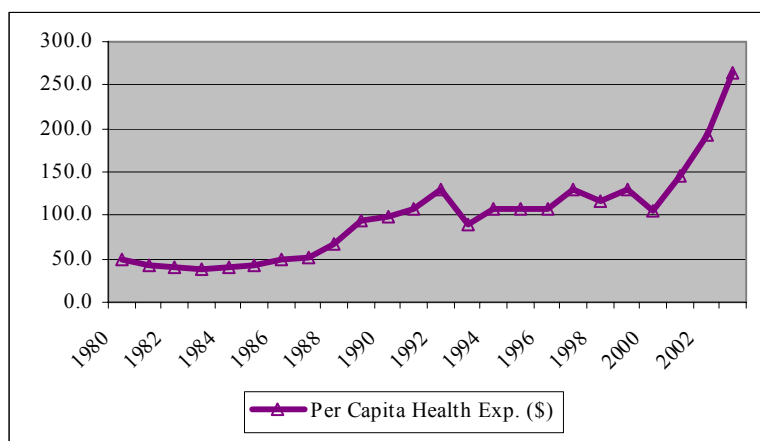


Source: SPO, 2005. See Table A.1 in Appendix A for data.

With the implementation of the SAPs in Turkey, the per capita health expenditure displayed a downward trend in Turkey until the mid-1980s, and later increased up to USD 130 toward the end of 1990s (see Figure 2.2). The trend was severed by deep fluctuations following the financial crises in 1994, 1999 and 2001. After 2001, the per capita health expenditure started to increase, but still remained the lowest among the OECD countries. In

2004 the per capita health expenditure was USD 580 whereas the OECD average was USD 2,666 (OECD, 2006).

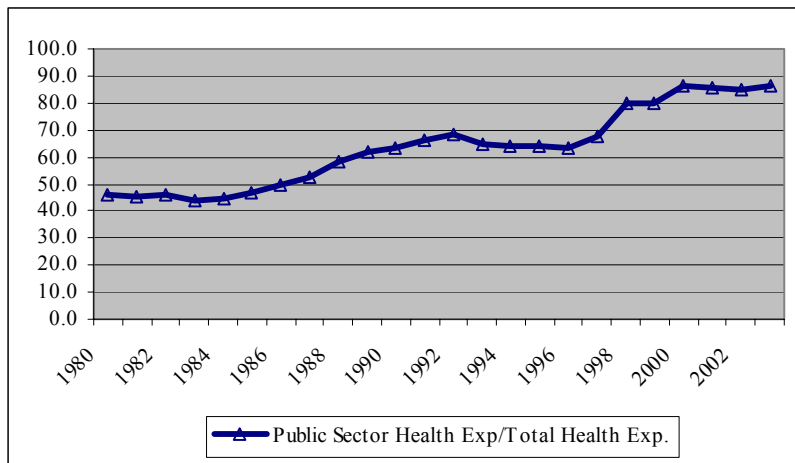
Figure 2.2: Per Capita Health Expenditures in Turkey (in US dollars)



Source: SPO, 2005. See Table A.1 in Appendix A for data.

The share of public sector expenditures in total health expenditures displayed a similar trend with per capita health expenditures (see Figure 2.3). Public share in expenditures decreased from 51.4 percent in 1980 to 43.9 percent in 1984, recovering toward the late 1980s. This increase was mainly induced by an increase in real wages of the public employees after 1989, which lasted until 1994. After 1998 there was a sharp increase in the government's share in health expenditures peaking at 80 percent in 1999. The fact that the public share has always constituted more than seventy percent in total health expenditures in the majority of the OECD countries indicates the higher role required for the public sector in health services (OECD, 2006).

Figure 2.3: Share of Public Health Expenditures in Total Health Expenditures in Turkey



Source: SPO, 2005. See Table A.1 in Appendix A for data.

Considering the share of the Ministry of Health (MoH) in the government budget, there was almost a fifty percent reduction between 1980 and 1985 (from 4.21 percent to 2.54 percent). Although the 1990s experienced a recovery in the MoH budget, its share fell to 2.43 percent in total government budget in 2004, which was smaller than the 1980 figure (MoH, 2004a). Given that around 80 percent of the MoH budget was devised to cover the personnel costs and the share of investments stayed relatively stable (SPO, 2005), the remaining funds were far from being sufficient to cover the operating costs, which in turn resulted in a decline in the overall quality of the health services.

A breakdown of the spending by type of services helps us explore how health problems are tackled. This should also provide an indication for the relative efficiency in

health care provision. Table 2.1 indicates that the health expenditures more than 90 percent of the health expenditures were spent on curative services and drug expenditures. This means that preventive services have been allocated a significantly small allowance.

Table 2.1: Health Expenditures by Type of Services (%)

Years	Curative	Drugs	Other
1995	48.04	46.08	5.88
1996	49.25	45.23	5.53
1997	48.17	43.44	8.39
1998	44.82	48.09	7.10
1999	47.30	46.66	6.04
2000	44.16	50.47	5.37
2001	43.07	51.20	5.73
2002	42.33	52.66	5.01
2003	44.74	50.23	5.03
2004	46.54	48.39	5.07
2005	46.77	47.66	5.57

Source: Statistical Yearbook of the Ministry of Finance, MoH, SSK, BK and ES,

Preventive services create positive externalities. They have public good characteristics; hence their provision falls under the responsibility of the government. The

MoH is the sole provider for preventive services in Turkey. However, the share of preventive care in the MoH budget fell from 7 percent in 1992 to 3 percent in 1998, while the inpatient treatment accounted for around 50 percent and 64 percent respectively (Savaş *et al.*, 2002: 60). Although, the share of health expenditures in GNP has increased in recent years, the share of preventive services continued to fall (The World Bank, 2003, Vol II: 155). A National Burden of Disease and Cost Effectiveness Study has found in 2004 that the 15.5 percent of total deaths at national level were caused by Group I diseases, i.e. contagious diseases, maternal causes, perinatal causes and nutritional deficiencies (MoH and Başkent University, 2004), whereas this figure is 6.3 percent in the European Union (DPT, 2005). This figure is strikingly higher for the age group 0-14 years, where the majority of deaths occurred due to Group I diseases. Most of the death causes in Group I diseases can be prevented if adequate access to health services, immunization and environmental hygiene (water sanitation and food safety) are ensured by preventive services (MoH and Hacettepe University, 2003). The diminishing share of preventive care in the MoH budget signifies that one of the most important health services under the public responsibility has deteriorated. According to the OECD health data in 2005, Turkey has the lowest figure in per capita public spending in preventive services. This amount was USD 5 in 1999 and fell to 4.8 in 2003 (TEPAV, 2005: 19).

The allocation of health expenditures by type of services also helps us explain the variation in total health expenditures. The high share of pharmaceutical expenditures can partially be explained by the increased cost of imported active ingredients in drugs due to the devaluation of the Turkish lira. There has also been a downward trend in the domestic

production of raw materials in the pharmaceutical industry and the utilization of the imported ingredients increased in the production of domestic raw materials. In addition, the liberalization of imports, the lifting of price controls in the domestic pharmaceutical market encouraged more pharmaceutical imports (The World Bank, Vol.II, 2003: 172ff).

2.3.2 Health Sector Finance

The source of financing for health expenditures (“Where is the money coming from?”) is another important aspect in assessing the role of the government. Health expenditures are financed by general taxation, social insurance contributions, voluntary private health insurance contributions, out-of-pocket payments and donations. The first two of these are related to the government’s role. This can be observed in the proportion of total health care expenditures financed by public and private sources and the percentage of the population covered by public and private health insurance schemes (Self and Grabowski, 2003). Furthermore, there may be structural changes in the financial sources for public health expenditures associated with reductions in the government budget. The sources of finance for public expenditures, i.e. the share of government contributions, social insurance contributions, direct payments (user charges, flat-rate payments etc.) and other sources, vary in their reliance on public funding or out-of-pocket payments (Montoya-Aguilar and Marchant-Cavieres, 1994). An increasing reliance on out-of-pocket payments means a corresponding increase in private funding, i.e. those who need health services have to pay more. Since health status is positively correlated with income (Murray *et al.*, 1994), the

low-income families who may need more health care will suffer more and their demand for and utilization of health services will be adversely affected.

In Turkey, health services are financed by the general budget, insurance premiums and direct payments. From 1992 to 1998, the share of general budget in financing health services decreased from 46 percent to 41 percent respectively (Table 2.2) (TCSB, 1996; 1997; 1998 and 2004). The share of social security premiums increased from 23 to 31 percent and the private financing persisted around 30 percent in the same period. In order to compensate the reduced share of the budgetary expenditures, the scope of the revolving funds in health institutions was expanded in 1983, which was later extended further to the university hospitals in 1989 (Soyer, 2000) and primary health service providers (i.e. health centers, health units) in 2001 (The World Bank, 2003: 60). The revolving funds allowed the public hospitals to charge the patients for their services and finance their operating costs which were no more covered by the reduced budgetary expenditures.

The Health Accounts Survey (MoH, 2004) indicated that in 2000, the share of the social security schemes in the financing of the overall health expenditures was 34.9 percent and the share of the general budget was 28 percent, whereas that out-of-pocket payments and private insurance was 27.6 and 4.4 percent respectively. From 1992 to 2000, the share in total health expenditures of private and premium-based funding combined has increased from 54 to 67 percentage points, whereas the share of the public funding has decreased considerably from 46 to 28 percentage points in the same period.

Table 2.2: Sources of Financing in Health Expenditures in Turkey (%)

Years	General Budget	Social Security Premiums	Private Spending
1992	46	23	31
1993	47	22	31
1994	46	24	30
1995	43	27	30
1996	43	25	32
1997	43	28	29
1998	41	31	28
2000	28	35	32

Source: TCSB, 1996; 1997; 1998, and 2004.

There have been three different types of social insurance schemes in Turkey: the Government Employees Retirement Fund (Emekli Sandığı, ES), the Social Security Institution (Sosyal Sigortalar Kurumu, SSK) and the Social Security Institution of Craftsmen, Tradesmen and the Self-Employed (BAG-KUR) financed by insurance premiums and transfers from the general budget. The membership to these schemes is based on the employment status. In 1992, the government introduced a fourth scheme known as the “Green Card” (“Yeşil Kart”, GC) in a bid to extend the publicly financed health services to those who had not been covered previously by the existing schemes. It was aimed at protecting the poor from the costs of inpatient services. Hence, it originally constituted an anti-poverty measure, rather than a proper insurance coverage. It was not

until February 2005 that the scope of the GC scheme was extended to include pharmaceutical benefits and outpatient services. The Green Card, now offering total exemption to the lowest or no income-earners, was financed in full by the General Budget. The number of GC holders reached 10.7 million in 2005 (MoH, 2006). However, there have been problems as to the reliability of the income determination procedures in issuing the GCs. The income assessment (i.e. means testing) procedures have not been adequately defined and applied. The GC scheme has failed to cover fully the targeted population. This is induced by several factors. Firstly, those who work in the informal and agricultural sectors are inclined to understate their incomes, as they are dependent on highly fluctuating levels of income. The self-employed in the informal sector are also concerned in terms of taxation. Hence, there is a high risk of mistargeting to the poor (Ökem and Özgülbaş, 2002). Secondly, the problem of double-counting has become widespread that many GC holders also have BAG-KUR or SSK membership. Thirdly, their access to health services have been limited in practice since the GC holders are not served in all public hospitals and they have difficulties in using hospital services (Maral et al., 1996).

The figures in Table 2.3 indicate a steady increase in the overall number of those insured since 1980. These figures, however, should be treated with caution. First, there is a double-counting of members and dependants, who have been insured by more than one social security institution, mostly coinciding on one end with the GC scheme. Secondly, only the active and pensioned numbers are known. The number of dependants on the other hand, is estimated basing on the average household size in Turkey, estimated as 4.5 in 2000 (SIS, 2004). Thirdly, a significant number of the BAG-KUR members are not actually able

to benefit from health services, because they do not pay their premiums regularly (The World Bank, Vol.II, 2003).

Table 2.3: Insurance Coverage by Type in Total Population (%)

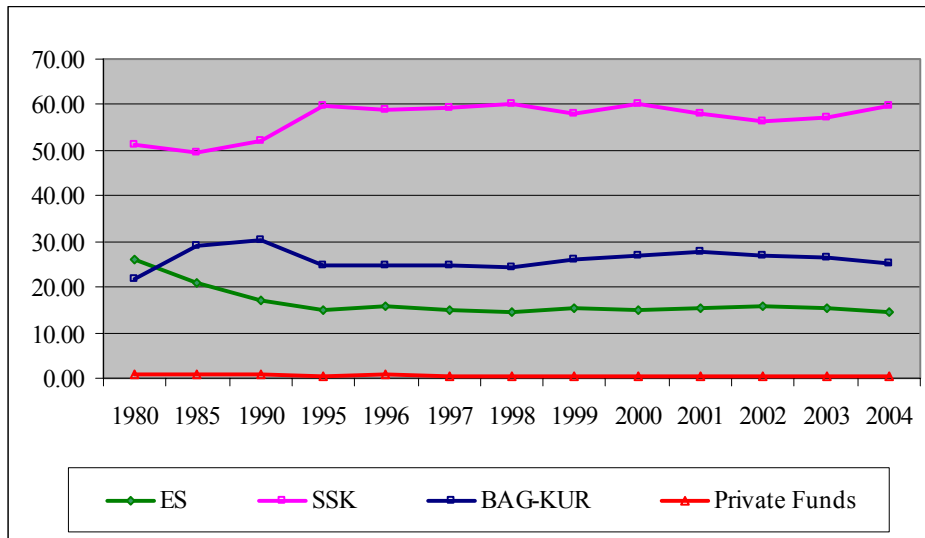
Years	BAG-					Uninsured	Total Insured
	ES	SSK	KUR	Private	GC		
1980	12.04	23.86	10.15	0.44	-	53.52	46.48
1985	11.44	26.80	15.79	0.57	-	45.40	54.60
1990	11.37	34.36	19.98	0.55	-	33.73	66.27
1995	11.51	45.78	18.99	0.47	2.13	21.12	78.88
1996	11.83	44.23	18.64	0.49	3.22	21.60	78.40
1997	11.85	47.04	19.63	0.49	4.64	16.35	83.65
1998	12.07	49.43	20.11	0.48	6.22	11.68	88.32
1999	12.15	45.99	20.79	0.50	7.55	13.02	86.98
2000	12.24	47.40	22.14	0.48	9.50	8.24	91.76
2001	12.44	45.14	22.18	0.47	11.36	8.41	91.59
2002	12.93	47.35	22.25	0.46	13.35	3.64	96.36
2003	13.04	49.49	22.42	0.42	13.59	1.05	98.95
2004	12.91	53.24	22.61	0.42	13.16	-2.34	102.34

Source: SPO, (2005), MoH, (2004a).

Figure 2.4 illustrates that the relative share of the ES coverage has fallen by more than ten percent in the years 1980 through 2004 (SPO,2005). Since the ES membership by definition means public employment, it follows that the direct government financing (in the form of ES contributions) has also fallen in the overall insurance coverage throughout the said period. It may be argued that, instead the additional public transfers have phased in with the introduction of the GC scheme in 1992. But, as discussed above, the GC served as an anti-poverty measure, rather than a social insurance scheme until 2005. Figure 2.4 also illustrates that the relative shares of the SSK and BAG-KUR⁴ coverage significantly increased by about 30 and 12 percentage points respectively throughout the same period. Given that the SSK and BAG-KUR coverage accounted for around three fourths of the population by 2004, we may argue that the main tendency in national insurance pattern in Turkey in the past 25 years has been toward less government financing and more premium-based coverage.

⁴ The BAG-KUR members covered by the Law No.1479 have been provided with health benefits since 1986. This coverage has been expanded onto the beneficiaries' dependants under a new Law No.3235 since 1999.

Figure 2.4: Population Covered by Social Security Schemes (%)

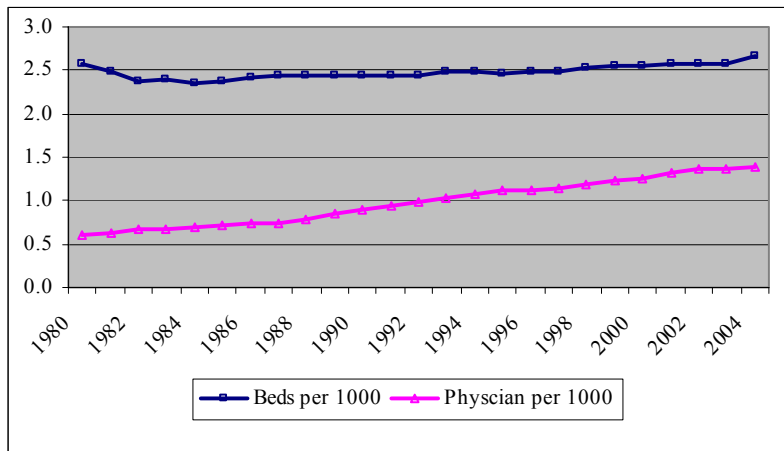


Source: SPO, 2005. See Table A.3 in Appendix A for data.

2.3.3 Health Service Provision

Understanding the effects of reduced government expenditures on the quality and intensity of health services requires complex and comprehensive analyses. Since the level of quality is highly linked with the process, then a focus on health services provision may nevertheless give us some insights. As seen in Figure 2.5, since 1980, beds per thousand population remained constant around 2.5. This is significantly lower than the OECD average of 6.25. The number of physicians per thousand, although doubled since 1980 to reach 1.4 in 2004, still remained far behind the OECD average of 3.1 (OECD, 2006).

Figure 2.5: Health Service Provision



Source: SPO, 2005. See Table A.4 in Appendix A for data.

The health service provision has been acutely insufficient and unequal in Turkey. The population per health unit exceeds by far the ideal figures (designed for 2000 to 2500 persons) in the Eastern and Southeastern Anatolia as well as in big cities. Around 12 percent of the health centers do not have physicians and around two thirds of the health units do not have midwives. The health personnel shortages are the highest in the Eastern and Southeastern Anatolia, so is the population per health personnel (DPT, 2005, also see Table A.5). Since midwives are the only service personnel posted at health units in rural areas, their absence means that people living in rural areas have no access to a fundamental public service. Due to difficult living and work conditions, the rate of annual personnel turnover is estimated to be around 35 percent in the Eastern and Southeastern Anatolia. Similarly, private health service providers are fewer in these regions (The World Bank, 2003, Vol.II: 58). Although, the number of health personnel in primary health services is also low in Marmara region, there have been a relatively higher number of private service providers as well as the SSK-operated health institutions, which were later transferred to

the MoH in 2005. The lower levels of disposable income and insurance coverage in Eastern and Southeastern regions have also exacerbated the problem of service provision and access in health services in these areas.

There are inequalities also in the allocation of hospital beds. The number of beds in the Central Anatolia is threefold greater than that of the Southeast. Ankara, Istanbul and Izmir combined boast 36 percent of the total beds and half of the physicians (The World Bank, 2003, Vol.2: 69).

2.4 Concluding Remarks

The post-1980 era in Turkey has been characterized by fundamental changes in the economic policy. Having replaced the import substitution policy with an outward-oriented growth strategy, Turkey aimed at macroeconomic stabilization by financial and trade liberalization. This would require a reduction in the state involvement, coupled with tight fiscal policies. Contracting public expenditures in line with the structural adjustment policies in throughout the 1980s entailed significant consequences particularly on social sectors. Consecutive financial crises in the 1990s, continued devaluation of the Turkish lira, persisting high inflation and high real interest rates have resulted in a significantly worsened the income distribution.

As regards to the health sector, the impact of structural adjustment on the supply side has been reflected directly through the contractionary pressures on public expenditures.

Whereas on the demand side, there have been indirect effects reflected through the increased prices of medical goods and services (price effect) and reduced household real income (income effect). Other indirect effects were observable mainly in falling employment levels, henceforth the overall insurance premiums (Musgrove, 1987).

As such, the post-1980 era in Turkey has experienced mainly four trends simultaneously operating in the health sector. The first observable trend involves that contrary to contractionary pressures on the government expenditures from 1980 through 2004, there has been an increase in the overall public spending in the health sector. This increase has been, however, does not reflect necessarily an improvement in health services in Turkey in the said period. Because the increased public expenditures financed mainly the GC scheme introduced as an anti-poverty measure in 1992, as well as the increased cost of pharmaceutical imports and the health service personnel.⁵ The share of public expenditures on preventive services that fall under the public responsibility, however, decreased considerably. The MoH, being the sole provider of preventive services reduced its spending on preventive services, diminishing the role of the public in one of its most important responsibility in health services. This was further exacerbated due to the absence of health personnel at the primary level.

⁵ The GC scheme introduced in 1992 was originally designed and served as an anti-poverty measure. This was in parallel to the World Bank poverty alleviation strategies encompassing the provision of social services targeting the poor and the creation of social safety nets (Birdsall and Londono, 1997). In Turkey, the GC scheme failed to cover effectively the poor due to problems in its implementation. The increase in the wages for the health personnel in the era from 1989 to 1994 has been another major cause of the increased public spending. In addition, the continued devaluation increased the cost of pharmaceutical imports, coupled with a parallel increase in the dependency to imported pharmaceuticals and raw materials. A careful investigation of the pattern among the OECD countries indicate that the lower income countries spend more on drugs than the high income countries, mainly due to the high cost of imported drugs and lower labor costs. (Huber and Orozs, 2003).

A second trend in the post-1980 era in the health services in Turkey has been observable in the changing structure of financing and coverage. From 1980 through 2004, the insurance coverage has been extended from slightly more than 46 percent to all. In the meanwhile, however, the government-funded portion has diminished relatively vis-à-vis the share of the premium-financed services in the health provision.⁶ The government-funding refers to the share of the ES financing that decreased from more than 25 percent of the total in 1980 to about 13 percent in 2004. The share of the SSK and BAG-KUR financing however, remained constant of about 75 percent of the total insured, hence the increase from 46 percent to full coverage has been mainly due to an expansion in the premium-based coverage. This indicates that, from 1980 through 2004, the government gradually transferred its financing burden over to the citizens, who need to finance their health needs by their premiums.

A third trend has been the failure by the consecutive governments in their efforts to remedy the structural inefficiencies within the health system in Turkey. Inefficiency in health sector basically arises from the composition of spending. Allocation of resources to inefficient services results in poorer health status. As discussed earlier, the preventive services have been significantly neglected in the post-1980 era. When coupled with the existing inadequacies in primary care, the cost of curative services increases. There is no

⁶ The GC-financed share, funded in full by the government (slightly more than 13 percent of the total), has not been included, since the GC scheme by 2004 functioned still as an anti-poverty measure, rather than a full insurance coverage.

referral system⁷ in Turkey. People can directly go to hospitals, where the cost of medical care is much higher than the primary level. Hence, the resources have been wrongly allocated more to curative services (hospitals) and less to primary care (health centers/units).⁸ Therefore, the share of inpatient care in total health expenditures remains significantly higher than it should be.⁹

The method of payment for health services is another factor affecting the overall efficiency of the health system and hence, the health expenditures. In Turkey, health service providers are paid on the basis of fee-for-service, which generates unnecessary care. Since there is no efficient control mechanism, the health service providers provide more to earn more. This has been further exacerbated by a performance-based payment system toward the physicians, who are paid more by examining more patients.¹⁰ Similar reasons apply to the high share of drug expenditures in total health care expenditures. There are no clear

⁷ The referral system defines the point of service for the patient for first contact with the health care system. The first contact care provider is often called gatekeeper and this is in most cases the primary care physician. The gatekeeper may refer patients to specialist services in case of medical need. This implies that it will be the doctor who defines need for services and not the patient. Also, this doctor is the least costly service provider in the system, i.e. the primary care physician. In health care markets, the patients do not have sufficient knowledge to judge their medical needs, therefore waste and inefficiency occurs if decisions on utilization are made by the patient without involving expert opinion (by the doctor). This provides rationale for guiding patients to the relevant expert as first contact in health care.

⁸ The resulting inadequate care at primary care also encourages people in their belief that they can get better care in hospitals. But when allocated sufficient resources, more than eighty percent of health problems can be solved at primary level with much lower costs than the hospitals (McCallum et al., 2005).

⁹ In 2001, of the total health expenditures in Turkey, a 43 percent share was allocated to the curative care (outpatient and inpatient combined in *secondary care*, i.e. hospitals), 51.2 percent to drugs and 5.7 to other services. Whereas the OECD average in 2001 was that out of the total health expenditures, a 38 percent share had been allocated to inpatient care, 31 percent to the outpatient services, 21 percent to drugs and medical appliances and 10 percent to the administrative expenses and general public health programs.

¹⁰ This system was first introduced in 2003 for a trial operation in 10 provinces and extended to others in 2004. Originally, the system aimed at encouraging full time service in the hospitals supported by payments out of the revolving funds of the hospitals (MoH, 2006). However, its introduction boosted the health expenditures by stimulating unnecessary service provision.

reimbursement rules and procedures for drugs. While unnecessary utilization and provision of health services induce utilization of more drugs, the uncontrolled demands as well as habitual and casual use of over-the-counter drugs foster the higher expenditures.¹¹

A fourth trend that concomitantly operated in the post-1980 era in Turkey has been the continued structural inequalities in the health care services. As the high share of curative services and drug expenditures in total health expenditures suggest, the health system has been progressively prone to more inequalities. The beneficiaries of the increased health spending are mostly those who *can* enter into the health system. Better socio-economic status and place of settlement would come to mean better access to the health services. Health spending does not reach those who need, but cannot access to health services due to financial and geographical impediments.

The efficiency problems in the health system combined with inequality in access have been exacerbated by the uneven distribution in health service provision. There are vast differences in the geographical distribution of health care resources. The increased health expenditures in the post-1980 era have not improved the health service provision.¹² Turkey

¹¹ Tendency to prescribe unnecessary drugs is another reason for high drug expenditures. This pattern is further complemented by unregulated promotion activities by the pharmaceutical companies.

¹² The World Development Report 1993 indicates that higher expenditures in health sector do not always result in improved health status (The World Bank, 1993: 54). Countries spending more on health in their GNP achieved poorer results in their health status. Compared with other high-level income countries, an additional five percent share of the GNP in the US achieved less life expectancy for its population. Singapore, on the other hand, spent four percent less of its GNP than others at the same development level, attained same life expectancy. Basing on the data derived from 138 countries, Murray *et al.* (1994) ended up with similar findings: rising health expenditures will not necessarily result in an improved health status. Some countries

still remains far behind the developed countries in terms of provision¹³ and basic health status indicators.¹⁴ These indicators could have been improved with sufficient primary care, provision of which essentially falls in the responsibility of the government.

The post-1980 implementation of the SAPs imposed restrictions to the role of the government in Turkey. While such imposition could have been deemed justifiable in terms of the general fiscal rationalization, yet it also contradicted with the required contribution of the government in terms of the characteristics of health care market.¹⁵ As argued, health and health care create externality. Health services have public good characteristics, which cannot be traded and treated at par with consumption goods, due to the said externalities. There is imperfect information in the health care market induced by an asymmetry of information between the doctors and patients as well as the risks and uncertainties involved in need for health and health care (Le Grand, 1987; Klein, 1988; Culyer, 1991; Black et al., 1982).

have higher life expectancies with higher income, but some achieve this without spending more, whereas some others have lower life expectancy even if they spend more.

¹³ In 2003, the population per physician in Turkey was 718 and per hospital beds were 389, whereas in the EU-15 it was 350 and 130 respectively (DPT, 2005: 6).

¹⁴ In 2003, the infant mortality rate (IMR) was 25.6 per thousand, the child mortality rate (CMR –under five years of age) was 37 per thousand in Turkey, whereas the IMR and CMR averages in the EU-15 were 7 and 8 per thousand respectively. Again in 2003, the maternal mortality rate in Turkey was 62 per hundred thousand and delivery with health personnel was 78 percent, while the maternal mortality average in the EU-15 was 3 per hundred thousand and delivery with health personnel was 100 percent (DPT, 2005: 6).

¹⁵ The discussion was from Mushkin's (1958) paper on health economics, where she stressed that health is different from other commodities, demand and supply do not determine the market price; there are externalities, few profit motives, and consumers do not choose between health and other goods.

By the early 1990s, approximately 60 percent of the global health expenditures had been financed from public sources (Murray *et al.*, 1994). The public share in health expenditures rises with income; reflecting that more is spent on health and social insurance in rich countries, whereas more is paid through out-of-pocket in the poorer countries. Hence, the role of the government in health sector is particularly pertinent as to the allocation of health resources, poverty alleviation schemes, payment mechanisms, regulation and control.

Musgrove (1987) argued that social welfare is a function of distribution, particularly of the distribution of income and relative patterns of consumption by different income groups. This is extremely valid for the health sector. An efficient distribution of the health expenditures can be attained by prioritizing the preventive/primary care. As the low-income groups devote relatively limited resources to health care from their income, the prioritization of the preventive/primary care will contribute more effectively to the improvement of overall health status.

We have already argued that the health expenditures in Turkey bear neither efficiency nor equality in their allocation and utilization. This argument, however, has limitations as it does not indicate how different socio-economic groups in different geographical locations are affected in the population. Hence, this is an *equity problem*. The provision and financing of health services have direct consequences on the need for and utilization of health services and ultimately on the health status. Therefore, in the next

chapter, we need to assess equity in the health sector in Turkey. Basing on the data derived from the Health Services Utilization Survey conducted in 1992, we will try to investigate the patterns of need and utilization in health care by different population groups in Turkey.

CHAPTER 3

AN ASSESSMENT OF EQUITY IN HEALTH SECTOR IN TURKEY

Health systems are generally assessed in terms of the degree of achievement of their objectives. These objectives comprise mainly health maximization, efficiency and equity. However, the particular characteristics of the health care market, as discussed in the previous chapter, separate health and health care from other goods and services. These peculiarities shape the objectives in health policies and thereby determine the structure; organization, financing and provision in the health system.

In discussing equity, a consideration of the distribution of wealth and income necessarily constitutes a starting point. This would involve the inherited wealth and abilities, training and education, personal capabilities and chances. An equity team in the World Health Organization (WHO) emphasized that income, employment, education, housing and health environment should be seen as the social and economic determinants of

health (WHO, 2005). As these are not equally distributed in the society, the distribution of health too cannot be expected to be equal. Therefore, one may justifiably be critical toward the WHO motto “Health for All” as set forth in the Alma-Ata Declaration of 1978 and the “Millennium Development Goals” set by the United Nations. Yet, there is an important role for the policy makers in designing health service delivery (allocation of health care resources) and the financing mechanisms (“who pays?”) to improve *equity* in health care.

In a health system, the rules of allocation of health care resources determine access to health services; i.e. whether the individuals benefit according to their needs. Whereas, the principles of paying for health services determine whether the burden is distributed according to ability to pay. A combination of the two sets of rules described above defines the capability of responsiveness of a health system to the health care needs of its population. This capability is an indication of equity in a health system. Therefore, this chapter aims to assess how responsive the health system in Turkey has been to the health care needs of the population.

The main objective of the health services is to ensure the availability of an adequate amount of health care to the entire population. The income differences, employment status or residential location (i.e. urban/rural, regional) should not prevent any individual from receiving medical care when needed. Health is thus an individual right for everyone, referred to as such in the constitution of Turkey. However, there are important problems in receiving better health care by the population. This is related not only to the

inadequacy of resources in the health sector, but also to their uneven distribution throughout the country, across different geographical regions and urban/rural settlements. These deficiencies are accompanied by differences in income levels and social security coverage, leading to disparities in access to and utilization of health services and hence, variations within the population in terms of health status.

Since the early 1990s, enhancement of equity has been one of the main objectives of the reform efforts in the health sector in Turkey. These efforts, however, have focused more on the financial aspects of the health system (MoH, 1992 and 1993; T.C. Başbakanlık, 2005: 61ff), with an underlying view to reducing the financing burden on the government. Despite their continued emphasis on the issue, the reform efforts acutely lacked a clear and comprehensive *definition* of equity, nor have they ever involved sufficient tools to *measure* equity against the specified policy preferences.

The fundamental challenge in enhancing equity in Turkey has been to enhance the coverage of the health system to the entire population and geography. This requires, before all, the expansion of the health insurance coverage and ensuring an even geographical distribution of the health care resources. Currently, only the employed have health insurance in Turkey. The rest are covered by their status as dependents and the GC scheme. There are inequalities between these groups in receiving health care based on their coverage status. There are also cross-cutting socioeconomic and geographical disparities, disabling these groups in their utilization of health services. Furthermore, as discussed in

the previous chapter, there are vast inefficiencies involved in the GC coverage. Hence, despite the fact that the figures indicate an overall coverage of some 102 percent, the health insurance coverage in Turkey is far from being universal in terms of equity in health care.

In this chapter, we shall try to demonstrate the aforementioned aspects of inequity by using the Health Services Utilization Survey conducted in 1992 throughout Turkey. We will try to evaluate the health care needs, access to health services and utilization patterns across different demographic and socioeconomic groups as well as geographical regions. Our analysis will focus on the health service delivery and financing mechanism, as the two fundamental departments of the health system.

This chapter further aims to reveal main intervention areas in health policy toward the enhancement of equity in Turkey's health system in terms of policy making for a more equitable delivery and finance. In doing so, it is essential to understand the varying ways of approaching the concept of equity and social justice that guide the definition of policy preferences in designing the delivery and financing mechanisms in health systems.

3.1 Defining Equity in Health Services

Equity can be evaluated by considering the distribution of the benefits and costs in the health care system. This requires the clarification of simple, but equally fundamental

questions as to who gets the health gain and who pays? (Mills and Gilson, 1988; Zschock, 1979). While the former question relates to the provision of health services, the latter is concerned with the financing of them in a country. These questions, in turn, can be answered basing on certain policy preferences generally induced by the political views, social values and cultural traditions in a society. There are varying approaches to the problem of justice¹⁶ which may help us clarify the way we understand equity. These approaches can be classified under Libertarian and Egalitarian view.

The Libertarians focus on the willingness and ability to pay of the individuals that would ultimately result in the rationalization of health care. Libertarian view emphasizes the role of private sector in health care and restricts the role of government in providing minimum standard of care to the poor. Hence, their criteria for equity is defined as the extent to which people are free to use the health care that they wish to use. Hence, individual preferences are important in utilization of health care decisions (Musgrove, 1986; Gilson, 1988; Pereira, 1993; Donaldson and Gerard, 1994; Wagstaff *et al.*, 1991, Wagstaff and van Doorslaer, 1993: 10). The Libertarian approach includes the *entitlement*, the *decent minimum*, the *utilitarian* and the *Rawlsian maximin*.

The *entitlement* approach, as originally argued by Robert Nozick, a libertarian philosopher involves a rejection of equality. He suggested that individuals are entitled to their true earnings or inheritance. The market forces determine the allocation of health care

¹⁶ For a detailed discussion of theories of justice in the context of health services, see Gilson, 1988; Pereira, 1993; Musgrove, 1986; Van Doorslaer *et al.*, 1993 and Wagstaff *et al.*, 1991).

resources. No one has a right to health care unless it has been acquired through the market. Therefore, attempts at redistributing resources should be considered an injustice (Musgrove, 1986; Gilson, 1988; Pereira, 1993).

The *Decent Minimum* approach argued by other libertarians, in a bid to rectify Nozick's unwavering libertarianism, suggests some sort of safety net to ensure a minimum standard, under which individuals should not be allowed to fall. This standard simply refers to health. The state involvement in the provision of health care is limited, not to mention of course, a universal coverage, which is inapplicable. This approach adds in the classical libertarian recipe value judgements as to what constitutes the decent minimum, when and where (Gilson, 1988; Wagstaff, *et al.*, 1991; Pereira, 1993; Van Doorslaer, *et al.*, 1993).

The *utilitarian* view is based on the principle of "the greatest good for the greatest number". This implies the allocation of resources so as to maximize the overall utility in a society, by maximizing the utility for each individual. It requires a comparison of the individual utilities to allocate the resources to those who can benefit the most. Hence, this view is more concerned with efficiency than equity and certainly not with issues of redistribution. Moreover, there are technical problems associated with the impossibility of measurement and comparison regarding individual utilities (Gilson, 1988; Pereira, 1993; Donaldson and Gerard, 1994; Mooney, 1987).

The *Rawlsian Maximin* suggests that the aim of social policy is to maximize the position of the worst-off in the society. This makes equity and justice as the primary aims of social policy. The theory considers that the production and distribution of a set of

primary goods should not be left to the individuals, where the primary social goods include basic liberties, freedom of movement and choice of occupations, power, income and wealth, and social basis of self respect. The main problem with this theory is the identification of the least-well-off. Besides, health and health care are not designated as primary social goods (Gilson, 1988; Wagstaff, *et al.*, 1991; Pereira, 1993; Van Doorslaer, *et al.*, 1993).

The *egalitarian* view, by contrast, is mainly concerned with fairness in distribution. It accepts access to health care as right for everyone and should not be influenced by the existing distribution of income and wealth. This implies equalizing individual net benefits in health care. Due to imperfections in the health care market (i.e. asymmetric information, restrictions to entry and exit, existence of externalities), there should be active involvement for the government both in health services finance and health service provision. Egalitarians base their argument on needs. Health care should be distributed according to need and financed according to ability to pay (Culyer and Wagstaff, 1992a).

Despite their varying configurations in health service provision and finance, most of the European health systems, including Turkey, are based on the egalitarian principle. (Donaldson and Gerard, 1994; Van Doorslaer *et al.*, 1993; Wagstaff *et al.*, 1991; 1999). Lower socioeconomic groups characterized by low income and less education generally have higher rates of morbidity and mortality than higher socio-economic groups and are expected to use more health services (Burnström, 2002). Hence, their access to and

utilization of health services should not be adversely influenced by their socio-economic status.

3.2 Measuring Equity in Finance and Provision of Health Services

There are mainly two dimensions, horizontal and vertical, in measuring equity in the provision and financing of health services. *Horizontal equity* implies equal treatment of equals, in other words, an equalization of risks and burdens. *Vertical equity* indicates unequal treatment for unequals, in other words, a progressivity (Hoare and Mills, 1986; Donaldson and Gerard, 1994: 75; Wagstaff and Van Doorslaer, 1993: 15ff).

As to the assessment of equity in *provision* of the health services, indicators of horizontal equity are more applicable (Wagstaff and Van Doorslaer, 1993: 17). An equitable distribution of benefits in health care requires equal treatment for equal need, irrespective of differences in ability to pay. This is referred to as horizontal equity as generally applied to the measurement of health care provision (Donaldson and Gerard, 1994: 74). This requires *equalization of specific parameters*, i.e. access, utilization, health¹⁷

¹⁷ Our concern here will be the *process* of health services production and delivery, rather than the final output, which is health itself. The rejection of the latter as a health policy objective can be justified on several grounds. First, there are many factors influencing health other than health care, like housing, education, environment, nutrition, sanitation, etc. Secondly, genetically inherited health conditions and natural deterioration in health over time render equality in health physically impossible (Whitehead, 1992). Thirdly, it is difficult to define what “good health” means, since such an objective would impose some level of quality of life that would prevent individual choices. Fourth, equity would be too costly to enhance as it may result in equality in health (Le Grand, 1987; 1991).

across socioeconomic groups (Mooney, 1987). Basing on horizontal equity, Mooney defines the following hierarchy for the equity objectives in health care provision (Mooney, 1983; 1992).

Equality of expenditure per capita: Health care budget is allocated to different regions according to the size of the regional population. This takes no account of the differences among the individuals as to their illness and needs for health care, the likelihood of receiving care and the cost per patient of the care provided (Musgrove, 1986).

Equality of inputs (resources) per capita: Allocations are based on the regional population size and price levels to ensure equal ability to purchase inputs across regions; so that the high price regions would receive more resources (Gilson, L. 1988; Mooney, 1987). This too does not take into account differentials in needs and assumes resources will be enough to meet the needs of the population.

Equality of inputs for equal needs: Inputs are allocated according to the variations in needs, age and sex pattern in the population. However, this would prove hardly equitable in areas where the cost of provision of health care is high (Mooney, 1987; Donaldson and Gerard, 1994: 75).

Equality of the opportunity of access for equal needs: It takes into account differential costs to the patient. Equal access can be defined as equal costs to the patient in terms of both money and time (i.e. travelling, waiting, treatment time) (Wagstaff, *et al.*,

1991; Mooney, 1983). The problem in this definition could be the definition of access. Equality of access either in terms of different geographical areas or different social groups, or both should be clear (Mooney, 1987). It is a supply side phenomenon and does not take into account differences in individual preferences and does not result in equal utilization of health services.

Equal utilization for equal need: It considers both supply and demand for health services and positively discriminates those who are less willing to use health services (Gilson, 1988). This is relatively easier to measure, although the definition assumes demand for health care should be the same for equal need (Mooney, 1987).

Equality of marginal met need: This is based on a regional ranking of health needs, allowing all regions to meet the same marginal need (Gilson, 1988). Needs are ranked according to priority and equity is defined as an allocation of resources where marginal met need is equalized (Culyer and Wagstaff, 1992b). Again, here the measurement of marginal need is difficult.

Equality of Health: Here, the goal is to make the level of health the same across all regions and in all social groups. This would lead to a very unequal distribution of resources in favor of the least healthy. As argued earlier, it is not realistic to expect the same level of health for everyone, as the external factors cannot be changed. There may also be insurmountable difficulties in measuring and redistributing health for that very reason (Donaldson and Gerard, 1994; Whitehead, 1992; Le Grand, 1987; 1991).

As to the assessment of equity in the *finance* of health services, on the other hand, indicators of vertical equity seem to be more relevant. The issue of equitable distribution of costs means that health services should be financed according to ability to pay. Individuals who are unequal ability to pay should make dissimilar payments. This is referred to as equity in the finance of health care. It is about who should pay and in what relation to their level of income. Increased equity in financing implies improvement in financial access to health services.

The financing mechanism also determines who benefits by how much, for what and through which ways in the health system (Cumper, 1986). The source and availability of finance indicates the types of health services provided within an available budget. Other crucial policy preferences involve which health services are to be covered or not covered, which services should be provided free or associated with co-payments from users. For example, preventive services should be provided free to the entire population as they create positive externalities and prevent higher costs incurred in curative services. Diseases or accidents occurring in work environment should be treated free or treatment of chronic diseases should be exempted from co-payments. Emergency services should be given to all who need. Cosmetic surgery should be excluded from any publicly provided insurance package.

Health financing also involves decisions about method of payment to providers. The payment methods may take the form of fee-for-service, capitation, per diem, case-

based and other innovative ways involving incentives for equity and efficiency in a health system. These methods should encourage improvements in the health service provision and assure the quality of care. The rules set for the implementation and utilization of health services may involve certain level of premiums, specific duration of premium payments and referral rules. These decisions are also integral to health finance. All such decisions discussed above involve equity implications. Any change in the financial system will have effects both on suppliers (via the payment method) and users (through the incentives or disincentives introduced within the system). Therefore, analyzing equity in finance should not be separated from its consequential impact on health service delivery.

An evaluation of equity in the financing of the health sector needs to determine first the comprehensiveness of the coverage in the health care system toward its respective population. According to Hoare and Mills, coverage “[is] *an eligibility to receive treatment when needed, free or reduced cost or may ensure that any fees incurred by the household will be reimbursed in whole or in part by a third party*” (Hoare and Mills, 1986: 45). Empirical evidence has proved that health insurance had significant effect on health service utilization and demand for seeking care (Maynard, 1979, McPake, 1993, Liu *et al.*, 1999). Therefore, the extent of coverage is one of the basic indicators. The share of out-of-pocket payments in financing health services, i.e. user fees, cost of travel and waiting time also constitute significant factors affecting health care utilization that should be examined within the context of financial access (McGuire *et al.* 1992; Gilson, 1988; Gilson and Mills, 1995).

As suggested earlier, health care should be financed according to the ability to pay, which represents a vertical interpretation of equity in finance (Musgrove, 1986; Wagstaff and Van Doorslaer, 1993: 15; Van Doorslaer *et al.*, 1993; Wagstaff *et al.*, 1991). An assessment as to who is bearing the financial burden requires analyzing how progressive the system operates among various income groups. The progressivity refers to the extent to which payments rise or fall proportional to the income of the individuals. One way of measuring this is to compare the share of each income group and their contribution. If the relationship is progressive, the extent of progressivity should also be measured by using progressivity indexes basing on the income distribution and tax burden in the society (Van Doorslaer *et al.*, 1993; Wagstaff. *et al.*, 1991; Van Doorslaer *et al.*, 1993; Wagstaff *et al.*, 1999; Liaropoulos and Tragakes, 1998). Yet, there are significant difficulties encountered particularly in the developing countries in determining ability to pay, income distribution and tax burden, due to insufficient data.

3.3 Data and Methodology

In an equitable health care system, there should not be significant discrepancies among socioeconomic groups, geographical areas or place of settlement, age-groups and sex, in terms of the probability of their seeking care when ill and utilization of health services. For analytical purposes, this study will be based on the principle of equal opportunity to reach health services in terms of finance and delivery.

The analysis herein aims to perform a three-fold assessment. First, the health financing system will be assessed in terms of “equity in financial access” among different socio economic groups and place of residence (urban/rural and geographical areas). Secondly, equity in health care delivery will be assessed in terms of “equity in utilization of health services” and “equal utilization for equal need” across different socio economic status and geographical location. Thirdly, we will try to dissect the factors leading the individuals’ report their health needs and the utilization patterns for health services by different demographic and socio economic groups.

We have stated earlier that the scope of this study does not allow for an assessment of equity in health (i.e. final output). Yet, we shall try to present the situation in terms of health service needs of the population to understand the required health care to meet these needs. Perceived health, long-lasting illness or morbidity are commonly used as indicators of health and need for health care (van Doorslaer *et al.* 1993; Keskimäki, 1995; Burström, 2002; Waters, 2000). Self-reported morbidity (chronic illness) is used by the comparative studies in general, as an indicator of health need (Pannarunothai and Mills, 1997; Falkingham, 2003).

In our analysis, health care utilization will be measured by diagnosed morbidity (chronic disease diagnosed by physician) and by categorizing respondents into those who

had and had not been hospitalized and seen by a doctor (Burnström, 2002; Santana, 2002; Keskimäki, 2003). The information on where health care was obtained (public or private) will define the extent to which the public sector satisfied the perceived needs of individuals from different income groups.

Equity in finance in health care will be measured over the insurance coverage and out-of-pocket payments across income groups (Pannarunothai and Mills, 1997). Households with unequal ability to pay (determined on the basis of household income) should pay unequally. Hence, among the measures of vertical equity, our data permits us to assess out-of-pocket expenditures and their share in household income in different socioeconomic groups. In addition, we shall try to analyze the types of health expenditures, such as formal and informal payments, accommodation and transportation expenditures by socioeconomic groups and place of residence.

The data used in the analysis is derived from The Health Services Utilization Survey conducted in 1992 (MoH, 1995). This has been a pioneering and unique survey in health field which aimed to provide baseline information on the socioeconomic and geographical properties of the population using health services and the factors influencing such utilization¹⁸.

¹⁸ There have been two sets of data used to assess the factors affecting utilization of health services in Turkey (The World Bank, 2003, Vol.2: 28). Yet, neither of them were specifically designed to detect the utilization patterns in health services. The first survey was conducted in six provinces in 1999 to study the user satisfaction in health services. The second set of data was compiled in 62 provinces in 2001 as part of a Social

These findings indicate the lack of financial resources had been the most important barrier in accessing health services. A recent study on the household health expenditures in 2002-2003 confirmed the financial concerns to be the main reason (60 percent) for not seeking health care. The problem persisted for the uneducated, uninsured, as well as for those residing in the rural areas and in the eastern part of Turkey (MoH, 2006: 58).

The findings of a comparable study conducted in Tajikistan confirmed the above, as the cost of care constituted a barrier for the poor in their access to health services (Falkingham, 2003).

The data involving a wide range of demographic and socioeconomic characteristics regarding the health service users was collected from 32 provinces (see Appendix B). Level of education, household income, employment and insurance status were used as main socioeconomic indicators. The information regarding the health status of the respondents was also available by the questionnaire where health status is measured as perceived morbidity. The survey included questions, among others, as to whether any household member suffered from a chronic illness in the preceding twelve months, whether they used health services in the two weeks preceding the survey and/or they were hospitalized in the preceding twelve months, the type of services¹⁹ used and health

Risk Mitigation Project by the World Bank. The 2001 study could have represented Turkey, but the relevant information is available only for 1584 cases. More recently, the National Health Accounts Household Health Expenditures 2002-2003 may also be considered representative for Turkey (MOH, 2006). This survey adopts a different sample and there are differences in variables specifications. Hence, comparisons drawn herein are subject to this caveat.

¹⁹ The Survey classified the type of health services in three different ways. One is public and private, where public covers the MoH, SSK, university, military and other publicly owned hospitals and private includes private physicians, private hospitals, private laboratories, pharmacies, traditional healers. Second classification is made according to degree of complexity of the health service given. Primary services are mostly ambulatory provided by health posts, health centers, SSK dispensaries and private physicians. Secondary services are services provided in hospitals public and private. Training and research hospitals operated by the MoH, SSK, military and the universities are classified as tertiary. Another category classified

practitioner consulted, reasons for not using health services, cost of services to the users; direct costs, cost of drug and medical supplies and cost of transportation. The sample covered 7500 households containing 30,155 individuals, of whom a 48.96 percent was male and 51.04 percent female. 56.76 percent of the respondents resided in urban,²⁰ 43.24 percent in rural areas.

The household surveys have limitations, involving respondent errors and recall biases. In our case, this has been an inherent problem, such as our utilization of self-reported morbidity as an indicator for the health need and reported utilization within the past twelve months. The questionnaire was designed to inquire application to hospital due to acute, mild, chronic and other conditions in the past twelve months. The answer to this question depends on the capacity to recall by the respondent. There is not another control question to check the validity of the answer, i.e. whether the respondent had really been ill. There was only one direct question about seeking care when ill, but it was asked only to those under fifteen years of age. There could be reimbursable expenses which might have led to overestimation in household expenditures. Reliability of answers on household income may also be justifiably questioned.

separately included modern health services, traditional healers, advice of relatives, neighbors, self-treatment and no treatment.

²⁰ Settlements with a population of 10,000 or more inhabitants were classified as urban.

Age specific analysis could have been better in reflecting health and health care need. Cash prices and price time variables (travel, waiting and treatment time) might be included in logit analysis. Inclusion of out-of-pocket payments was not preferred as their inclusion would decrease number of observation in the analysis. Questionnaire did not allow making calculations of price time variables. A large number of health economics studies established that the time required to use health services is an important determinant for health service utilization. Heller (1982) found a significant influence of time required to use medical services in Malaysia. The negative effect of transportation time supported the restrictive effect of distance of health services to their utilization. The quality of care is not investigated in this study. Therefore, we cannot comment on differences in quality of care in health service utilization by socio economic groups.

Our analysis will initially seek whether there were differences in need, access and utilization of health services across income quintiles, insurance status and type, residential status (i.e. urban/rural), geographical location, educational status and demographic characteristics (i.e. gender and age groups). In exploring these relations, comparisons of sample statistics across different parameters will adopt a chi-square test²¹ and logit models. The logistic regression analysis will be carried out utilizing the maximum likelihood estimation procedure. The analysis will devise the econometric computer program Stata and Excel. The demographic characteristics of the sample, i.e. sex and age group as well as the econometric and statistical findings are presented in detail in Appendix C.

²¹ A chi-square test is used to test the hypothesis that the rows and columns in a two-way table are independent.

3.4 Equity in Need

Equity in health care need is investigated by looking at the variations in self-assessed health and self-reported illness across demographic and *socioeconomic variables*. The self-reported morbidity represented by chronic²² illnesses is used as an indicator for health need. Before the reported illness, however, we need to look at how people assessed their health, from poor to excellent.

A majority of the respondents reported that they had good health. Women assessed their health status as worse than men for all age groups except for the 0-15 years of age (Table 3.1). In the overall, the frequency of reporting chronic illness was 29.21 percent and reporting chronic illness increased with age, as expected (see Table C.6 in Appendix C). Women reported around ten percentage points higher chronic illness than men in the same age group, except for the youngest age group (Table 3.2). This result was consistent with that of self-assessed health.

Similarly, the rate of chronic illness diagnosed by physician in women was higher than men, except for 0-15 years of age ($P < 0.001$). Considering the socioeconomic conditions in Turkey, it is expected that women are less likely to use health services. This

²² Reported chronic illness includes those who reported that they had diabetes, hypertension, heart problem, bronchitis, blood disease, kidney problem, tuberculosis, stroke, goitre, cirrhosis, rheumatism, orthopaedic problem, prostate, tumour, other congenital anomaly and other chronic disease.

may be induced by lower education levels of women than men (27.44 percent of the female respondents, 8.9 percent of the male respondents were illiterate, Appendix C, Table C.2), since better education improves awareness in health and a healthy living. Moreover, education increases the probability of having a job and improve one's income status, hence the living conditions and health status (Kenkel, 1991). But, as shown in Table 3.8, the utilization rate was the highest for the illiterate. Cultural factors might have also restricted women in their decisions to seek care. Considering the results, this particular finding did not confirm the general expectation.

Hospital utilization, on the other hand, was lower for females in the lowest and highest age groups than it was for males, despite their self-assessment had been lower in the highest age group. Between 15-45 years of age, female hospitalization was higher than males (Table 3.2). This might have reflected the fact that they are more likely to use maternity services as the said interval is the reproductive age for females.

The question on seeking care refers whether the respondents reported that they had been to hospital in the last two weeks due to acute, mild or chronic conditions, having a toothache, accident or visual problems. This question was asked under 15 years of age. In the overall, seeking care was as low as 4.98 percent, 4.37 percent for girls and 5.58 percent for boys. The difference was significant ($P < 0.001$, see Table C.12 in Appendix C).

Table 3.1: Self-Assessed Health by Gender and Age Group (%)

	Women				Men			
	0-15	16-45	46-64	65+	0-15	16-45	46-64	65+
Poor	1.8	5.85	15.23	16.37	2.14	3.40	9.14	12.39
Fair	9.29	18.55	31.60	31.79	9.09	15.06	25.77	27.37
Good	74.06	65.57	47.07	43.79	74.11	68.17	52.80	46.64
Excellent	14.78	9.93	6.19	8.05	14.67	13.37	12.29	13.61

Source: HUS, 1992. All Chi² significant at (p<0.001)

Table 3.2: Reported Illness and Utilization by Gender and Age Group (%)

	Female				Male			
	0-15	16-45	46-64	65+	0-15	16-45	46-64	65+
Chronic Disease (CD)	10.68	37.98	78.01	80.54	11.09	26.78	58.62	74.17
CD diagnosed by physician	7.13	25.54	59.08	65.95	7.79	17.12	43.87	56.19
Hospitalized in the last year	1.85	6.19	6.94	9.73	2.07	2.55	6.37	11.03

Source: HUS, 1992. All Chi² significant at (p<0.001). See Tables from C.6 to Table C.11 in Appendix C.

A similar finding was obtained in the Social Mitigation Project in 2001; where women reported higher illness²³ and more likely to seek treatment²⁴ (The World Bank, 2003, Vol II: 37). Other comparative studies reported similar findings in utilization. In Sweden, women used health care more than men, where medical care was obtained from care weeks in hospitals (Sundberg, 1996: 60).

In Finland, women of 25-64 ages had more inpatient days than men. The annual rate of hospitalization was also higher in the lower employment status²⁵ and in females (Keskimäki *et al.* 1995). Women in Tajikistan perceived to have suffered more from chronic illness in the last six months or an acute illness or injury in the past month than men. Their hospital utilization in the last year was also higher than men between 16-64 years of age (Falkingham, 2003). Various research from developing countries reported females needed more health care especially in reproductive health services, they had less access to household resources and health services, while they remained under higher risk of poverty (WHO, 2005).

In view of the situation about health and health care needs, we will try to explore in the following the reasons underlying the said differences.

²³ Medical need (reported illness) included more on acute cases such as, fever, headache, pain, stomach disorder, toothache. In addition, the recall period for reported illness was one month.

²⁴ Definition of seeking treatment was not specified in the reference.

²⁵ Occupational groups were classified considering from highly skilled to unskilled workers, farmers and retired/students.

3.5 Equity in Finance

Health insurance affects individual's decision to seek care. People do not incur to the full cost of health services when they are insured. It reduces the financial burden of using health services and protects people partially or entirely from costs of using these services. Therefore, it encourages utilization of health services. Moreover, the relevant literature suggests that price elasticity of demand for health services is higher for lower income groups.

Insurance coverage which results in a reduction in price of health care increase utilization of lower income groups more than higher income groups (Maynard, 1979; McPake, 1993; Jowett *et al.*, 2004). However, coverage is not sufficient to guarantee the adequate provision of health care. It should enable protecting people from risks of financial difficulty and provide ease of access (Donaldson and Gerard, 1994; 144). Even if people do not have to pay at the point of service use, there may still be difficulties in reaching health facilities and doctors due to inadequate and inequitable supply of health care resources. They may face high costs of transportation or longer time to access health services or else, specific rules to benefit from health services, such as referral rules or premium payment requirements.

3.5.1 Financial Access by Socioeconomic Groups

The insurance coverage and its type (i.e. public or private) by household income²⁶ quintiles indicate the extent to which the health insurance schemes protect groups with least ability to pay.

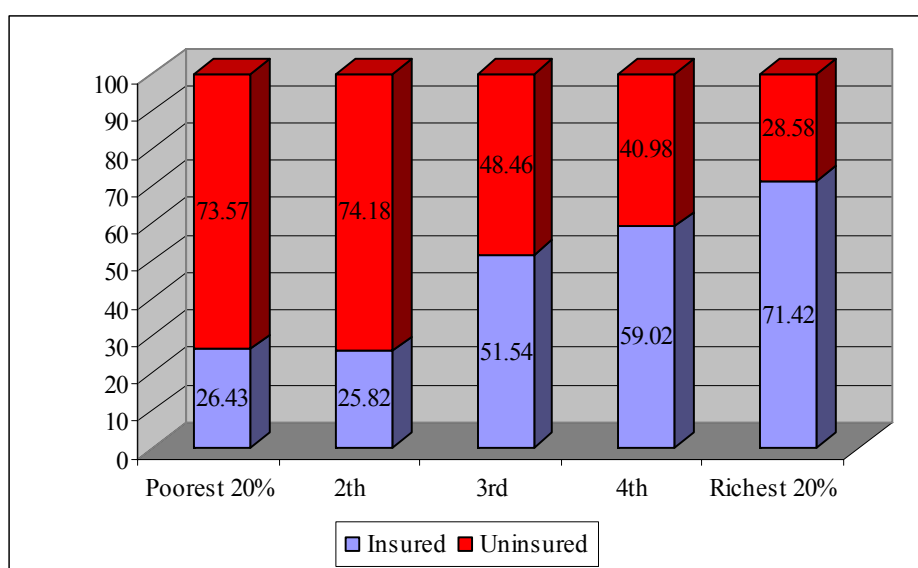
More than half of the respondents (52.17 percent) were not covered by any insurance scheme. About fifty percent of the insured were the SSK members, 25 percent belonged to the ES and 16 percent to the BAG-KUR. The share of private insurance constituted a very small share of about 4 percent. These percentages were in compliance with the existing situation in insurance membership in Turkey in 1992 (MoH, 1997).

Insurance status was found to be significantly associated with household income. The lower income quintiles were covered much less than higher income quintiles, which added a further barrier in access by the poor (see Figure 3.1). In the poorest quintiles, only about 26 percent were insured. Even in the middle income level, the insurance coverage was 51.5 percent. The fairness is also found to have deteriorated concerning the situation for higher income groups. Yet, almost 30 percent of the richest was not insured, meaning that they do not pay social insurance premiums. Furthermore, despite significant

²⁶ Household income is calculated as household yearly income both in kind and in cash.

association between work status²⁷ and insurance cover, only 54.8 percent of the employed had an insurance cover. This proves that people were employed without insurance (see Table C.14 in Appendix C). On the other hand, 47.7 percent of the unemployed reported that they had been covered. These could either be the dependents or the self-insured.²⁸

Figure 3.1: Insurance status by Household Income Quintiles (%)



Source: HUS (1992). See Table C.13 in Appendix C. All Chi² significant at (p<0.000).

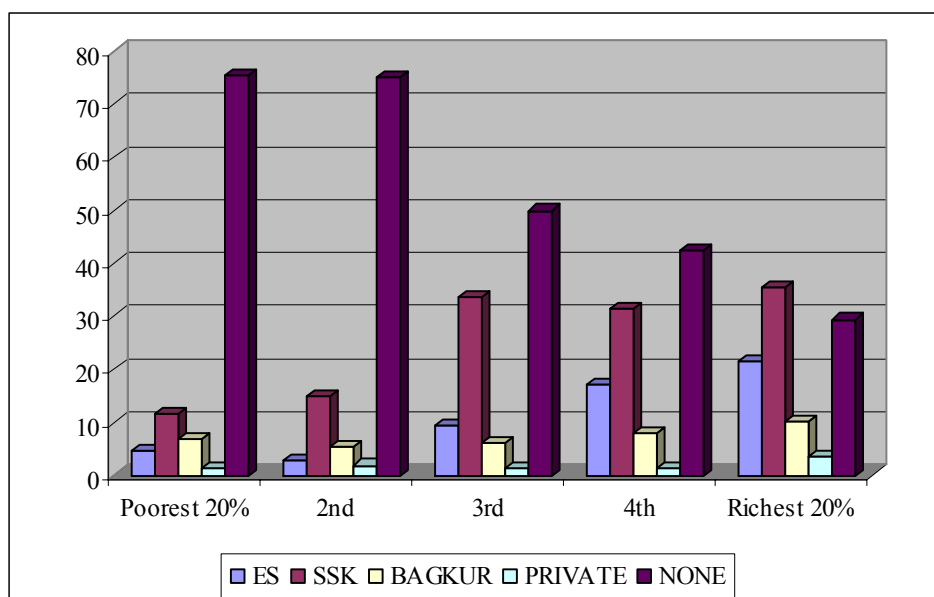
Considering the type of insurance, the ES and SSK schemes covered higher income quintiles more. The share of BAG-KUR membership was almost evenly distributed among all household income groups (see Figure 3.2). The type of occupation has been strongly associated with the type of insurance as shown in Table 3.3. Employees worked as

²⁷ Work status denotes whether the respondent had worked during the previous week before the survey was conducted.

²⁸ The self-paying voluntary scheme was introduced in May 1979 in BAG-KUR (4.5.1979, Law no: 2229).

civil servants have been mostly covered by the ES, whereas paid-workers have been covered mostly by the SSK. 4.04 percent of the public employees who were uninsured might have been the casual (i.e. temporary) workers. One fourth of the paid workers and 70 percent of the casual workers were uninsured. Only the 27.40 percent of the employers and 19.47 percent of the self-employed belonged to BAG-KUR. About one third of the employers and two thirds of the self-employed were uninsured. This also indicates an important loss in terms of their contributions to the social security, hence the risk pooling among the rich and the poor, young and old and healthy and unhealthy. As the health system in Turkey is concerned, the 30 percent of the richest still lacked insurance, with more access to the health services without paying premiums to the system as shown in section 3.6.3.

Figure 3.2: Insurance Schemes by Income Quintiles



Source: 1992 HUS, see App. C, Table C.15. All Chi² significant at (p<0.000).

Table 3.3: Health Insurance by Occupation (%)

Type of Insurance	Civil servant	Worker	Casual	Employer	Self-employed	Unpaid family worker
ES	74.15	6.03	3.67	14.38	3.56	2.66
SSK	17.40	63.87	22.50	26.03	13.4	12.68
BAG-KUR	1.39	2.03	1.61	27.40	19.47	8.57
Private	3.03	1.64	2.30	2.74	2.03	1.33
Uninsured	4.04	26.43	69.92	29.45	61.46	74.76

Source: HUS (1992). All Chi² significant at (p<0.000).

3.5.2 Financial Access by Residential Location

The differences in health insurance cover and type (public/private) in terms of residence (urban/rural) and geographical location suggest equity in financial access. The percentage of the insured was almost the double in the urban vis-à-vis the rural areas (see Table 3.4). People with insurance in western and central Anatolia were more than in the east. The uncovered in rural areas, as well as the eastern and southeastern Anatolia exceeded 70 percent. As argued, the insurance status is closely related with the type of employment. A significant majority of the people who live in eastern Turkey do not have regular jobs and are less likely to be under coverage. Almost 60 percent of the people living in the eastern and southeastern provinces work in the agricultural sector (see Table C.16 in Appendix C).

Table 3.4: Insurance Coverage by Settlement and Geography (%)

Place of Settlement	Covered	Not Covered
Urban	62.94	37.06
Rural	28.12	71.88
Thrace	60.83	39.17
Aegean-Marmara	60.25	39.75
Mediterranean	42.63	57.37
Central Anatolia	52.84	47.16
Blacksea-West	51.93	48.07
Blacksea-East	50.23	49.77
Eastern Anatolia	27.77	72.23
Southeast Anatolia	26.87	73.13

Source: HUS (1992). All Chi² significant at (p<0.000)

There has been observed in 2002-2003 a modest improvement in the insurance status according to the income level (MoH, 2006: 18). About 72 percent of those in the poorest income quintile remained uninsured, but a 19.2 percent of these were issued with GC. This means that although the earnings of the poorest did not improve, the government started to subsidize their health expenditures. A similar case can be made for the second income quintile, where a 44.6 percent remained uninsured and a 15.46 percent were GC holders. Insurance status for those in the higher income groups improved since 1992, yet a 14.5 percent remained uninsured. The pattern where the higher income groups have been covered by the ES and SSK persisted (MoH, 2006: 18). The insurance status as to the place of settlement did not change. Those who live in rural areas and in the east have been covered poorly: 43.15 percent of those living in the rural areas and 45.17 percent of those living in the eastern Turkey remained uninsured.

3.5.3 Out-of-pocket Payments by Socioeconomic Groups

Payments made by individuals are another source of finance for health services. The egalitarian interpretation of equity in finance requires vertical equity, i.e. the households with unequal ability to pay should pay unequally. We will try to explore whether out-of-pocket payments have been related to ability to pay in the health sector in Turkey. To do so, we need to look at the mean values of out-of-pocket payments for health services by income quintiles, the share of out-of-pocket health expenditures in household income and the distribution of out-of-pocket payments by type of expenditures.

Out-of-pocket health expenditures are represented by payments made to hospitals, primary service providers (health units, health posts), private physicians, dental services, other health personnel, folk practitioners and out-of-pocket drug expenditures in the last two weeks prior to the survey was conducted. These include payments to doctors or health service providers in return for a receipt, payments for drugs, equipment and analysis, cash payments other than with a receipt, presents or donations to the health personnel or providers, transportation and accommodation costs and over-the-counter drug expenditures.

The mean value for out-of-pocket payments is TL 546.80 for 2,944 patients who utilized health services in the last two weeks (see Table 3.5). The three income quintiles from the bottom paid higher than the average. The poorest paid 25 percent higher than the average, while those in the fourth income quintile paid around 20 percent less than the average. Those insured paid lower than both the average and the ones without insurance.

Members of the ES, SSK and private schemes paid less than the average, whereas BAG-KUR members paid 75 percent more. This should not entirely be due that BAG-KUR members are high-income earners. As seen in Figure 3.2 (see Table C.14 in Appendix C for values), BAG-KUR membership and income level displays a quadratic relation.²⁹ Instead, it could be related more to our finding in Section 3.6.1 that the BAG-KUR members used private facilities more than others.

The findings of a survey on household health expenditure in 2002-2003 (MoH, 2006) confirm that there has been no improvement in the individual ability to pay, hence in equity in terms of out-of-pocket expenditures. The annual out-of-pocket expenditures have still been the highest for the poor, the uninsured as well as for those living in rural areas and in the eastern Turkey. BAG-KUR members have made the second highest expenditures after those with private insurance and the uninsured (MoH, 2006: 24).

An analysis of the share of health expenditures in household income on the other hand, brings striking results. The poorest paid a 28.7 percent of their household income for the utilization of health services, more than five times the amount paid by those in the second quintile (7.3 percent) which followed.³⁰ This may be implicated mainly by three important factors. One is that, as displayed in Figure 3.1, the poorest has the second lowest

²⁹ 7.85 percent among the poorest had BAG-KUR membership. The percentage of BAG-KUR membership falls in the second and third quintiles, but increases to 7.99 percent for the fourth and to 10.28 percent for the richest.

³⁰ Pannarunothai and Mills (1997) found that in Thailand too, the share of health expenditures in household income was the highest in the poorest quintile. More interestingly, in Thailand, the poorest paid also a significant 21.2 percent of their household income for health services, more than eight times the amount paid by those in the second quintile (2.6 percent) which followed.

insurance coverage (26.43 percent), so he needs to spend more on health care which includes the formal payments associated with the health services received. For the very same reason, the poorest also made the highest mean level of informal payments.

The second must be related to the inefficiency in the health care provision in Turkey. When the relative shares of the different types of health care expenditures (i.e. drugs and equipment, consultation, hospital costs) in household income by quintiles are considered, payments made by the poorest to cover the hospital costs stand out by far the largest among others (see Table C.19 in Appendix C). Hence, the poorest had to pay for the costly hospital services. This is due to the insufficient primary care, which might have costed significantly less, particularly for the poorest.

Thirdly, the levels of household expenditure reflect individual's choice of treatment. The poorest may arguably spend only for the absolutely essential health care, i.e. catastrophic and emergency needs (Gertler *et al.*, 1987). Hence, the high share of health expenditures in the household income of the poorest is a guide in understanding the issues relating to the income elasticity of different groups, which requires further research to support decisions on income subsidies.

Table 3.5: Out-of-pocket health expenditures by Income Quintiles and Insurance Status

	Mean value of out-of-pocket health exp.		Share of health exp. In household income	
	Number of Observation	TL	Number of Observation	%
Average	2944	546.8	2373	6.2
Household Income quintile				
Lowest 20% ³¹	202	681.5	202	28.7
2nd	382	577.2	382	7.3
3 rd	406	658.8	406	4.9
4 th	544	432.4	544	2.1
Highest 20%	839	543.3	839	1.2
Insurance Status				
Covered	1762	541.2	1486	5.1
Uncovered	1176	556.6	883	8.1
Type of Insurance				
ES	426	518.3	366	7.9
SSK	950	450.0	825	3.8
BAG-KUR	241	957.2	186	5.4
Private	69	356.9	55	6.0

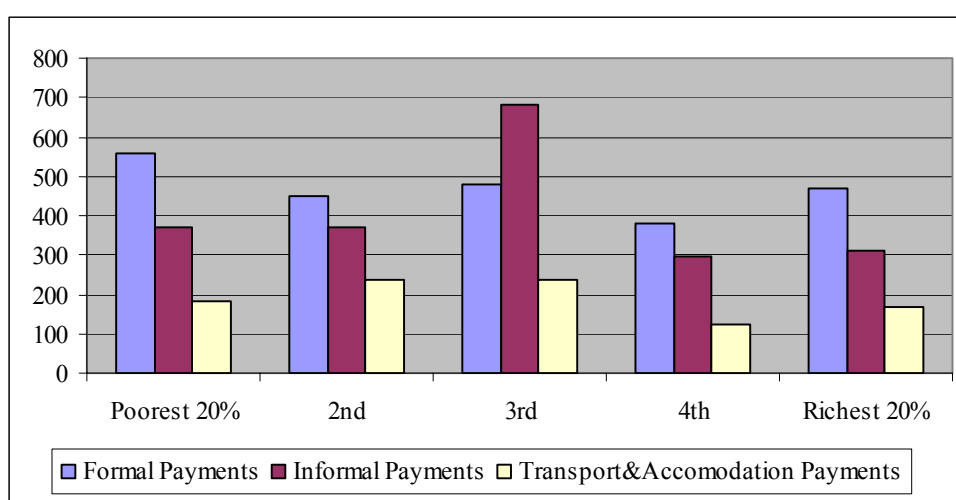
Source: 1992 HUS. For estimations and confidence intervals see Table C.17 and C.18 in Appendix C.

Another issue has been that the informal payments were as high as formal payments. The reason behind making informal payments is to assure the quality of service. These may in the form of thank-you gifts to doctors and tips to other health personnel. This may be the main reason why the third quintile had made highest amount of informal payments, as it had also been the most hospitalized in the past year (see Table 3.8).

³¹ 7500 individuals who reported that they had zero income were excluded from the analysis. That's why the number of individuals in each income quintile may suggest that the income distribution in Turkey was fair, which was not the case considering these excluded individuals.

Informal payments exist also in Central Asia (Falkingham, 2003), but in a different context involving low salaries and morale in the health sector. Individuals at first quintiles in Tajikistan made substantially smaller payments and gifts than those in the fifth quintile. This was partly due to the poor were using largely the primary care where informal payments were not common and low (Falkingham, 2003).

Figure 3.3: Out-of-pocket Payments by Income Quintiles



Source: 1992 HUS. See Table C.20, C.21 and C.22 in Appendix C.

The differences in the scope of the benefit packages as well as their payment methods across the different insurance schemes also play an important role in health expenditures by the households in terms of the type of insurance schemes. The mean value

of health expenditures was the highest for BAG-KUR members among insurance groups, it was about two times higher than other insurance schemes.

Table 3.6: Total Formal Payments According to Insurance Status and Type

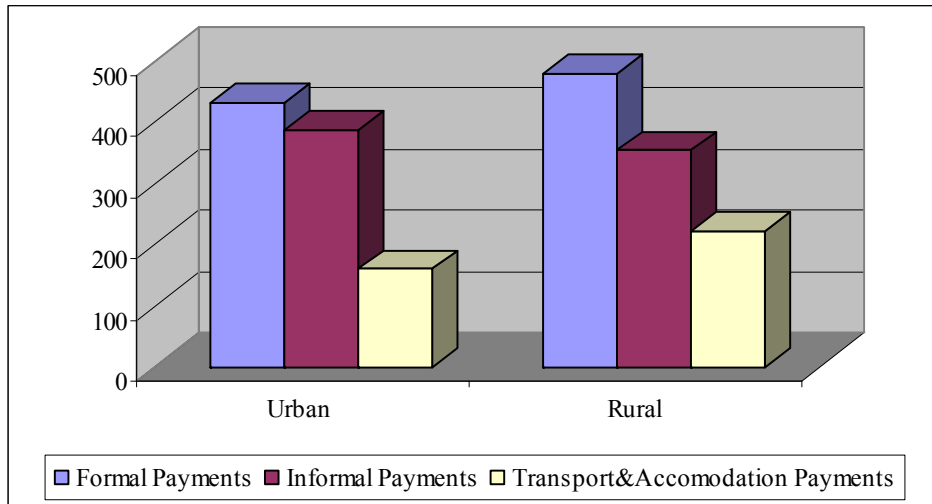
	Formal Payments		Informal Payments	
	Number of Observation	Mean (TL)	Number of Observation	Mean (TL)
Insured	1523	441.9	179	412.0
Uninsured	1125	457.4	100	310.2
ES	344	448.2	40	375.3
SSK	824	331.5	94	384.4
BAG-KUR	229	790.0	27	705.7
PRIVATE	61	325.2	6	167.0

Source: HUS (1992). See Table C.20 and C.21 in Appendix C.

3.5.4 Out-of-pocket Payments by Residential Location

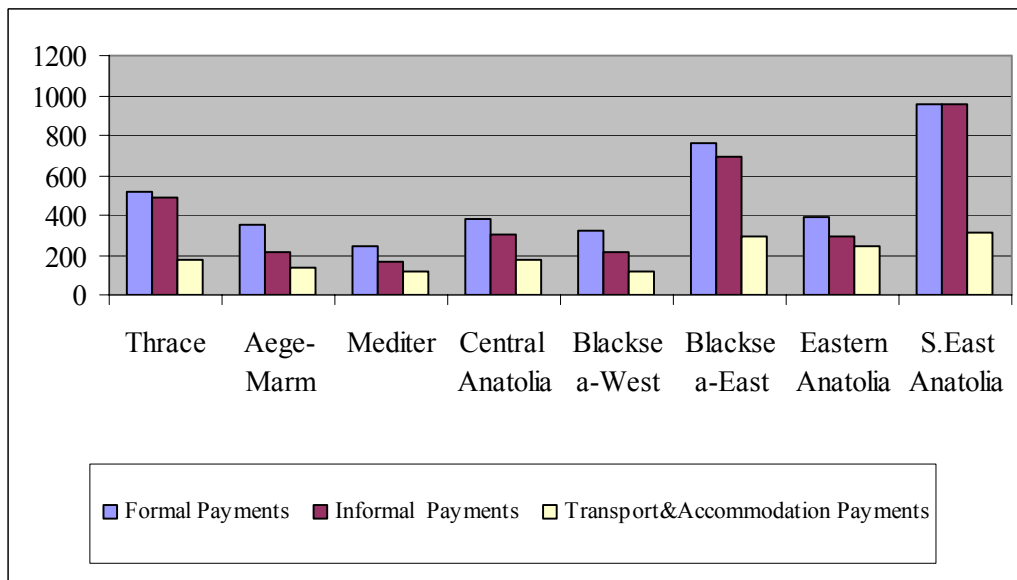
In the rural areas, mean of formal payments was about ten percent higher than in the urban areas. Likewise, the payments for transport and accommodation were almost forty percent higher in the rural areas (Figure 3.4). The former is an indication of the difficulty in financial access, while the latter is that of physical access to health services in rural areas. Individuals living in the Southeastern Anatolia had to bear the highest costs in all types of payments, followed by those living in eastern Blacksea (Figure 3.5). In the southeast, mean of formal payments was more than fifty percent higher than the average, while their informal payments were sixty percent higher and their payments for transportation and accommodation were almost forty percent higher. Those living in the west, except for Thrace, made lower amounts of out-of-pocket payments than those living in other regions.

Figure 3.4: Out-of-Pocket Payments by Place of Settlement



Source: HUS (1992). See Table C.23, C.24 and C.25 in Appendix C.

Figure 3.5: Out-of-Pocket Payments by Geographical Regions



Source: HUS (1992). See Table C.23, C.24 and C.25 in Appendix C.

3.6 Equity in Health Service Provision

Equity in health care provision means there are no differences in utilization patterns by socioeconomic groups and place of settlement. Utilization of public or private facilities by income groups, health insurance status and type indicate affordability of using different type of health service. These relations are also the indicative of the extent public sector meets individual needs for health care since public services are free. The similar analysis for the utilization of public/private health services according to different geographical areas and urban/rural settlement designate the degree of equality in geographical access.

3.6.1 Consumer Choice in Health Services (Type of Health Seeking Behavior) by Socioeconomic Groups

Utilization is measured as the frequency of hospitalization in public or private institutions within last year and type of health service used within last two weeks. The public institutions provided for the ninety percent of the health services utilized by all socioeconomic groups and settlement areas. The difference across income groups in utilization of public and private hospitals was significant at a level of ten percent. Interestingly, the percentage of utilization of private facilities by the poorest quintile was almost the same as the richest (Table 3.7). Utilization of public or private facilities in the

past year showed no significant difference by status but by type of insurance. Utilization of private hospitals was the highest among the BAG-KUR members, even higher than the privately insured. There is, again, inequity in utilization by different insurance schemes of health services within the past two weeks.

Table 3.7: Hospitalization by Socioeconomic Groups, Type and Location

	Public	Private
Income Quintile		
Poorest 20%	91.35	8.65
2nd	97.73	2.27
3 rd	89.89	10.11
4 th	89.77	10.23
Richest 20%	91.07	8.93
All Chi ² significant at (p<0.1)		
Type of Insurance		
ES	95.05	4.95
SSK	92.84	7.16
BAG-KUR	81.82	18.18
Private	89.47	10.53
Uninsured	90.05	9.95
All Chi ² significant at (p<0.005)		
Place of Settlement		
Urban	89.12	10.88
Rural	95.62	4.38
All Chi ² significant at (p<0.001)		
Geographical Area		
Thrace	86.96	13.04
Aegean-Marmara	89.10	10.90
Mediterranean	87.10	12.90
Central Anatolia	92.09	7.91
Blacksea-West	100.00	0.00
Blacksea-East	95.89	4.11
Eastern Anatolia	96.58	3.42
South east Anatolia	100.00	0.00
All Chi ² significant at (p<0.001)		

Source: HUS (1992).

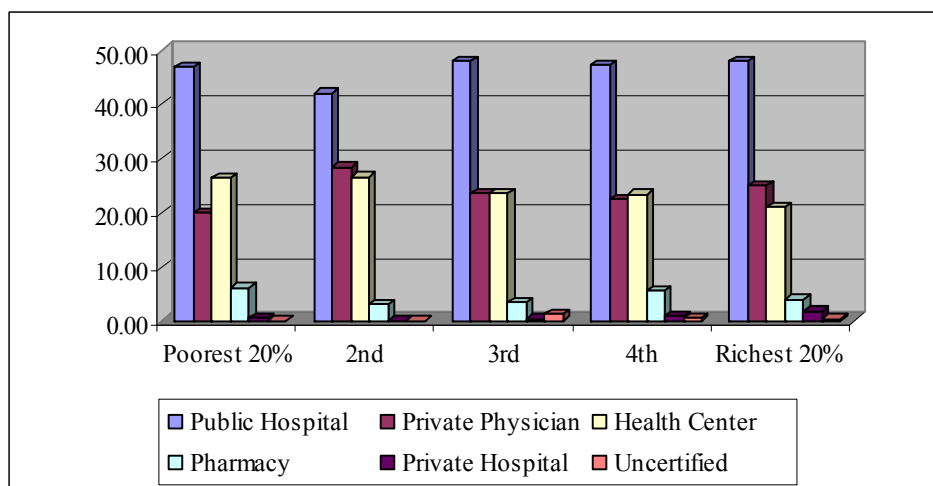
The differences in utilization by income groups and insurance schemes were observed also in Thailand. In Thailand, the poorer segments of the population and low income card holders used public hospitals, the rich and those with civil servants scheme and the privately insured used private hospitals (Pannarunothai and Mills, 1997).

Utilization of private facilities in urban areas was two times higher than those in rural. Private facilities were mostly used in the western part of the country, whereas no record was found for the western Black Sea and the southeastern Anatolia (Table 3.7), probably due to lack of private institutions.

Figure 3.6 suggests there was significant difference in health care utilization by income groups in the past two weeks, but the size of the variation was small. Public hospitals were the first place for application for all income groups. The lowest income group used health centers as a second place for reference, while others used private physicians. The utilization of private physicians was also high for the poorest (see Table C.26 in Appendix C). Furthermore, despite the fact that health centers do not charge for their services, the frequency of application by the poor to the private physicians was almost as high as the health centers. This utilization pattern might have been induced by several factors. The first and the foremost could be the perceived inadequacy and dissatisfaction in care in health centers (TUPAV, 2005). Health centers located in remote areas throughout the country mostly do not provide effective service due to lack of personnel and equipment. Moreover, as the health system in Turkey relies heavily on the secondary level, people prefer to be seen by a specialist rather than general practitioners working in health centers (MoH, 1999). Also, the poor applied to the private physicians, despite higher charges, more

than higher income groups. This shows, among others, that public services have not been responsive to the health care needs of the poorest segment of the population.

Figure 3.6: Type of Services Applied in the Past Two Weeks by Income Groups (%)



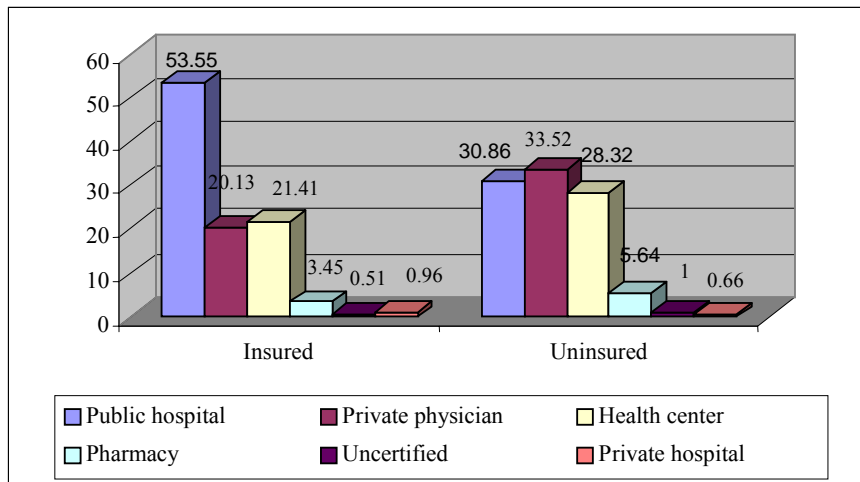
Source: HUS (1992). See Table C.26 in Appendix C. Chi² is significant at (p<0.05)

As argued earlier, the relationship between the socioeconomic status and the type of health service used is designated by the degree of equity in terms of health services provision. In a different context in the post-Soviet Tajikistan, as contrast to the case in Turkey, the poor tended to use primary care rather than more costly hospital care. They were even more likely to be treated at home by an assistant physician, nurse or midwife, while the rich were more likely be treated by physician in polyclinics or hospitals (Falkingham, 2003).

There was a significant difference in choosing different health services in terms of insurance status (Figure 3.7). The insured were particularly used public hospitals (53.55

percent), whereas the uninsured chose mostly the private physicians (33.52 percent). The applications by the uninsured to public hospitals were half of those by the insured (see Table C.27 in Appendix C). People who had no insurance coverage had to use private services by almost ten percent more than the insured.

Figure 3.7: Types of Services Used in the Past Two Weeks by Insurance Status (%)



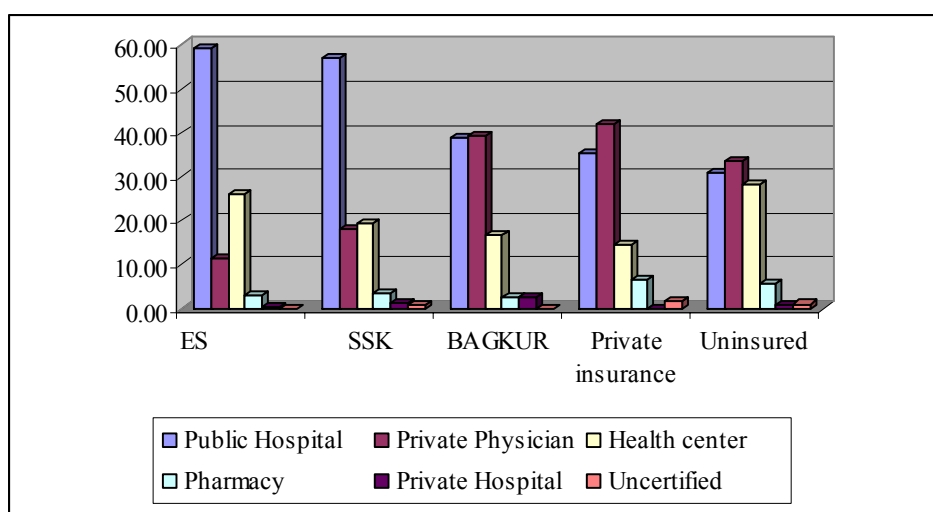
Source: HUS (1992). See Table C.27 in Appendix C. All χ^2 significant at ($p < 0.01$)

The first point of contact for the ES and SSK members were public hospitals. The BAG-KUR members chose first private physicians and then public hospitals. Their utilization of public hospitals remained around twenty percent lower than the ES and SSK members (Figure 3.8). One reason for this could have been that the BAG-KUR members are self-employed and could afford more expensive health care. However, the intensity of BAG-KUR membership did not vary significantly among the income groups. The BAG-KUR membership was 10.28 percent in the highest income level whereas it was 7.85 percent in the lowest (see Table C.28 in Appendix C). Hence, the BAG-KUR members also

had to use the more costly private services even they had the insurance, similar to the pattern concerning the out-of-pocket health expenditures.

Moreover, as emphasized earlier, the health benefits provided by BAG-KUR have been more restricted than other insurance schemes (for an indicative comparison of the rules and benefits in different insurance schemes concerning the health services in Turkey, see Appendix D).

Figure 3.8: Types of services used in the past two weeks by insurance schemes



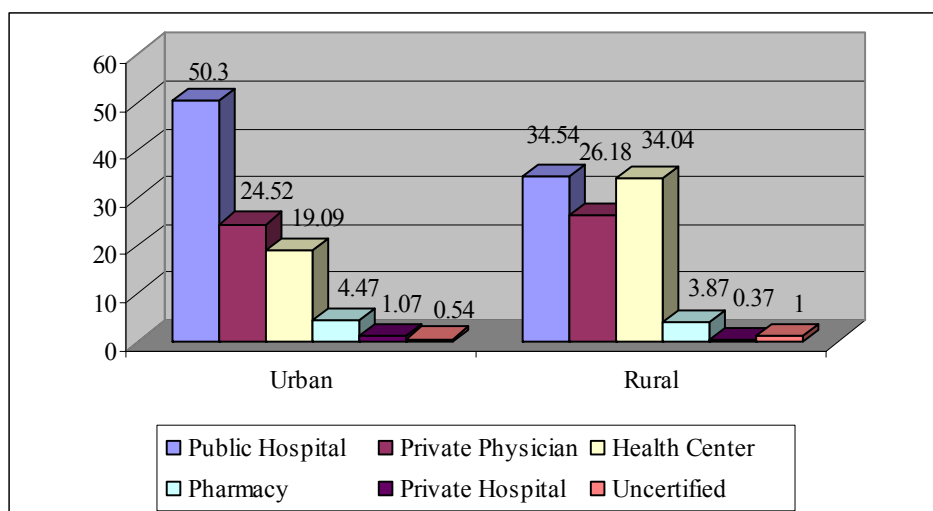
Source: HUS (1992). See Table C.28 in Appendix C. All Chi² significant at (p<0.01)

3.6.2 Consumer Choice in Health Services (Type of Health Seeking Behavior) by Residential Location

There was also a significant in the variation between the urban and rural areas in terms of applications to the health service in the last two weeks. Application to public

hospital as a first point of contact was around fifteen percent higher in the urban compared to rural areas. In the rural areas, people went to health centers along with hospitals. Application to the private physicians was higher in the rural than in urban areas (Figure 3.9).

Figure 3.9: Types of services applied in the past two weeks by place of settlement



Source: HUS (1992). See Table C.29 in Appendix C.

3.6.3 Equity in Utilization for Equal Need by Socioeconomic Groups

Cases with chronic disease within the last twelve months have been selected for our analysis in order to assess the equity in utilization for equal need. The chronic disease cases diagnosed by a physician serve as a measure of equity in utilization for equal need. The distribution of self-reported illness and utilization across household income groups is an indication of the relationship between the financial resources of the households and their

needs. Other socioeconomic factors such as education via increasing employment opportunities and the earning capacity, employment and insurance status also reduce financial obstacles to reach health services.

The incidence of reporting illness by socioeconomic indicators is displayed in Table 3.8. The illiterate was the worst, as they reported chronic disease by almost two times more than the other groups. This could be induced by their low income earning capacity, hence bad living conditions and their being less aware about living healthy. This implication has been well documented and tested in the relevant literature (Kenkel, 1991). Better education improves people's understanding of the relationship between health behavior and health outcomes. A significant number of studies in health economics reported a positive correlation between schooling and good health (Grossmann, 1975; Kenkel, 1991). In addition, the effects of schooling is better understood as the more educated have better jobs, higher wages and health insurance, which reduces the likely financial barriers in access to health service. Hence, although better educated are healthier, they are also more likely to use health services.

It seems that low level of education did not adversely affect health service utilization. The percentage of the chronic disease diagnosed by a physician was also the highest for the illiterate. The illiterate also used hospitals by around fifty percent more than the others. A similar observation was found in Thailand, where the household heads with lowest education reported higher chronic illness than the better educated. Those with the lowest education were more likely to seek care and use public services. (Pannarunothai and Mills, 1997).

The poor reported chronic illness slightly more than the rich. There was not clear relation between the income level and the propensity to report chronic disease diagnosed by a physician. The rate of diagnosis by physician increased with income level up to the third quintile and then decreased for the higher income levels. A subsequent analysis in 2001 with restricted data indicated that the reported acute illness was inversely related with income levels, as the poorest reported illness five percentage points more than the richest. However, those who sought care when ill were proportionately higher in the top income quintile than in the bottom (The World Bank, Vol.II: 35).

Early cross sectional demand studies found income had negligible influence on individuals' decision to seek care (Heller, 1982; Akin *et al.*, 1986). The relatively small sample sized research in Cameroon reported less clear relationship between income and utilization. Income had positive and statistically significant effect for the poorest and the richest income quintiles, negative and statistically significant for the second and fourth income quintiles (Litvack and Bodart, 1993). Similarly, Pannarunothai and Mills (1997) also found no consistent relation between reported chronic and acute illness with income in Thailand.

The findings of a study conducted by Keskimäki *et al.* (1995) revealed that various socioeconomic groups in Finland used hospital services equitably according to their need where need is measured by overall morbidity and mortality at the end of 1980s. The Finnish health system does not address any socioeconomic differences in hospital use or the quality of hospital services. Occupational group, education and disposable income were the

other socioeconomic indicators. In Sweden, lower income groups reported more illness and equity in utilization for equal need was attained in 1990 (Sundberg, 1996: 139). However, the situation changed toward the late nineties due to market-oriented reforms and organizational changes. Introduction of user fees and substantial cuts in the number of hospital beds, changes in treatment recommendations and shorter hospital stay deteriorated access and utilization. An inverse relationship between income level and health service utilization was found in the analysis based on the Swedish Survey of Living Conditions 1996-1997 (Burnstöm, 2002).

The ease of access for the employed and having an insurance coverage was significantly associated with reported morbidity and use of health service. A 49.21 percent of the respondents were insured and their level of reporting chronic illness was higher than the uninsured. A similar trend was observed for the employed. The utilization was also higher for the insured, however, the unemployed used hospitals more than the employed. Our findings appear to be analogous to the findings in Sweden, where the unemployed experienced more sick weeks and had more visits to doctors than the employed in Sweden (Sundberg, 1996: 59).

Table 3.8: Reported Illness and Utilization by Socioeconomic Groups (%)

Socio-Economic group	Chronic Illness	Chronic disease diagnosed by physician	Hospitalized in the last year
Educational Status			
Illiterate	58.10	43.07	6.19
Literate/no diploma	31.21	22.51	3.43
Primary	33.79	22.97	4.57
Secondary	22.34	15.31	3.17
High School	27.88	20.16	4.04
University	30.89	19.97	4.02
	(P=0.000)	(P=0.000)	(P=0.000)
Household Income			
Poorest 20%	32.06	22.42	3.82
2nd	32.11	23.04	3.63
3 rd	32.80	23.32	5.01
4 th	30.05	21.31	4.49
Richest 20%	29.35	21.22	4.32
	(P=0.000)	(P=0.032)	(P=0.011)
Insurance status			
Covered	35.36	25.78	5.44
Uncovered	29.10	19.85	3.01
	(P=0.000)	(P=0.000)	(P=0.000)
Employment status			
Employed	35.03	23.19	3.02
Unemployed	27.86	20.10	4.51
	(P=0.000)	(P=0.000)	(P=0.000)

Source: 1992 HUS.

The difference was not large in reporting chronic illness among the different types of insurance schemes. The percentages of chronic disease diagnosed by physician were also similar in different insurance schemes. However, hospital utilization was lower for BAG-KUR members than those with the ES and SSK. Members of the ES can access all public

and university hospitals³². The SSK also had its own hospitals. Although, it is a well-known fact that there had been problems in utilizing the SSK health benefits, the findings imply that the SSK members used health services almost as high as the members of other schemes (Table 3.9). The utilization by members of the private insurance schemes was similar to those with the uninsured. This could be due to private health insurance was started in 1987 and their benefit package was restrictive at least in the nineties (Karacık, and Atlı, 2006).

Table 3.9: Reported Disease and Utilization by Type of Insurance (%)

Type of Insurance	Chronic Disease	Chronic disease diagnosed by physician	Hospitalized in the last year
ES	35.85	27.03	5.77
SSK	35.44	25.91	5.85
BAG-KUR	36.59	26.19	4.44
Private	34.81	22.22	3.52
Uninsured	29.10	19.85	3.01
	(P= 0.000)	(P= 0.000)	(P= 0.000)

Source: HUS (1992).

The low level of utilization for BAG-KUR members can be explained by the fact that, the members do not pay their insurance premiums regularly, therefore temporarily lose their right to benefit until they pay their premium debts. The civil servants and the ES members had more access. They are not under risk of inability of paying premiums as their premiums are paid by the government budget. The ES members can benefit as soon as they are entitled to a salary, while SSK members should pay premiums for at least ninety days and BAG-KUR members for at least 242 days (see Annex D for an indicative comparison).

³² The ES covered all active and retired civil servants, including the military, which operate their own hospitals.

The three different insurance schemes had different rules for access and different benefit coverage for their members. These rules and benefits have been set by a Budget Implementation Directive (“Bütçe Uygulama Talimatı” - *BUT*) issued annually by the Ministry of Finance. This directive covers all aspects of health delivery for different service providers and for varying types of services, including referral procedures, procedure costs, dental, prescriptions and reimbursement requirements. The *BUT* rules have been applied by the ES and BAG-KUR, whereas the SSK implemented a more restrictive self-generated framework for health benefits. The ES members can apply all public institutions through a referral procedure initiated by their institutions. The institution’s doctor has the right to refer his patients to the outpatient clinics in any public hospital. The retired ES members need not a referral, as they can go directly to any provider. The SSK members should have a referral from an SSK hospital to apply university hospitals. The BAG-KUR members can only apply to health service providers if they are contracted by BAG-KUR. Most of the university hospitals, however, are not inclined to accept BAG-KUR members, even though they have contracts with this institution. Furthermore, BAG-KUR does not cover transportation and other affiliated costs. Therefore, it is natural to expect differences in the utilization patterns of members of different insurance schemes.

3.6.4 Equity in Utilization for Equal Need by Residential Location

We have emphasized earlier the unequal distribution of provision of health services across the country. Therefore, the probability of reporting illness and seeking care

could display variations between the urban and rural areas, as well as among the geographical regions. There have been, however, no significant difference found between the urban and rural areas in reporting illness and in the share of chronic disease diagnosed by a physician (Table 3.10). Yet, the people living in rural areas were hospitalized less than those in the urban areas.

There was a significant difference in the proportion of the population among regions in terms of reported and diagnosed chronic disease. The health system seemed to display the highest responsiveness in the eastern Black Sea, where the proportion of the diagnosed chronic disease cases was closest to the reported rate (See Table 3.10). On the other hand, the said proportion had been the lowest in the Southeastern Anatolia. This might have been induced by a lack of awareness about health and health care due to high level of illiteracy (40 percent of the population was illiterate in the Southeastern Anatolia (See Table C.3 in Appendix C). Conversely, as we have found earlier that the illiterate had the highest level reporting chronic illness (see Table 3.5). Here, the only plausible explanation for this controversy can be the regional difficulties in financial and physical access to health services. The data presented in Table 3.10 supports this view, as the said region also displayed the lowest level diagnosis. A recent study by the World Bank also confirmed this view, relating the situation with the problem of accessibility of health services and financial access of inhabitants in the regions (The World Bank, 2003, Vol.II: 36).

Table 3.10: Reported Illness and Utilization by Place of Settlement

Place of Settlement	Chronic Disease	Chronic disease diagnosed by physician	Hospitalized in the last year
Urban	29.36	20.65	4.71
Rural	29.01 (Pr =0.506)	20.73 (P=0.867)	3.53 (P= 0.000)
Thrace	32.11	22.13	4.19
Aegean-Marmara	30.10	23.32	4.77
Mediterranean	28.32	22.10	4.46
Central Anatolia	28.61	23.39	5.07
Blacksea-West	28.74	22.83	5.17
Blacksea-East	38.42	35.71	4.68
Eastern Anatolia	26.15	22.05	3.41
South east Anatolia	24.39 (Pr= 0.000)	16.12 (P= 0.000)	1.53 (P=0.000)

Source: 1992 HUS data

3.7 Reasons for Not Seeking Health Care

The reasons as to why the respondent had not been to doctor by income quintiles and geographical areas are indicative of the situation in financial and geographical access. Apart from not being sick, affordability was the main reason for not seeking care in all groups (75.84 percent). This rate was particularly high in lower income and education, as well as for those living in rural areas and in the Southeastern Anatolia (Table 3.11 and Table 3.12). The exceptions were the university graduates and those living in the eastern Black Sea, who reported their lack of insurance coverage as the most important reason for not seeking care. This finding runs contrary to the generic expectation that university

graduates are more likely to have jobs and hence insurance. People living in urban areas also mentioned the importance of insurance status in their decisions in seeking care.

Table 3.11: Reasons For Not Seeking Medical Assistance by Socioeconomic Groups

Socio-economic group	Don't know doctor/institution	No Insurance	No Money	No Time	Don't like doctors	Other
Poorest 20%	0.00	1.07	91.10	0.71	2.85	4.27
2nd	2.44	8.56	79.71	1.96	3.91	3.42
3 rd	0.52	10.82	72.16	3.61	8.76	4.12
4 th	4.35	9.09	68.77	3.16	8.70	5.93
Richest 20%	1.84	15.44	59.93	5.51	6.62	10.66
Illiterate	1.05	8.60	78.62	1.47	4.61	5.66
Literate/no diploma	1.04	4.50	79.24	3.46	4.50	7.27
Primary	2.61	10.29	74.67	3.92	5.07	3.43
Secondary	1.85	10.19	65.74	2.78	11.11	8.33
High School	0.00	13.79	48.28	6.90	10.34	20.69
University	0.00	37.50	12.50	25.00	25.00	0.00

Source: HUS (1992). All Chi² significant at (p<0.000)

Table 3.12: Reasons For Not Seeking Medical Assistance by Place of Settlement and Geographical Areas

Place of Settlement	Don't know doctor/institution	No Insurance	No Money	No Time	Don't like doctors	Other
Urban	1.45	11.21	67.55	3.56	8.18	8.05
Rural	1.65	7.28	81.94	2.62	2.82	3.69
Geog. Areas						
Thrace	1.00	6.97	72.64	1.99	6.97	10.45
Aegean-Mar.	4.44	0.00	63.33	4.44	13.33	14.44
Mediterranean	0.43	12.02	72.53	2.15	8.15	4.72
Central Anatolia	3.09	7.90	76.63	3.44	4.12	4.81
Black sea-West	7.52	9.02	61.65	3.01	9.02	9.77
Black sea-East	0.00	46.67	40.00	13.33	0.00	0.00
Eastern Anat.	0.31	15.74	68.83	7.41	3.40	4.32
South east Anat.	0.20	4.99	89.82	0.20	2.20	2.29

Source: HUS (1992). All Chi² significant at (p<0.000)

These findings indicate the lack of financial resources had been the most important barrier in accessing health services. A recent study on the household health expenditures in 2002-2003 confirmed the financial concerns to be the main reason (60 percent) for not seeking health care. The problem persisted for the uneducated, uninsured, as well as for those residing in the rural areas and in the eastern part of Turkey (MoH, 2006: 58). The findings of a comparable study conducted in Tajikistan confirmed the above, as the cost of care constituted a barrier for the poor in their access to health services (Falkingham, 2003).

3.8 Logistic Regression Models of Reported Morbidity and Utilization

The two-way cross tabulations do not entirely establish the relationship between socioeconomic and demographic variables in treatment seeking behavior. In this section we will try to analyze the impact of socioeconomic and demographic variables, as well as the location and supply of health care in reporting illness, seeking care and utilization of health service. Utilization is defined as chronic disease diagnosed by physician, hospitalization in the last twelve months and application to a hospital in the past two weeks. Considering the variables that may affect the probability of reporting illness, seeking care and utilization, a logistic regression analysis will be used to explore the determinants of morbidity and utilization patterns. Dependent variables are chosen among the questions which have dichotomous responses of 0 and 1 (i.e. reported as having chronic disease or not, being diagnosed by a physician for having a chronic disease or not, seek care or not, applied to a hospital or not). The estimated logistic regressions are as follows:

- (i) Whether the respondent reported that he had chronic disease
- (ii) Whether the chronic illness diagnosed by a physician
- (iii) Whether the respondent sought medical care for his children under the age of 15 who had been ill in the past two weeks.
- (iv) Whether the respondent had been hospitalized in the past twelve months
- (v) Whether the respondent applied to hospital in the past two weeks

The probability is obtained using the following formula:

Probability (event) = $1/1+e^{-Z}$, where Z is the estimated model using logistic regression; i.e. $Z = \beta_0 + \beta_i X$ and β_i coefficient is the natural logarithm of the odds³³ of the i^{th} independent variable when it increases by one unit. The coefficients of independent variables are not easy to interpret apart from the sign. The sign of the coefficients of the logit estimation shows the direction of the effect of independent variable to the probability of dependent variable.

The independent variables which would affect the probability of need and utilization of health services are age, sex, education level, income level, health insurance coverage by type, geographical location, place of settlement (urban/rural) and employment status. Beds per 10,000³⁴ have also been added to investigate the effect of supply factors for reporting illness and seeking care. All variables are listed in Table 3.13. The excluded variables are dummies for female, living in rural, unemployed, illiterate, uninsured and living in central Anatolia. It is possible that indicators of socioeconomic variables were correlated with each other. The correlation matrix shown in Table C.30 in Appendix C indicates weak correlation between the variables.

³³ Odds is defined as the ratio of the probability of occurrence of an event to the probability of not occurrence of the same event.

³⁴ Although, it is common to use beds/doctors per 1000 in the literature, due to inadequate supply of number of beds and doctors in Turkey, the variable, beds per 10000 was used for more meaningful interpretations.

Table 3.13: Description of Variables Used In Logistic Regression

Variables	Description	Value
age	Age	Real value
sex	Sex	0 = female, 1= male
hhinc	Household Income	Real value
hhinc2	Household Income square	Real value x Real value
hhsiz	Size of household	Real value
urban	Place of settlement	0 = rural, 1 = urban
employ	Last week employment	0 = unemployed, 1 = employed
nodiploma	Illiterate	0 = others, 1 = illiterate
litnodip	Literate but no diploma	0 = others, 1 = Literate but no diploma
primary	Graduated from prim. school	0 = others, 1 = Graduated from prim.school
secondary	Graduated from sec. school	0 = others, 1 = Graduated from sec. school
highschl	Graduated from high school	0 = others, 1 = Graduated from high school
universt	Graduated from university	0 = others, 1 = Graduated from university
Thrace	Thrace	0 = others, 1 = living in Thrace
Ageanmar	Agean-Marmara	0 = others, 1 =living in Agean-Marmara
Mediterr	Mediterranean	0 = others, 1 = living in Mediterranean
Ctranat	Central Anatolia	0 = others, 1 =living in Central Anatolia
Wblackse	Black Sea-west	0 = others, 1 =living in Blacksea-west
EaBlackse	Black Sea-east	0 = others, 1 =living in Blacksea-east
EaAnatolia	Eastern Anatolia	0 = others, 1 =living in Eastern Anatolia
SEAnatolia	Southeastern Anatolia	0 = others, 1 =living in S.Eastern Anatolia
covered	Insurance status	0 = uninsured, 1 = insured
ES	Insurance scheme (ES)	0 = others, 1 = ES member
SSK	Insurance scheme (SSK)	0 = others, 1 = SSK member
BK	Insurance sch. (BAG-KUR)	0 = others, 1 = BAG-KUR member
private	Insurance scheme	0 = others, 1 = had private insurance
NoInsurance	Uninsured	0 = others, 1 = no insurance
totbedsp	Total beds per 10000	Real value
chronic	Reported chronic disease	0 = none, 1= had one or more chronic illness
chrondr	Diagnosed chronic disease	0 = none, 1= diagnosed by physician
seek	Seek care when ill last 2weeks under 15 years of age	0 = none, 1= been to hospital due to illness
hospl1y	Hospitalization last year	0 = none, 1= hospitalized last year
hospl15	Been to hospital last two weeks	0 = none, 1= been to hospital last two weeks

The results of the estimation are presented in Table 3.14. The first column of Table 3.14 shows the logit estimation results as to the probability of reporting chronic illness. The probability of reporting chronic illness increased with age, as expected. Males were less likely to report their chronic illness as compared to females. Better education seemed to affect negatively the probability of reporting illness. The literate reported less than the illiterate, as higher education improves living standards and reduces the probability of having an illness. A similar analogy could be drawn as to the effect of the income level. As the income level increased, the probability of reporting chronic illness decreased. Employment status too displayed analogous effects: larger the household size, lesser the probability of reporting chronic disease. Larger household means less per capita income for each household member and hence lesser probability of reporting illness. Insurance status positively affected the probability of reporting chronic illness. A significantly higher probability was found for the SSK and private insurance members as compared to the uninsured. BAG-KUR membership was not significant in the probability of reporting illness. As regards to the place of settlement, those living in urban areas were more likely to report than those living in the rural areas.

Similar relations have been found for the utilization, defined as the probability of chronic disease diagnosed by physician, except for the household income and insurance type. The results are shown in the second column of Table 3.14. The household income was insignificant and thus not effective in the probability of being diagnosed by physician for having chronic illness. ES and SSK membership had higher probability of being diagnosed

as compared to the uninsured, whereas BAG-KUR and private insurance membership remained insignificant.

Location played a significant role in influencing probability of being diagnosed by physician for having chronic disease. Chronic illness was more likely to be diagnosed by a physician in urban areas than the rural. This might be induced by better physical access in the urban areas. Reporting chronic illness and physician's diagnosis varied among geographical regions. The respondents who lived in the eastern regions, except for the Southeastern Anatolia, were more likely to be diagnosed by a physician for having chronic disease than those living in Central Anatolia. Despite having increased the probability of reporting, the number of total beds per 10,000 had no significance in the probability of diagnosis.

As to the probability of seeking care when ill, the survey targeted the children under fifteen years of age (column three in Table 3.14). The probability of seeking care when ill was higher for the younger and for males. The household income increased the probability of seeking care. The household size, on the other hand, negatively effected, as expected. The insured were more likely to seek care more than the uninsured, except for the BAG-KUR members. As the level of education increased, the probability of seeking care also increased as compared to the illiterate. A similar relation, however, did not hold for the better educated. Variables for the high school and university degree had been insignificant. Employment status and place of settlement did not have significant effect. The respondents

living in Thrace, Aegean-Marmara, Mediterranean and the Black Sea regions had lower probability for seeking care than those living in central Anatolia. The effect of supply variable was positive and significant.

Most of the variables similarly affected the probability of using hospitals for the past twelve months and the past two weeks. However, both had very low explanatory power, low R^2 (column four and five in Table 3.14. Probability of applying to a hospital³⁵ was positively affected by age, living in an urban area and insurance status. Males and families with larger households were less likely to use hospitals. Level of household income did not appear to affect the probability of hospitalization during past twelve months, whereas in the past two weeks hospital utilization was positively, but weakly affected by income level (significant at 10 percent). Probability of hospital utilization was positively affected by having insurance, except for the BAG-KUR members. The probability of hospital utilization for the past two weeks was lower for those with higher education than the illiterate.

³⁵ Been to hospital includes both past twelve months and past two weeks.

Table 3.14: Summary Results of Logistic Regression Estimates

Independent Variables	Estimated Models			
	Reported Chronic Disease		Diagnosed Chronic Disease	
	Coefficients	Marginal effects	Coefficients	Marginal effects
age	.0596898***	0.0121745	.0506238***	0.0076231
male	-.4286994***	-0.0868134	-.3685152***	-0.0551401
hhinc	-2.922304***	-0.596413	ns	ns
hhinc2	ns	ns	ns	ns
hhsiz	-.0570895***	-0.0116441	-.0416408***	-0.0062704
urban	.0893448**	0.0181745	0.942189**	0.0141315
employ	-0.0872481**	-0.0175974	-.1209151***	-0.0178027
litnodip	ns	ns	ns	ns
primary	-.1386361***	-0.0279796	-.1026095**	-0.0152796
secondary	-.2857964***	-0.0553691	-.2394862***	-0.0339461
highschl	-.2693948***	-0.0521188	-.1539923**	-0.0222297
universt	-.3837685***	-0.0718592	-.4397659***	-0.0577896
Thrace	ns	ns	-.1468065**	-0.0214186
Ageanmar	-.2181342***	-0.0430496	-.2043715***	-0.0294555
Mediter	.1498396***	0.031272	.10039*	-0.0154734
Wblackse	ns	ns	ns	ns
EaBlackse	.6115645***	0.1371809	.74705***	0.1358302
EaAnatolia	ns	ns	0.1044839*	0.0161224
SEAnatolia	.153197**	0.0320359	ns	ns
ES	ns	ns	.1953169***	0.0308063
SSK	.121079***	0.0250586	.2238074***	0.0349024
BK	ns	ns	ns	ns
Private	.2445656**	0.0522743	ns	ns
totbedsp	.0032385*	0.0006605	ns	ns
constant	-2.016802***		-2.416986***	
Pseudo R ²	0.2160		0.1775	
N	27404		27404	

Source: HUS (1992). For details of estimations see Tables C.31, C.32, C.33, C.34 and C.35 in Appendix C.

Note: * significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. ns: not significant. N: number of observations.

Table 3.14 (Continued)

Independent Variables	Estimated Models			
	Seeking care (under age 15)		Hospitalization last year	
	Coefficients	Marginal effects	Coefficients	Marginal effects
age	-.2152085***	-0.0067053	0.0206878***	0.00067
male	.2580047***	0.0080524	-.2100574***	-0.0068409
hhinc	11.36966***	0.3542446	ns	ns
hhinc2	-50.27706**	-1.566483	ns	ns
hhsiz	-.1408977***	-0.00439	-.0649927***	-0.0021259
urban	ns	ns	.2088841***	0.0067532
employ	ns	ns	-.5350895***	-0.0152566
litnodip	.3414096*	0.0115504	-.2832146***	-0.0084829
primary	.5766795**	0.0217452	ns	ns
secondary	.7438418**	0.0304866	-.2756705**	-0.0081665
highschl	ns	ns	ns	ns
universt	ns	ns	ns	ns
Thrace	-.3262529**	-0.0091242	-.3065746***	-0.0091287
Ageanmar	-.2667326*	-0.0076011	-.1957736**	-0.0060293
Mediter	ns	ns	ns	ns
Wblackse	-.5122289*	-0.0129521	ns	ns
EaBlackse	-.8095358***	-0.0183644	ns	ns
EaAnatolia	ns	ns	-0.2034836*	-0.006208
SEAnatolia	ns	ns	-.8887734***	-0.0214779
ES	.3880565***	0.0140278	.4049637***	0.0153717
SSK	0.2129907*	0.0070187	.4693837***	0.0172467
BK	ns	ns	ns	ns
Private	.7893147***	0.0356451	ns	ns
totbedsp	.0151494***	0.000472	ns	ns
constant	-1.639336***		-3.341322***	
Pseudo R ²	0.1016		0.0563	
N	10198		27403	

Table 3.14 (Continued)

Independent Variables	Estimated Models	
	Been to hospital (last two weeks)	
	Coefficients	Marginal effects
age	0.118559***	0.0004667
male	-.1445667**	-0.0056715
hhinc	2.355467*	0.0927149
hhinc2	ns	ns
hhsiz	-.1262163***	-0.0049681
urban	.4147508***	0.0159997
employ	-.2979621***	-0.0108528
litnodip	-.390821***	-0.0136623
primary	-.48004***	-0.0176428
secondary	-.5333632***	-0.0174475
highschl	-.4528565***	-0.0149917
universt	-.5598288***	-0.0174067
Thrace	ns	ns
Ageanmar	ns	ns
Mediter	ns	ns
Wblackse	ns	ns
EaBlackse	ns	ns
EaAnatolia	.2776865**	0.0120446
SEAnatolia	ns	ns
ES	.8702281***	0.0472459
SSK	.7847189***	0.0376019
BK	ns	ns
Private	.5489053***	0.0276793
totbedsp	ns	ns
constant	-3.040318***	
Pseudo R ²	0.0636	
N	27286	

A logistic regression analysis conducted for perceived acute morbidity and hospitalization in Thailand, found that the probability of reported acute illness was reduced by being male, belonging to the fourth income quintile as compared to the fifth, having higher education level and being uninsured (Pannarunothai and Mills, 1997). The probability of hospitalization was not affected by income level. Absence of insurance and higher education level reduced the probability of hospitalization.

3.9 Differences in Health Care Need: A Chronic Disease Index (CDI) by Provinces in Turkey

Among the logit models presented in Section 3.8, the model for the probability of reporting chronic illness is chosen to derive a Chronic Disease Index (CDI) for all provinces. The coefficients of the estimated model are assumed to represent all provinces. Using these coefficients³⁶ and mean values of explanatory variables for each province in 1990³⁷, a CDI is calculated using the probability formula $P(\text{Chronic}) = 1/1+e^{-Z}$ (for details of calculations see Appendix E). The calculation of CDI takes into account the socioeconomic variables, demographic variables as well as the supply factor.

³⁶ The logit equation for chronic illness estimated once again by using the variable ‘insured’ which combined the ES, SSK, BAG-KUR and private insurance. The result of the new estimation is also shown in Appendix C.

³⁷ The mean values of the explanatory variables are drawn from the 1990 census and statistics compiled from the ES, SSK and BAG-KUR.

This calculation shows us the value of the probability of reporting chronic illness for each province for the year 1990. Then, the CDI is compared with the Development Index (DI) calculated by the State Planning Organization (DPT, 1996). The DI is composed of demographic, employment, education, health, industry, agriculture, construction, finance, infrastructure and other wealth indicators. These were calculated using the 1990-1993 data.

The ranking of the provinces according to the DI and CDI is shown in Table 3.15. Two important observations arise from such comparison. First, the provinces with a high level of socioeconomic development had a high CDI value. There are extensive industrial facilities in these high-ranking provinces according to the DI. These industrial activities resulted in pollution and increased incidence of catastrophic illnesses. This is a medical explanation of the situation. However, a pure medical explanation may not be enough. There is also a need for socioeconomic explanation. A second observation supports this need. The provinces with a low DI had also a low CDI value, meaning that the less developed provinces had lower probability for reporting chronic disease. These are the provinces in the southeastern and eastern Anatolia. This does not mean that the people living in these provinces are healthier than those living in cities with a high DI. Therefore, the explanation cannot be strictly medical. The first reason for a low CDI could be that the people were unaware of being unhealthy due to low level of literacy in the east. However, our analysis has indicated that the probability of reporting chronic illness was the highest among the illiterate as shown in Table 3.8. Another important finding has been that the people in eastern Anatolia had important problems in terms of financial and physical access

to health services. Therefore, the reason for a low CDI in these provinces is more related to the accessibility of health services. This is an equity problem.

The DI compiles many welfare indicators drawn from various social and economic sectors. It leaves us, however, with little indication about the individual sectoral needs and areas requiring government intervention for the further enhancement of responsiveness. The sector specific indexes may prove more indicative as in the case of Kocaeli, which ranks third in terms of the DI, but scores the worst in terms of the CDI. The DI ranking may not precipitate any particular intervention with special reference to the health services in Kocaeli, whereas its CDI ranking urges immediate measures with a view to upgrade the health status in that province. Hence, sector specific indexes are more relevant for identifying necessary interventions for enhancing responsiveness. Equity assessment is the most effective analytical tool to serve this purpose.

Table 3.15: A Comparison of the Development Index (DI) and Chronic Disease Index (CDI) by Provinces

Provinces³⁸	DI Ranking	DI Value	CDI Ranking	CDI Value
Istanbul	1	4.879015	37	0.0949
Izmir	2	2.707983	50	0.1116
Kocaeli	3	1.745641	65	0.6249
Ankara+Kirikkale	4	1.732766	30	0.0846
Bursa	5	1.561681	27	0.0830
Eskişehir	6	1.010243	35	0.0932
Antalya	7	0.979019	48	0.1042
Tekirdağ	8	0.912105	38	0.0958
Adana	9	0.825002	29	0.0838
İçel	10	0.692054	18	0.0766
Muğla	11	0.625896	51	0.1150
Aydın	12	0.572214	26	0.0826
Balıkesir	13	0.566499	44	0.0992
Kırklareli	14	0.554468	58	0.1330
Kayseri	15	0.530593	16	0.0746
Denizli	16	0.501473	34	0.0918
Bilecik	17	0.474944	46	0.1014
Edirne	18	0.408019	53	0.1162
Çanakkale	19	0.351583	52	0.1158
Isparta	20	0.337425	57	0.1229
Manisa	21	0.308470	40	0.0963
Uşak	22	0.249609	49	0.1098
Gaziantep	23	0.199953	20	0.0772
Hatay	24	0.189559	17	0.0749
Sakarya	25	0.154779	31	0.0852
Bolu	26	0.147192	45	0.1004
Burdur	27	0.144998	54	0.1165
Kütahya	28	0.093397	28	0.0836
Nevşehir	29	0.006389	12	0.0691
Konya-Karaman	30	-0.002589	14	0.0708
Elazığ	31	-0.024586	21	0.0803
Trabzon	32	-0.034803	61	0.1440
Samsun	33	-0.042239	23	0.0807
Zonguldak-Bartın	34	-0.054947	42	0.0982
Kırşehir	35	-0.116527	6	0.0611
Rize	36	-0.122267	56	0.1224
Malatya	37	-0.179552	7	0.0617

³⁸ The analysis is based on 65 provinces by merging some provinces into one. For a similar application, see Filiztekin (1999).

Amasya	38	-0.193947	43	0.0987
Afyon	39	-0.228109	32	0.0872
Kastamonu	40	-0.331970	59	0.1382
Çorum	41	-0.338263	8	0.0619
Giresun	42	-0.342129	64	0.1847
Artvin	43	-0.361540	24	0.0814
Niğde-Aksaray	44	-0.364809	10	0.0655
Erzincan	45	-0.369077	39	0.0959
Sivas	46	-0.408015	19	0.0768
K.Maraş	47	-0.450686	13	0.0704
Tokat	48	-0.481332	60	0.1396
Çankırı	49	-0.506919	22	0.0804
Sinop	50	-0.512526	55	0.1207
Ordu	51	-0.535689	62	0.1562
Erzurum	52	-0.550649	33	0.0874
Diyarbakır	53	-0.614462	5	0.0599
Yozgat	54	-0.639394	15	0.0712
Ş.Urfa	55	-0.657586	3	0.0580
Tunceli	56	-0.694920	47	0.1015
Adıyaman	57	-0.752853	1	0.0498
Gümüşhane-Bayburt	58	-0.790981	63	0.1661
Kars-Ardahan-Igdir	59	-0.930731	41	0.0974
Van	60	-0.955459	2	0.0569
Hakkari-Mardin-Siirt-Şırnak-Batman	61	-1.006897	4	0.0582
Bitlis	62	-1.056951	11	0.0677
Bingöl	63	-1.060746	36	0.0936
Ağrı	64	-1.134534	25	0.0820
Muş	65	-1.244671	9	0.0644

3.10 Concluding Remarks

As we have argued earlier, equity implies the responsiveness capacity of the health system to the health needs of the population. Existing resources in a country may be insufficient for an adequate and evenly distribution of welfare benefits, but responsiveness of a health system *can be* improved, despite scarce resources, by ensuring more equity in terms of finance and provision of health services.

In the previous chapter, we have argued that there has been no improvement in the finance and provision of health services in Turkey, despite the increased health expenditures. In this chapter, we have tried to explain this phenomenon through an analysis of equity in the health system in Turkey. Our analysis, based on the data drawn from a Health Utilization Survey (HUS) conducted in 1992, has helped our understanding as to what is the problem of inequity in the health system in Turkey and what can be the areas of intervention toward a more equitable health sector.

The utilization of health services is influenced by health, income, education, time, money costs, supply of healthcare resources and the access to health care (Wagstaff, 1986). Money costs are reduced through insurance, therefore rendering coverage an important aspect of the finance of health system. By the time the HUS was conducted in 1992, more than half of the respondents did not have insurance³⁹. The uninsured exceeded 70 percent among the poor. A public insurance scheme is expected to provide health benefit coverage

³⁹ By taking into account the dependents of the insured and the Green Card holders, one may reasonably argue that insurance coverage has exceeded 102 percent [*sic*] by 2004.

to its members. However, our analysis showed that this has been hardly the case in Turkey. There had been three public insurance schemes⁴⁰ with different benefit packages. However, due to differences in the rules of entitlement and coverage as well as in health service provision, the public insurance system remained patchy and disorganized. This has been ultimately reflected in the inequality among the different insurance schemes.

The findings of our analysis have indicated that the insurance status was highly associated with income, employment status and type of occupation. The insurance coverage increased with income level. However, more than a third of those in higher income quintiles had not been insured (Figure 3.1). Almost half of the employed (Table C.14), about thirty percent of the employers and sixty percent of the self-employed had been uninsured (Table 3.3). These indicate a significant loss in terms of insurance premiums and hence, a source of finance. Therefore, the objective of risk pooling through insurance could not be attained and its sustainability was curtailed.

There have been out-of-pocket payments, formal and informal payments as other important source of finance in health services. Having insurance did not protect people from the costs of health services in full. We found that the insured still had to make both formal and informal payments in using health services. Also, the mean value of out-of-pocket payments was higher for the poor than the rich. Similarly, the share of out-of-pocket health expenditures in household income had been strikingly higher for the lowest than

⁴⁰ These have been merged into a Social Security Institution (*Sosyal Güvenlik Kurumu* -SGK) only recently in 2006.

other quintiles. Hence, the system has not been progressive as it failed to ensure payments in accordance with the ability to pay.

The system operates more costly than it seems, as there are also indirect costs. Most of the family members of patients using public hospitals have been made to provide patient care during hospitalization. Therefore, the total cost of using health services may be even higher than those reported. An in-depth study should be undertaken to find out the overall costs to the patients. Among these, it is believed that informal payments constitute a pathological implication generated by the health system in Turkey, the extent of which should also be thoroughly investigated.

Utilization of public health services was above ninety percent. All income groups and people living in urban areas were utilizing public hospitals as a first point of contact. For the uninsured, BAG-KUR members and the privately insured however, the private physicians constituted the first point of contact. More interestingly, the lower income groups applied to private physicians more than the higher income groups (Figures 3.6, 3.7 and 3.8). The main reasons that the private physician is considered as a mean for entry into health system have been practical and cultural rather than economic. People are ready to pay for the private physicians, especially those working part time at public hospitals so that they can be referred to those hospitals for diagnostic tests and procedures. Besides, as the main focus of the system has been the curative services, patients prefer to be seen by a specialist rather than a general practitioner.

In our analysis, we have considered reported chronic illness as an indicator of the health need. For utilization we considered physician's diagnosis of chronic disease, hospital use for the past twelve months and the past two weeks. We found both the reported and diagnosed chronic illness (i.e. the need and utilization) had been responsive to education, insurance and employment status. But, there was no clear relation between income levels and utilization. Unemployment constituted a barrier to application to the system but not for hospital use. Insurance status was highly influential in utilization. Our findings concerning the utilization pattern have largely corresponded to those found in similar studies in other countries.

Access to the system is yet another major problem in itself. In terms of finance, we have already emphasized the prominence of the insurance status over income level. In terms of physical access, the deficiencies in provision and unequal distribution of health care resources have caused acute problems of access particularly in the rural and eastern parts of Turkey. We found that people living in these areas were uninsured, reported lowest level of chronic disease and used fewer services. They made substantially higher out-of-pocket payments than those living in other areas.

It is although that the public services have been the main provider, the poor, the uninsured and rural population had difficulty in access to and utilization of these services. However, the associated costs make the utilization of public services difficult. This has been confirmed by our finding of the lack of financial resources as the main reason for not

seeking care. We would therefore conclude that the government has not been effective in targeting the most vulnerable.

The conventional development indices may not suffice for the explanation of particular disparities in different sectors. In order to understand the specific needs requiring intervention in health sector, we have compiled a CDI by provinces in Turkey. The CDI serves as an indication of health status derived from the socio-economic, demographic, geographic variables as well as supply factors. A comparison between the DI and the CDI ranking of provinces proved that the health care needs of the population may differ from what a conventional development index suggests. We found that, although for different reasons, the least developed provinces had better health status than the most industrialized ones. The CDI enabled us to take a closer look at the underlying reasons, i.e. purely medical, social, economic, financial, physical, cultural and geographic factors.

In our analysis, we focused on curative services. Curative services are more subject to out-of-pocket payments and are more frequently used and reported by individuals. In addition to the above, curative services constitute the overwhelming part of the health system in Turkey. However, the health care also covers promotive, preventive and rehabilitative services, which require public responsibility. Therefore, these services other than the curative should be studied in detail to complement our understanding of equity.

Our analysis has also been restricted to the process up to utilization. The final outcome, i.e. the health status, is not included in the scope of our analysis. We have limited our analysis by excluding other factors affecting health status other than health care. Further assessment can be made by controlling the factors other than health care with such tools to measure health status as Quality Adjusted Life Years-QALY, Disability Adjusted Life Years-DALY, EQ-5D (Mooney, 1992: 44ff; Mooney and Olsen, 1991: 117ff; McGuire *et al.*, 1992: 21ff; Dolan, 2004; 46ff; The World Bank, 1993: 29; EuroQol Group). However, engaging these tools requires a type of questionnaire designed to measure all dimensions of health from physical to social.

CHAPTER 4.

AN ESSAY ON EXPLAINING DIFFERENCES IN ECONOMIC GROWTH ACROSS PROVINCES OF TURKEY: DOES HEALTH STATUS MATTER?

The reason for the rise in the growth performance developed countries after the Second World War should be more than increase in physical capital and labor force. The variation in growth performance has been partly explained due to differences in their human capital levels and the prominence given to the human capital formation.

It has long been stated that human capital is a complex input that consists of both knowledge and health capital. The theory of human capital was pioneered by Schultz, who suggested in 1961 the role of education and health in human capital in growth. Following to his work, Mushkin emphasized the relevance of health and the inseparability of health and schooling within the concept of human capital and in the process of economic growth (1962).

Health and schooling constitute a joint investment in an individual. One may not think of a person attending a school or becoming a part of the labor force without a good health. The success of the health intervention depends on the educational level in the society. Better educated people are aware of the importance of a healthy living and it would be easier to attain a better health status in an educated society. An improvement in health terms of an increase in life expectancy reduces depreciation rate of investment in education and increases the return to investment in education. While better education improves productivity in the production process, it also increases the return on investment in health.

Despite its importance, health has been usually ignored as part of the human capital. Education improves quality of the labor force. But health ensures the performance. It is essential for both the quantity and the quality of labor. Healthier workers are more productive and earn better wages. They are less likely to be absent from workforce because of illness. Extension in longevity through improvements in health decreases the depreciation rate of human capital, making investment in education more attractive. Increased life expectancy may affect intertemporal discount rate and therefore lead people to save more. Healthier people have a stronger incentive to invest in education, because they expect to collect the benefits of such investments over longer periods (Zamora, 2000).

The empirical growth studies on human capital in growth gradually focus on the role of education in analyzing the process of economic growth and differences in growth rates among countries and regions. The omission of health as a basic component of human

capital may also result in overestimation the effect of education (McDonald and Roberts, 2002). The analysis of the role of health in per capita growth regression will complement role of human capital in growth studies.

This part will aim at searching for the effect of health status in the rate of convergence in growth rate across provinces of Turkey. The descriptive part will outline the recent growth literature with special reference to human capital. A brief review of the literature will be presented on empirical applications of health as part of human capital in growth. The empirical application will try to analyze the importance of health in explaining regional differences in the economic growth in Turkey. There are studies exploring the effect of human capital on growth and convergence in growth rates among provinces of Turkey which have incorporated education as a representative of human capital (Çeçen *et al.*, 2003; Tansel and Güngör, 1998; Güngör, 1997). This empirical trial will adopt health status as part of the human capital.

In the previous chapter we have argued that, health system in Turkey has not been responsive to the health needs of the population. In order to understand the extent of such need, we derived a CDI for each province using the results of logit estimation for the probability of reporting chronic illness. This index reflects a combination of the effects of socio-economic variables, demographic variables and regional variations in reporting chronic disease. We would argue that this index can be instrumental in exploring the effect of health status to the rate of growth of convergence among the provinces.

4.1 Human Capital and Theories of Growth

The convergence hypothesis of the neoclassical growth model, pioneered by Solow, predicts that countries with similar technologies, saving rates and population growth rates should converge to similar steady state levels of per capita income. This is due to the assumption of diminishing marginal productivity of capital; poor countries with a lower level of capital per labor will grow faster during the transition period and will catch the rich countries. (Barro, 1991; Barro and Sala-i-Martin, 1995).

The neoclassical answer has been criticized with regards to its insufficiency in attaining higher and sustainable growth paths, its restrictive assumptions⁴¹ and its inability to explain the wide differences across countries in growth rates. Its basic premises are claimed to fail exactly reflecting most of the stylized facts. There exist significant differences in growth rates among different countries. The real output grew by more than 6 percent annually in Asia, 3.7 percent in Latin America and 2.8 percent in Africa in the past two decades (Agenor and Montiel, 1996). There are also unavoidable differences in wealth across the countries. The average per capita output of the highest five countries was twenty nine times higher than the average per capita output of the five lowest in 1985

⁴¹ These basic assumptions involve that the markets are assumed to be clear and competitive; population, labor growth and technological change are exogenous to the model, technology depends on labor force; capital and labor ratio depends on the factor price ratio; production function exhibits diminishing returns to capital and labor separately and constant returns to both inputs jointly and identical rational individuals (Verspagen, 1992; Ehrlich, 1990).

(Schmitz,1993). The growth rate of world's technological leader has not been falling in contrast to the predictions of the neoclassical model (Grossmann and Helpman, 1994).

The failure to explain the real world situation and the need to find mechanisms to sustain the high levels of growth of output led to endogenous growth literature. Endogenous growth theory reformulated the assumptions of neo-classical growth theory and modeled the steady state growth occurs endogenously. The focus has shifted towards technological change regarded as an *endogenous* phenomenon that affects growth. Knowledge, human capital, research and development influence technological improvement in the production process. The production function displays increasing returns arising from specialization and investment in knowledge capital, since knowledge is being treated as a public good with spillover benefits. Hence, investment in human capital may sustain long term growth. An important policy implication is that, government should subsidize the externality generate on activity; the improvement of human capital, knowledge, research and development and technology.

Accumulation of human capital, as emphasized by Romer (1986) and Lucas (1988) in an endogenous growth framework, models the technological progress or the growth of total factor productivity as a function of educational level or human capital (Lucas, 1988; Rebelo, 1991; Romer, 1990a; Romer, 1990b). The presumption in this model is that an educated labor force facilitates creation, adoption and implementation of new technologies and hence generates growth. Romer (1990a) developed a model assuming that human capital is the key input to research sector. Creation of new ideas is a function of

scientific knowledge which forms human capital. Lucas stressed the spillover benefits arising from human capital (1988). Due to spillover benefits, the rate of return on human capital increases which further leads to higher rates of investment on human and physical capital.

In response to the endogenous growth literature, Mankiw, Romer and Weil (1992) augmented the Solow model by adding human capital into the production function as a separate factor of production along with physical capital and labor, while maintaining the assumption of exogenous technological change. A large number of empirical studies have followed to explain the concept of ‘conditional convergence’; that is convergence in growth rates across countries that are conditional on human capital (Barro, 1991; Mankiw *et al.*, 1992; Benhabib and Spiegel, 1994; Murthy and Ukpolo, 1999).

Human capital is generally represented by education in most studies on growth. The empirical studies usually adopt the school enrollment ratio, i.e. primary/secondary school enrollment ratios, number of school years completed or literacy rates are used as a proxy for education. The findings of the cross-country analyses have indicated that the impact of the initial level of human capital on economic growth was found significant (Barro, 1991; Mankiw Romer Weil, 1992; Barro and Lee, 1993; Benhabib and Spiegel, 1994; Barro and Sala-i-Martin, 1995; Murthy and Chien, 1997; Barro 2001).

4.2 Health in Human Capital and Growth Studies

An improvement in human capital requires not only a better education but also better health and nutritional conditions. Health status is usually represented by life expectancy, mortality rate, nutritional status or sometimes health expenditures. As argued, although it has been recognized as a main component of human capital since the 1960s, the effects of health, however, have not been thoroughly discussed in the growth equations until the early 1990s.

One line of argument, basing on an endogenous growth framework, suggests that a higher health status improves labor productivity and can be effective on economic growth. Based on the Lucas model (1988), van Zon and Muysken (1997; 2001) introduced a theoretical framework in order to incorporate health in growth by a simple model of endogenous growth in which a good health serves a necessary condition for labor supply. They demonstrated that growth may disappear in countries where there are high rates of decay in health or less productive health sector. Yetkiner (2002) indicated the significance of health in growth process through its effect on labor productivity and hence labor supply. According to his theoretical analysis, health indeed supports capital accumulation via labor productivity.

Since Barro (1991) and Barro and Sala-i-Martin (1992), several studies have investigated the positive effect of health on economic development, especially in the context of “conditional convergence”, using health proxies for explaining the long-run growth differences across countries. Results suggest a strong and robust effect of health in

explaining income per capita differences. Using an augmented version of the Solow model, Knowles and Owen (1995) included both 'health capital' and 'education capital' as the main components of human capital in the production function. According to their findings, the relationship between per capita income and health status (proxied by life expectancy) was stronger than the relationship between per capita income and education (proxied by average number of years of schooling of the population aged 25 and over). In a subsequent study, Knowles and Owen (1997) formulated health and education as labor augmenting in production function. They again found similar results favoring health. McDonald and Roberts (2002) incorporated both health and education in a dynamic panel data model in order to capture country specific and time specific effects in the augmented Solow model. They found that, the roles of different forms of capital in the growth process change in countries with different income levels of countries. To them, health capital was more important in low income countries, while education capital was more important in high income countries. Most of the cross-country studies incorporating health status found a significant and positive effect on per capita income growth rate. In fact, initial health seemed to be a better predictor than initial education (Barro, 1996; Cermeno, 2000; Mora and Barona, 2000).

Webber (2002) also used the augmented Solow model, but employed different variables as a proxy for health and education capital. He claimed that nutritional status and different levels of school enrolment ratios were more conducive to policy formulation. His results conflicted with previous studies on this ground and suggested that nutritional status would make a modest contribution to economic growth while enrollment ratios had

significant and positive effects. Accordingly, he proposed policies favoring investment in education relative to investment in health for higher growth.

Bloom, Canning and Sevilla (2001) tested the existence of an effect of health on labor productivity and measured its strength. They incorporated all major components of human capital, average years of schooling, work experience and health proxied by life expectancy in the aggregate production function. Constructing a panel of countries observed every ten years from 1960-1990, they found that life expectancy had a positive and statistically significant effect on economic growth. Their result suggests that each extra year of life expectancy raises the productivity of workers and leads to a 4 percent increase in output.

To focus on a single country may help capture country specific conditions that may be crucial to economic growth and give better insights for policy formulation. The empirical application on the causal relationship between human capital and economic growth in a single country has been limited and again education is the common factor representing human capital (Tallman and Wang, 1994; Cheng and Hsu, 1997; Asteriou and Agiomirgianakis; 2001).

4.3 Convergence Among the Provinces of Turkey: Does Health Status Matter?

There are studies examining the problem of convergence across provinces in Turkey. These studies vary in terms of their findings. Tansel and Güngör (1998) found absolute convergence in labor productivities across provinces between 1975-1995, whereas, Filiztekin (1999) found divergence in per capita output among provinces for the same period. The study found conditional convergence when regional dummies were included to control for the differences in steady states. Doğruel and Doğruel (2003) also found absolute convergence in per capita GDP between 1987- 1999. In his recent analysis, Filiztekin again found divergence in gross value added per capita values among provinces (2004). Using gross value added per person in working age he found convergence, but the rate of convergence was slow. Neither convergence nor divergence was obtained using gross value added per employee values of provinces (Filiztekin, 2004). Tansel and Güngör also analyzed conditional convergence through accounting for human capital (1998). Human capital was represented by mean years of schooling. Including human capital increased the convergence rate among provinces.

Incorporating health status as a component of human capital has been a rather neglected venue in research on conditional convergence across Turkey's provinces. Has health status been effective on the rate of convergence across provinces? Using the methodology of Barro and Sala-i-Martin (1995: 388), the existence of convergence in growth rates among provinces of Turkey and whether this convergence is conditional on

health status will be explored. In order to test for convergence Barro and Sala-i-Martin derived the following equation (1995: 387).

$$[1] \quad (1/T) \log (y_{it}/y_{i0}) = a - [1-e^{-\beta T}]/T \cdot \log (y_{i0}) + u_{i0,T}$$

The equation implies average growth rate from interval 0 to T, where y_{it} and y_{i0} are level of real per capita GDP for the last and initial period, i denotes a province or a country, a is the intercept and $u_{i0,T}$ is the average error terms between time period 0 and T. The coefficient on initial income shows the direction of convergence and β is the rate of convergence. A negative and significant association between the initial income and a growth rate indicates absolute convergence.

In order to explore whether health status improves convergence across provinces a health indicator is added to the equation. The analysis is on estimating the convergence of growth rates across provinces that is conditional on health status. The following equation was estimated using simple ordinary least squares (OLS) regression technique.

$$[2] \quad (1/T) \log (y_{it} /y_{i0}) = a - [(1-e^{-\beta T})/T] \cdot \log (y_{i0}) + \log \text{CDI}_{i0} + u_{i0,T}$$

where CDI_{i0} represents health status at initial year. Regional dummies will also be added in order to control differences in steady states across provinces.

The data for gross value added output per employee is taken from Filiztekin⁴² (1999). As mentioned before, CDI for each provinces derived in section 3.8 could be used as an indicator for health status. Chronic illness reduces days at work, workforce and productivity and hence deteriorates growth. It is expected that the sign of CDI will be negative.

We have drawn the CDI using the results of logit estimation of probability of reporting chronic illness. The variables used in calculating the probabilities for each province were 1990 values of median age, percentage of males in the population, urbanization rate, average household income, average household size, total beds per 10.000, percentage of employed in total population, education levels, percentage of insured in total population in each province and regional dummies. However, the whole CDI may not be directly convenient for the purpose of convergence in growth rates conditional on health status. Because, CDI contains variables which may positively or negatively affect growth rate as well as neutral factors. A new CDI is obtained using the variables that may affect convergence in growth among provinces. Hence, variables which are thought to be neutral or negatively affect the growth rate are extracted from the CDI. The new index is renamed as the decomposed CDI.

The result of the logit estimation for the probability of reporting chronic illness helps us in categorizing explanatory variables that may affect positively the convergence in growth rates across provinces. The variables that are assumed to positively affect growth

⁴² Unpublished data used in Filiztekin (1999) obtained from the author.

rate can be those which have negative in sign in the logit estimate; these are the variables reducing the probability of reporting chronic illness.

Median age, beds per ten thousand, insurance coverage and urbanization had positive impact on probability of reporting chronic illness, but are assumed as they are neutral in the growth process. Insurance coverage could indirectly affect growth rate. The effect of insurance on growth is represented by the variable 'employed'. Therefore, insurance cover can be ignored in calculating decomposed CDI. Urbanization increased reporting chronic illness as it may ease access to health services. On the other hand, urbanization may have deteriorating effect on health status of individuals and increases the probability of having chronic illness. Hence, its effect on growth is not very distinct. The probability of reporting chronic illness decreases as the average household size increases. Thinking in terms of their effect on growth, household size could positively affect growth if the households can enter into labor force, otherwise it slows down growth. The unemployment rate in Turkey was 8.6 percent in 1990 (TUIK, 2005). Hence, the effect of household size is assumed to be indeterminate.

According to the results of logit estimation reported above, males are less likely to report their chronic illness than females. Since male population has been more likely to enter into labor force in Turkey (TUIK, 2007) and they are less chronically ill as per our findings, this situation promotes growth. People become more conscious of their health and have better health status as the level of education improves (Kenkel, 1991; Grossman, 1975). The result of logit estimate also supported this; as education level improves, people were less likely to report chronic illness. Empirical studies on growth supports that

education induces growth rate (Barro, 1991; MRW, 1992; Barro and Lee, 1993; Benhabib and Spiegel, 1994; Barro and Sala-i-Martin, 1995; Barro, 2001).

Being employed had a negative sign supporting that they can earn more, live better and less likely to become ill. Employment has positive impact on growth. This is true for the average household income (Sundberg, 1996: 60). As average household income raises people can better look after themselves, live in better conditions, have better nutrition which improves the productivity of labor and hence promoting growth.

In sum, in order to calculate the decomposed CDI, we have chosen the male, average household income, the employed, the graduates from primary to university level, as these are the variables which lower the probability of reporting chronic illness, hence promote growth. It is also assumed that, there was no structural change between 1980 and 1990. Therefore, the coefficients obtained from the logit estimate using 1992 cross-sectional data are used to calculate both for 1980 and 1990 decomposed CDI using the probability formula explained in section 3.8. The calculation of the decomposed CDI is given in Appendix F.

Table 4.1 presents the OLS results for the simple cross-sectional convergence and convergence conditional on health status. The results of the first three estimates between 1980 and 1990 were all insignificant. Results of estimation of the models for 1990 and 2000 support statistically significant convergence in gross value added per employee across provinces conditional on health status and as regional dummies are added to the simple equation. The decomposed CDI that is represented by the probability of reporting chronic

illness, is expected in sign and significant at ten percent. This suggests that chronic illness impedes the rate of growth.

Table 4.1: Single Cross-Section Results of Estimating Convergence Across Provinces in Turkey

	OLS Estimates	OLS estimates with decomposed CDI	OLS with regional dummies and decomposed CDI
1980-1990			
$\ln(\text{GrossVApEmployee}_{1980})$	0.0038 (0.0068)	0.0128 (0.0152)	- 0.0146 (0.021)
$\ln(\text{decompCDI}_{1980})$		0.0044 (0.0066)	- 0.0007 (0.008)
Constant	0.0083 ^{**} (0.0041)	0.0156 (0.0118)	0.015 (0.012)
R^2	0.005	0.012	0.216
1990-2000			
$\ln(\text{GrossVApEmployee}_{1990})$	- 0.0064 (0.0042)	- 0.0138 (0.0089)	- 0.0305 [*] (0.0104)
$\ln(\text{decompCDI}_{1990})$		- 0.0043 (0.0045)	- 0.0086 ^{**} (0.0043)
Constant	0.0104 ^{**} (0.0030)	0.0031 (0.0082)	0.0028 (0.0078)
R^2	0.034	0.048	0.349

Standard errors of estimates are in parentheses.

* denotes significance at 1% level, ** denotes significance at 10% level.

Regional dummies are for Marmara, the Aegean, Black Sea, Mediterranean, Central Anatolia, East and Southeastern Anatolia.

The estimated coefficients for regional dummies are not reported.

Appendix G provides detailed results of estimations.

4.4 Concluding Remarks

Inclusion of health status as representative of human capital results in convergence among Turkey's provinces when steady state factors are controlled with regional dummies. Therefore, an inclusion of health status as a component of human capital along with education may prove useful in testing convergence among Turkey's provinces.

For analytical purposes, both the CDI and the decomposed CDI can be considered as an attempt to objectively signify and measure health status. Equity analysis, as argued in the previous chapter, is a feasible means of obtaining such measurement. Equity in the health system is an important objective for the government in enhancing its responsiveness capacity to the health care needs of the population. Given the peculiarities of the health care market, government *can* play a significant role by performing sectoral intervention for improving the health status, if it is adequately informed of the objective dimensions of the health status. Hence, we believe that studies into health economics need to understand and account for constructing and measuring such indexes and encourage their utilization by the growth studies.

5. CONCLUSION

There are fundamental differences between the libertarian and the egalitarian views as to the fundamental concepts in economic theory, such as the nature of the market, the role of the government, distribution of welfare, the allocation of resources and the like. Equity is not immune to this debate.

For untamed libertarians such as Nozick, the role of government should be restricted to providing minimum standard of health care to the poor. Their focus is on the willingness and the ability to pay as a means of rationalization in health care. Hence, their criteria for equity denote the extent to which people are free to use the health care they wish. The main concern of the egalitarian view, on the other hand, involves fairness in distribution. To them, access to health care is a right for everyone and should not be influenced by the existing distribution of income and wealth. This implies equalizing individual net benefits in health care.

How, then, should we handle the basic question about equity in health care, as a matter of individual *preferences* or *needs*? As argued earlier, the nature of the health care market does not allow a free and unimpeded operation of individual preferences. From the perspective of the individuals, the idea that persons suffering from contagious diseases should be left to their individual preference, for instance, may be considered as ethically

correct. But, if they are not adequately treated, they will create negative externalities and risks on the public health. This is justifiable neither socially nor economically. At the same time, services such as immunization, sanitation and disease prevention, promotion of healthy living create positive externalities that produce economically justified benefits. As such, there are publicly defined needs which go beyond individual preferences. Hence, in health care, there are needs before preferences.

Health care should be distributed according to need and financed according to ability to pay. These require the active involvement by the public sector both in provision and finance in health services. Equity, then, refers to a system of fairness toward the needs of the population which should be responded by public provision. However, as argued earlier, it is not feasible to envisage a complete equality in health. Because, there are natural and biological variations (i.e. sex, genetic inheritance, natural capabilities, luck and effort) in the population. These variations cannot be accepted as inequalities. Hence, we should make a distinction between differences and inequalities.

Differences can be attributed to biological reasons, while inequalities are related to differences that can be corrected. Inequalities provide information about the existing problems in the system and give some understanding as to the relevant intervention areas. In their intervention to the health system, the governments may have limited resources in responding to the health care needs of the population. This requires the enhancement of their responsiveness capacity by improving equity in health care.

Equity in health services is assessed in terms of finance and provision. In finance, it is measured in terms of ability to pay, i.e. by means of insurance coverage or out-of-pocket payments. In provision, it is measured as the type of health care facility used. In both, the objective is ensuring equal opportunity for equal need, i.e. fairness in financial and physical access to health care by different socioeconomic groups and in different areas.

In the early 1980, there were major shifts in the economic policy in Turkey to ensure macroeconomic stability and sustain growth by liberalization and market oriented reforms. The ensuing stabilization program and the SAPs restricted the public involvement in the economy in order to reduce government expenditures. Turkey's experience with the SAPs did not differ extensively from other countries where income distribution worsened, unemployment and poverty increased.

An overview of Turkey's health sector since the 1980s indicates that, its share in the GDP has increased. But, the share of the MoH in the general budget fell. The MoH is the major provider of health care and the sole provider of preventive services. This reduction implied a parallel reduction in the role of the public in one of its most important responsibilities in health services.

In the meanwhile, the structure of financing health services has shifted from a government funded pattern to a premium based funding. As the insurance coverage increased from slightly more than 46 percent in 1980 to 'full coverage' in 2004, the share of the government funded coverage (i.e. the ES) was halved. This indicates that, from 1980

to 2004 the government gradually transferred its financing burden over to its citizens who had to finance their health needs by paying premiums.

The increased poverty, on the other hand, necessitated the introduction of the GC scheme in 1992 as an anti-poverty measure, which in turn, created an additional burden on the government budget. The GC scheme, on the other hand, failed in targeting the poor. Besides, the share of health expenditures in GDP increased because of the increased cost of curative services and drugs due to continued devaluation and rise in the price level. Hence, despite the increase in the share of health expenditures in GDP, no improvement in the provision of health services has been observed.

The post-1980 experience of Turkey with neo-liberal growth strategies has exacerbated existing structural inefficiencies and inequalities in the health sector. The fact that, a considerable part of the health expenditures has been spent on curative services and drugs implies that the beneficiaries of the health care in Turkey have been those who *can* enter into and use the health system. This is where our analysis has necessitated a thorough assessment of equity in the health system in Turkey.

Who are able to use health services and how much they have to pay in order to use them? Ideally, those with health insurance coverage use health services without paying out of their pockets. By the time the Health Utilization Survey was conducted in 1992, we found that financial and geographical access had been the main impediment in attaining equity in health services in Turkey. The financial inequity arose from inequalities in insurance coverage by socioeconomic groups and regions. These were mostly the

unemployed, those in the lowest income quintile and those who lived in the rural areas. We found the health system in Turkey was not financially accessible for the most vulnerable groups in 1992. This deficiency, which included a third of those in higher income quintiles also amounted to a significant loss in terms of the premium revenue, rendering a risk pooling through insurance within the system unattainable. Furthermore, the differences among the insurance schemes in terms of the rules of entitlement and benefit packages resulted in inequality in financial access and utilization.

There have also been out-of-pocket payments, formal and informal, operating as an important source in financing health services. This meant that having insurance did not protect the people from the costs of health services in full. The poor had to pay more than the rich. The share of out-of-pocket health expenditures in household income was strikingly higher for the lowest than other quintiles. This indicates that the financial system has not been progressive as it failed to ensure the payments in accordance with the ability to pay.

Considering health service provision, despite the public health services were found to be the main place of reference, the poor, the uninsured and the rural population had difficulty in access to and utilization of these services. There have also been acute problems of physical access, particularly in the rural and eastern parts of Turkey due to deficiencies of provision and unequal distribution of health care resources. Our analysis have shown that people living in these areas made substantially higher out-of-pocket payments than those living in other areas, besides, the fact that they were mostly uninsured and used fewer services. The government has not effectively targeted the most vulnerable both in terms of geographical location and socio-economic status.

Most of the health care resources, health service providers and institutions have been concentrated in urban areas and in the western parts of the country. In order to improve the responsiveness of the system to the health care needs of the population, decisions on distribution of resources should reflect needs. However, in Turkey, allocation decisions are based on historical expenditures. In our analysis, the health care need of the population have compiled from an index. This index, the CDI, is calculated for each province, basing on the results of the logistic regression analysis for the probability of reporting chronic disease which reflects the effects of socioeconomic variables, demographic variables and regional variations.

Indeed, several countries use such 'formula' to distribute national health care resource to measure and address the needs of their population by different socioeconomic groups and regions. This is done using national average relationships between population characteristics and health service use (Sutton and Lock, 2000). In Canada, the decision to seek treatment and volume of services used are determined by medical needs measured by medical conditions, number of accidents, disability days and use of prescription drugs. Finland seeks to provide geographical equity in health service provision and utilization where government pays subsidies to regions according to their income (Donaldson and Gerard, 1994: 146). In the UK, the system has clear objectives for equity in access for equal need. The allocation of total budget for health services to regional health authorities had been made according to Resource Allocation Working Group (RAWP) report prepared in 1976. The RAWP formula, reflecting variations in population characteristics adjusted for age, gender, levels of morbidity and unavoidable geographical differences in the costs of

providing services, was used from 1977 to 1985 and successfully reduced regional inequalities. In 1990, The RAWP formula was replaced by weighted capitation formula, but the principles of the RAWP were retained (The UK Department of Health, 2005).

The assessment of utilization of health services is not enough as it is based on those who can enter into the health system and benefit from health services. The health services should also reach those who cannot enter into the system. Therefore, the resource allocation formula according to need is necessary. The CDI is intended to perform in part this function. It points to the areas of intervention. However, it does not indicate the extent of the required health care resources. Hence, there is a clear need for further research to develop such sophisticated formula to guide the allocation of resources in health sector. Developing sophisticated formula also requires extensive research and data collection to determine national average levels of morbidity and health service use by different age, gender groups as well as socio-economic characteristics.

In order to understand the analytical capacity of the CDI, we compared it with the Development Index (DI) by provinces in Turkey. The DI compiles many welfare indicators drawn from social and economic sectors, but falls short of indicating individual sectoral needs requiring intervention by the government. It was striking that in our analysis, we found Kocaeli, which ranks third by the DI, scored the worst in terms of the CDI. Hence, even a modest analytical attempt, such as the CDI, demonstrates the need for sector specific measurement and calculation. As such, the intervention areas by the government can be assessed more accurately to enhance the responsiveness towards the health care needs of the population.

The comparison between the DI and the CDI points at another obvious finding that the provinces in the Eastern and Southeastern Anatolia, which scored the worst in the DI (i.e. development level), scored the best in the CDI ranking (i.e. health status). The background analysis has shown that people living in these provinces had important problems in physical and financial access to health services. Therefore, they lacked means of reporting their illness to the system.

Interestingly, the findings drawn comparatively from the DI and the CDI leave us with two different sets of explanation for two extreme ends on the same index. Being one of the most industrialized provinces in Turkey, Kocaeli is characterized by better access, higher literacy and larger coverage. Therefore, the reasons for a higher probability of reporting chronic disease should have been related less with the inequalities involved in the health system and more with the negative consequences of an industrial environment on health. Hence, the first indication for intervention in this province may involve measures outside the health sector. These may be that the government should take measures targeting the alleviation of the negative consequences of industrialization, such as pollution and occupational diseases. A second indication, which relates the health sector directly, may be that the government allocates its resources basing on a health planning by considering the high level of reported morbidity. In the eastern and southeastern provinces, however, the reasons for lower probability of reporting chronic disease have been primarily related to the problems occurring within the health sector. Therefore, the indication for intervention in these provinces should involve measures as to the enhancement of equity, i.e. better financial and physical access.

We have also tried to carry our findings from the equity analysis of the health sector in Turkey over to a larger framework of enhancing health status. Our aim was to understand the relevance of equity in enhancing the health status, hence, the human capital. Here, we have adopted the CDI, instead of other conventional health status indicators (e.g. life expectancy, mortality or morbidity rates), as a health status indicator for each province. By taking the health status as the representative of human capital in the neo-classical growth formula, we tried to test conditional convergence among the provinces in Turkey. Our findings have suggested there has been a convergence in gross value added per employee among the provinces conditional on health status, i.e. the CDI. This result supported our initial presumption that the improvement of equity in the health system would also improve convergence across provinces.

Insurance in Turkey is neither compulsory, nor universal. But, the relevant data indicate a 'full coverage' of 102.34 % (see Table 2.3) by 2004. The problem with this figure, as argued earlier, is that there is an obvious double counting and more importantly, it does not rely on an actual sum of the insured themselves. Because, the said coverage is *calculated* basing on a simple assumption as to the average number of dependents per insured. In addition, an almost 13 percent of it is constituted by the GC holders, who should technically be defined as the target population of a poverty alleviation scheme, rather than being members of an insurance network proper.

We have already referred to the problems of inequality induced by the differences among the existing insurance schemes. But, the problem of inefficiency involved in the

overall coverage has consequences in a larger context. In our analysis, we found that financial access has been one of the two main factors affecting utilization. Therefore, we may feasibly argue that the introduction of a compulsory and universal insurance would regulate the financial access through risk pooling and elimination of cream-skimming and adverse selection⁴³. Because, as our findings indicated, more than a third of those in higher income quintiles would thus be included in the pool, hence, the financial sustainability of the system would improve.

More importantly, the system would respond to the needs of the poor more effectively. This would mean a higher efficiency, since the least financially capable (i.e. the neediest) would be covered by a universal insurance. Hence, we may safely claim that improved equity would bring improved efficiency. The implication from the above must involve, then, the reconsideration of the poverty alleviation schemes as to their viability vis-à-vis equity. We argue that equity in health sector *can* be considered as mutually exclusive with poverty reduction schemes.

There is, however, yet another problem with the financing of health services in Turkey, which is the burden of informal payments on the users. We may assume that the problem of additional formal payments, induced by the variation among the existing insurance schemes, can be minimized by the introduction of universal health insurance. But the pathological problem of informal payments may persist. As we have argued earlier this problem is related to the concerns about the quality of the health service perceived which

⁴³ Insurance schemes are inclined to “cream-skin” the healthy and exclude the less healthy and risky individuals and charge more insurance premiums to the less healthy, known as adverse selection (Donaldson and Gerard, 1992: 35).

remains beyond the scope of this study. But, as the informal payments constitute a considerable burden impeding in part the financial access to services mostly by the poor as a form of out-of-pocket payment, this phenomenon should deserve further and detailed research.

Equity in health sector is relevant, particularly in a medium income country like Turkey, where addressing the health care needs of the population require government intervention, given the problems of redistribution of welfare benefits. The extent, timing and targeting of such intervention *can* be measured and defined by equity analysis. By this way, the responsiveness capability of the government to the needs of the population can be enhanced, even if it lacks adequate resources to redistribute.

Another question worth discussing in this context is whether we can reverse our initial question of the effect of health in growth. Can we invert the neo-classical analogy to understand how growth affects the health status? We think equity assessment can play a two-way role in reflecting growth appropriately onto the health sector.

APPENDICES

APPENDIX- A ADDITIONAL DATA REFERRED IN THE TEXT

Table A.1.GNP Growth Rate and Health Expenditures (1980-2004)

Years	GNP Growth Rate	Total Health Expenditures/ GNP	Public Sector Health Exp./Total Health Exp.	Per Capita Health Exp.(\$)
1980		3.5	51.4	55.5
1981	4.8	3.1	46.2	50.1
1982	3.1	3.1	45.6	43.3
1983	4.2	3.2	46.0	41.3
1984	7.1	3.1	43.9	38.2
1985	4.3	2.9	44.6	39.7
1986	6.1	2.9	46.5	42.5
1987	9.8	3.0	49.8	49.9
1988	1.5	3.0	52.2	51.0
1989	1.6	3.4	58.5	66.5
1990	9.4	3.5	61.9	95.1
1991	0.3	3.7	63.5	97.9
1992	6.4	3.9	66.2	107.4
1993	8.1	4.3	68.2	130.1
1994	-6.1	4.1	64.7	88.9
1995	8.0	3.8	64.3	106.4
1996	7.1	3.7	64.0	107.8
1997	8.3	3.5	63.0	107.3
1998	3.9	4.1	67.3	129.8
1999	-6.1	4.1	80.0	115.9

2000	6.3	4.3	80.0	129.6
2001	-9.5	5.0	86.1	105.6
2002	7.9	5.6	85.7	146.6
2003	5.9	5.6	84.9	191.5
2004	9.9	6.3	86.1	265.1

Source: State Planning Organization (2005)

Table A.2: Share of the Ministry of Health Budget in Total Government Budget

Years	MoH Budget/Government Budget
1980	4.21
1985	2.54
1990	4.12
1993	4.56
1994	3.70
1995	3.65
1996	2.76
1997	3.28
1998	2.65
2000	2.81
2001	2.26
2002	2.66
2003	2.40
2004	2.43

Source: MoH, 2004

Table A.3: Population Covered by Social Security Schemes (%)

<i>Years</i>	ES/Total Insured	SSK/Total Insured	BAG-KUR/ Total Insured	Private Funds/Total Insured	Number of Insured /Total Population
1980	25.89	51.33	21.83	0.94	46.48
1985	20.95	49.38	28.92	1.04	54.60
1990	17.15	51.86	30.16	0.83	66.27
1995	15.00	59.65	24.74	0.61	76.75
1996	15.73	58.84	24.79	0.65	75.18
1997	15.00	59.53	24.85	0.62	79.01
1998	14.70	60.21	24.50	0.59	82.10
1999	15.30	57.90	26.18	0.63	79.43
2000	14.88	60.21	26.92	0.58	82.26
2001	15.51	57.90	27.65	0.58	80.23
2002	15.58	56.26	26.81	0.56	83.00
2003	15.27	57.05	26.26	0.49	85.37
2004	14.48	59.70	25.35	0.47	89.17

Source: SPO, 2005

Table A.4: Health Service Provision

Years	Beds per 1000	Physician per 1000
1980	2.6	0.6
1981	2.5	0.6
1982	2.4	0.7
1983	2.4	0.7
1984	2.4	0.7
1985	2.4	0.7
1986	2.4	0.7
1987	2.4	0.7
1988	2.5	0.8
1989	2.4	0.9
1990	2.5	0.9
1991	2.4	0.9
1992	2.4	1.0
1993	2.5	1.0
1994	2.5	1.1
1995	2.5	1.1
1996	2.5	1.1
1997	2.5	1.2
1998	2.5	1.2
1999	2.6	1.2
2000	2.6	1.3
2001	2.6	1.3
2002	2.6	1.4
2003	2.6	1.4
2004	2.7	1.4

SPO, 2005.

Table A.5: Allocation of Health Personnel According to Regions

Bölgeler	İller	Nüfus	Hekim Başına Düşen Ortalama Nüfus	Hemşire Başına Düşen Ortalama Nüfus	Ebe Başına Düşen Ortalama Nüfus	Sağlık Memuru Başına Düşen Ortalama Nüfus	Hekimi Olmayan Sağlık Ocağı Oranı (%)	Ebesi Olmayan Köy Sağlık Evi Oranı (%)
Marmara	Balıkesir	1093058	4156	4156	1669	9423	17	52
	Bilecik	197390	4386	4590	2946	12337	23	86
	Bursa	2310306	5336	7912	4725	19916	18	74
	Çanakkale	466904	4764	4364	1361	8979	17	67
	Edirne	390187	5067	6613	1711	7963	10	64
	İstanbul	11044642	12110	19075	18047	113862	3	57
	Kırklareli	327891	5962	6187	2755	9936	19	75
	Kocaeli	1304489	7412	6622	3328	21741	12	34
	Sakarya	768455	5412	6568	3014	9852	18	55
	Tekirdağ	677706	4841	7210	2812	11685	16	72
	Yalova	179336	2802	3146	2637	7472	4	33
Bölge	18760364	7801	10081	5408	26839	12	65	
Ege	Afyon	823353	6694	4179	3131	4266	37	77
	Aydın	982145	4424	3867	1720	9921	5	56
	Denizli	871841	3379	3114	1216	7326	15	17
	İzmir	3588841	2976	6052	2769	13964	0	47
	Kütahya	674864	6080	5442	2436	5399	49	89
	Manisa	1273342	2184	1555	2140	7035	19	62
	Muğla	765788	3513	2755	1423	8234	7	52
	Uşak	327944	3346	3858	1497	5289	43	59
	Bölge	9308118	3302	3539	2080	8245	19	60
Akdeniz	Adana	1936215	3688	22255	2613	18983	22	70
	Antalya	1943703	3613	4811	2194	12460	12	65
	Burdur	250357	3251	2276	1026	3053	16	11
	Hatay	1284845	3779	8236	4199	18621	3	70
	Isparta	535689	3826	3772	1513	5699	6	11
	Mersin	1782782	4667	4619	2033	14038	19	52
	K.Maraş	1024017	4923	4163	2695	12962	21	71
	Osmaniye	480391	3843	6159	2194	9804	20	56
	Bölge	9237999	3956	5741	2305	12187	14	53
İç Anadolu	Ankara	4251980	5508	6592	5217	23622	7	83
	Çankırı	272402	7168	4127	3205	5448	46	80
	Eskişehir	715927	4313	4447	1790	10528	50	76
	Kayseri	1084228	4840	5990	2724	7133	6	60
	Kırşehir	244409	3348	5555	2842	4214	16	7
	Konya	2333839	5624	7009	4832	14771	41	71
	Nevşehir	310550	3489	3611	2218	5972	16	89
	Niğde	359703	3331	4088	1955	7194	33	84
	Sivas	728086	4045	5201	2564	5644	35	78
	Yozgat	711849	11670	11670	6591	12489	21	74
	Aksaray	415224	6807	6697	4885	11222	14	63
Karaman	249293	4986	4225	2544	8596	31	82	

	Kırıkkale	387965	5315	9463	4041	3345	45	81
	Bölge	12065455	5223	6134	3699	10621	28	72
Karadeniz	Amasya	357578	4584	5337	2020	9169	26	91
	Artvin	176743	3842	3399	1607	5050	43	84
	Bolu	266523	4369	3332	2298	6834	18	86
	Çorum	574633	6682	5864	5746	9577	50	93
	Giresun	520114	4953	4334	2640	3356	31	65
	Gümüşhane	190032	3726	4873	3455	7918	60	90
	Kastamonu	342577	6117	4392	2979	5907	16	69
	Ordu	890716	6059	6018	1993	6018	24	58
	Rize	363468	5048	6491	3054	8654	27	94
	Samsun	1196896	4966	5416	2720	7823	0	78
	Sinop	200742	3788	4780	2281	9125	42	75
	Tokat	855180	7502	6953	2899	9398	34	3
	Trabzon	1030621	4501	5726	3191	7011	28	93
	Zonguldak	580302	5046	6520	2887	13495	14	76
	Bayburt	89945	4088	3212	2142	9994	20	59
	Bartın	168857	3247	6031	2137	6754	29	20
	Karabük	209812	3384	5828	2997	7235	17	27
Düzce	324157	5894	4052	3242	9262	16	65	
	Bölge	8338896	5069	5328	2713	7226	27	58
Doğu Anadolu	Ağrı	556243	27812	4450	5400	18541	70	90
	Bingöl	248664	10361	5651	3604	3885	35	91
	Bitlis	404799	15569	8800	4877	15569	50	91
	Elazığ	586533	3223	4769	2291	7926	54	76
	Erzincan	315971	7022	4579	3224	6319	9	71
	Erzurum	952079	6142	6521	4176	7617	57	88
	Hakkari	259617	14423	8113	4898	16226	47	76
	Kars	301422	7536	4710	1957	7352	58	88
	Malatya	898673	3483	5724	1801	7132	12	84
	Muş	476540	9725	9164	5180	10830	58	70
	Tunceli	82049	4102	1746	873	4826	7	88
	Van	964051	16340	8531	7473	24719	41	81
	Ardahan	124109	5641	5641	2698	7301	50	95
	Iğdır	175918	3383	1530	1266	6066	32	87
		Bölge	6346668	6543	5495	3107	9093	38
Güneydoğu Anadolu	Adıyaman	658510	5986	5442	3228	7399	16	74
	Diyarbakır	1447547	6959	5226	5442	14475	18	80
	Gaziantep	1376292	5857	13902	6256	55052	17	74
	Mardin	753203	7928	6725	5231	21520	18	67
	Siirt	265556	5650	4828	2825	6809	9	52
	Şanlıurfa	1607611	11566	13070	7842	17666	19	79
	Batman	496030	8702	6795	4066	11810	31	38
	Şırnak	385493	11682	7867	5209	24093	28	82
	Kilis	104258	4170	5487	2370	20852	62	89
		Bölge	7094500	7476	7645	5167	16051	22
Türkiye	7115200	5297	6074	3278	11827	22	66	

Source: Temel Sağlık Hizmetleri-Genel Müdürlüğü Çalışma Yılı-2004

**APPENDIX-B LIST OF PROVINCES IN THE SAMPLE OF HEALTH
UTILIZATION SURVEY, 1992**

Adana	Ordu
Adiyaman	Rize
Ađrı	Samsun
Ankara	Sinop
Balıkesir	Sivas
Bolu	Tekirdađ
Bursa	Trabzon
Çanakkale	Sanliurfa
Diyarbakır	Zonguldak
Edirne	Aksaray
Erzincan	Batman
Erzurum	
Gaziantep	
Isparta	
Istanbul	
İzmir	
Kars	
Kayseri	
Kırklareli	
Kütahya	
Muđla	

APPENDIX C. ESTIMATIONS

Table C.1 Sex and age group of the sample

agegroup1	male	female	Total
0-15	5,122	5,076	10,198
	50.23	49.77	100.00
	39.75	34.96	37.21
16-45	5,251	6,669	11,920
	44.05	55.95	100.00
	40.75	45.94	43.50
46-65	1,851	2,033	3,884
	47.66	52.34	100.00
	14.36	14.00	14.17
65+	662	740	1,402
	47.22	52.78	100.00
	5.14	5.10	5.12
Total	12,886	14,518	27,404
	47.02	52.98	100.00
	100.00	100.00	100.00

Table C.2 Education status according to sex

sex of the respondent	illiterat	lit+no di	gradprimr	gradjun h	grad sen	gradunive	Total
male	958	2,214	4,226	1,785	1,122	451	10,756
	8.91	20.58	39.29	16.60	10.43	4.19	100.00
female	3,407	2,096	4,744	1,116	808	245	12,416
	27.44	16.88	38.21	8.99	6.51	1.97	100.00
Total	4,365	4,310	8,970	2,901	1,930	696	23,172
	18.84	18.60	38.71	12.52	8.33	3.00	100.00

Pearson chi2(5) = 1.6e+03 Pr = 0.000

Table C.3 Educational Status by Geographical Areas

region	illiterat	lit+no di	gradprimr	gradjun h	grad sen	gradunive	Total
Thrace	364 9.47	702 18.26	1,636 42.55	625 16.25	376 9.78	142 3.69	3,845 100.00
Agean-Marma	485 12.25	635 16.04	1,755 44.32	517 13.06	409 10.33	159 4.02	3,960 100.00
Mediterran	529 18.18	556 19.11	1,133 38.95	336 11.55	261 8.97	94 3.23	2,909 100.00
Cent.Anat.	794 16.63	944 19.77	1,918 40.18	610 12.78	377 7.90	131 2.74	4,774 100.00
WestBlacksea	215 17.47	240 19.50	527 42.81	141 11.45	85 6.90	23 1.87	1,231 100.00
EastBacksea	290 21.42	291 21.49	394 29.10	187 13.81	134 9.90	58 4.28	1,354 100.00
EastAnatolia	824 28.53	513 17.76	1,051 36.39	281 9.73	160 5.54	59 2.04	2,888 100.00
S.EastAnat.	864 39.08	429 19.40	556 25.15	204 9.23	128 5.79	30 1.36	2,211 100.00
Total	4,365 18.84	4,310 18.60	8,970 38.71	2,901 12.52	1,930 8.33	696 3.00	23,172 100.00

Pearson chi2(35) = 1.4e+03 Pr = 0.000

Table C.4 The distribution of education level across urban and rural

educational status	urban	rural	Total
illiterate	1,882 14.22	2,483 24.99	4,365 18.84
lit+no dipl	2,391 18.07	1,918 19.30	4,309 18.60
gradprimry	4,815 36.38	4,155 41.81	8,970 38.71
gradjun high	2,077 15.69	824 8.29	2,901 12.52
grad sen high	1,488 11.24	442 4.45	1,930 8.33
graduniversity	581 4.39	115 1.16	696 3.00
Total	13,234 100.00	9,937 100.00	23,171 100.00

Pearson chi2(5) = 1.2e+03 Pr = 0.000

Table C.5: Reporting Chronic Illness by Agegroup

chronic disease	agegroup				Total
	0-15	16-45	46-64	65+	
0	9,088 89.12	7,981 66.95	1,213 31.23	315 22.47	18,597 67.86
1	1,110 10.88	3,939 33.05	2,671 68.77	1,087 77.53	8,807 32.14
Total	10,198 100.00	11,920 100.00	3,884 100.00	1,402 100.00	27,404 100.00

Pearson $\chi^2(3) = 5.8e+03$ Pr = 0.000

Table C.6: Reporting Chronic Illness Among Males

chronic disease					Total
	0-15	16-45	46-64	65+	
0	4,554 88.91	3,845 73.22	766 41.38	171 25.83	9,336 72.45
1	568 11.09	1,406 26.78	1,085 58.62	491 74.17	3,550 27.55
Total	5,122 100.00	5,251 100.00	1,851 100.00	662 100.00	12,886 100.00

Pearson $\chi^2(3) = 2.3e+03$ Pr = 0.000

Table C.7: Reporting Chronic Illness Among Females

chronic disease					Total
	0-15	16-45	46-64	65+	
0	4,534 89.32	4,136 62.02	447 21.99	144 19.46	9,261 63.79
1	542 10.68	2,533 37.98	1,586 78.01	596 80.54	5,257 36.21
Total	5,076 100.00	6,669 100.00	2,033 100.00	740 100.00	14,518 100.00

Pearson $\chi^2(3) = 3.6e+03$ Pr = 0.000

Table C.8: Chronic disease diagnosed by physician according to age group among Males

Chr.disease Diag. by physician	agegroup				Total
	0-15	16-45	46-64	65+	
0	4,723	4,352	1,039	290	10,404
	92.21	82.88	56.13	43.81	80.74
1	399	899	812	372	2,482
	7.79	17.12	43.87	56.19	19.26
Total	5,122	5,251	1,851	662	12,886
	100.00	100.00	100.00	100.00	100.00

Pearson chi2(3) = 1.8e+03 Pr = 0.000

Table C.9: Chronic disease diagnosed by physician according to age group among Females

Chr.disease Diag. by physician	agegroup				Total
	0-15	16-45	46-64	65+	
0	4,714	4,966	832	252	10,764
	92.87	74.46	40.92	34.05	74.14
1	362	1,703	1,201	488	3,754
	7.13	25.54	59.08	65.95	25.86
Total	5,076	6,669	2,033	740	14,518
	100.00	100.00	100.00	100.00	100.00

Pearson chi2(3) = 2.7e+03 Pr = 0.000

Table C.10: Hospitalization of Males According to Age group during the past twelve months

last 1 year	agegroup				Total
	0-15	16-45	46-64	65+	
0	5,015	5,117	1,733	589	12,454
	97.93	97.45	93.63	88.97	96.66
1	106	134	118	73	431
	2.07	2.55	6.37	11.03	3.34
Total	5,121	5,251	1,851	662	12,885
	100.00	100.00	100.00	100.00	100.00

Pearson chi2(3) = 209.3687 Pr = 0.000

Table C.11: Hospitalization of Females According to Age group during the past twelve months

last 1 year	0-15	16-45	46-64	65+	Total
0	4,982 98.15	6,256 93.81	1,892 93.06	668 90.27	13,798 95.04
1	94 1.85	413 6.19	141 6.94	72 9.73	720 4.96
Total	5,076 100.00	6,669 100.00	2,033 100.00	740 100.00	14,518 100.00

Pearson $\chi^2(3) = 178.0939$ Pr = 0.000

Table C.12: Seeking care under age 15 according to sex

seek	male	female	Total
0	4,836 94.42	4,854 95.63	9,690 95.02
1	286 5.58	222 4.37	508 4.98
Total	5,122 100.00	5,076 100.00	10,198 100.00

Pearson $\chi^2(1) = 7.8891$ Pr = 0.005

Table C.13 Insurance status by Household Income Quintile

under direct or indirect insurance coverage	Ygroup					Total
	Poorest20%	2	3	4	Richest20%	
under coverage	650 26.43	949 25.82	1,876 51.54	2,880 59.02	4,880 71.42	11,235 52.28
not under coverage	1,809 73.57	2,727 74.18	1,764 48.46	2,000 40.98	1,953 28.58	10,253 47.72
Total	2,459 100.00	3,676 100.00	3,640 100.00	4,880 100.00	6,833 100.00	21,488 100.00

Pearson $\chi^2(4) = 2.8e+03$ Pr = 0.000

Table C.14: Insurance status by employment status

employ	under direct or indirect insurance coverage		Total
	under cov	not under	
0	10,329	11,300	21,629
	47.76	52.24	100.00
1	3,092	2,550	5,642
	54.80	45.20	100.00
Total	13,421	13,850	27,271
	49.21	50.79	100.00

Pearson chi2(1) = 88.9323 Pr = 0.000

Table C.15 Insurance Schemes By Income Quintiles

Insurance type	nYgroup					Total
	Poorest20%	2	3	4	Richest20%	
ES	110	98	330	809	1,428	2,775
	4.59	2.70	9.34	17.10	21.46	13.25
SSK	280	541	1,184	1,478	2,358	5,841
	11.69	14.91	33.49	31.24	35.44	27.89
BAGKUR	166	195	211	378	684	1,634
	6.93	5.37	5.97	7.99	10.28	7.80
PRIVATE	30	68	46	66	230	440
	1.25	1.87	1.30	1.40	3.46	2.10
UNINSURED	1,809	2,727	1,764	2,000	1,953	10,253
	75.53	75.14	49.90	42.27	29.36	48.96
Total	2,395	3,629	3,535	4,731	6,653	20,943
	100.00	100.00	100.00	100.00	100.00	100.00

Pearson chi2(16) = 3.1e+03 Pr = 0.000

Table C.16 Type of employment among regions

region	sector	the occupation belong			Total
	agricultu	industry	trade	service	
Thrace	92	403	286	528	1,309
	7.03	30.79	21.85	40.34	100.00
agean-marmara	401	297	115	342	1,155
	34.72	25.71	9.96	29.61	100.00
southern-mediterranea	191	105	135	238	669
	28.55	15.70	20.18	35.58	100.00
central anatolian	315	234	175	395	1,119
	28.15	20.91	15.64	35.30	100.00
western blacksea	328	44	23	69	464
	70.69	9.48	4.96	14.87	100.00
eastern blacksea	56	41	40	126	263
	21.29	15.59	15.21	47.91	100.00
eastern anatolia	282	24	47	132	485
	58.14	4.95	9.69	27.22	100.00
south-eastern anatoli	339	45	47	173	604
	56.13	7.45	7.78	28.64	100.00
Total	2,004	1,193	868	2,003	6,068
	33.03	19.66	14.30	33.01	100.00

Pearson chi2(21) = 1.2e+03 Pr = 0.000

Table C.17: Mean value of out of pocket expenditures by Income Quintiles, Insurance status and Type of Insurance

Variable	Obs	Mean	Std. Dev.	Min	Max
HealthExp	2944	546.7782	2763.388	1	99750
Poorest	202	681.5149	1922.24	2	20215
2 nd	382	577.2173	1613.128	1	17000
3 rd	406	658.8128	5050.444	1	99750
4 th	544	432.3805	1474.357	1	25515
Richest	839	543.2896	2991.477	1	75500
Covered	1762	541.2423	3399.46	1	99750
Uncovered	1176	556.5553	1343.82	1	17000
ES	426	518.2817	3916.103	2	75500
SSK	950	450.0305	3395.744	1	99750
BAGKUR	241	957.2199	3158.89	3	25515
PRIVATE	69	356.8986	674.2035	5	3700
UNINSURED	1176	556.5553	1343.82	1	17000

Table C.18: Share of Out of pocket health expenditures in Household Income according to Income Quintile, Insurance Status and Type of Insurance

Variable	Obs	Mean	Std. Dev.	Min	Max
Average	2373	6.225533	50.94663	.00075	2021.5
Poorest	201	28.76059	76.57376	.0392157	725
2 nd	382	7.323333	21.17564	.0104167	212.5
3 rd	406	4.913224	36.67149	.0083333	722.8261
4 th	544	2.106286	7.541889	.0052083	141.75
Richest	839	1.230881	7.151672	.00075	179.7619
Covered	1486	5.116149	58.0382	.0016667	2021.5
Uncovered	883	8.115575	36.10039	.00075	725
ES	366	7.92643	106.4587	.0034722	2021.5
SSK	825	3.795338	30.10404	.0016667	722.8261
Bagkur	186	5.448207	17.00935	.0038889	141.75
Private	55	6.000135	31.34767	.013089	233.3333

Table C.19: Share of Hospital Cost By Income Quintiles

Variable	Obs	Mean	Std. Dev.	Min	Max
shsrehospc~t	1267	7.652857	36.49504	.0016667	725
Poorest 20%	109	36.88108	90.67243	.1388889	725
2 nd	183	12.38603	28.36192	.0666667	212.5
3 rd	224	7.413816	45.52214	.0083333	666.6667
4 th	307	3.056729	9.807463	.0052083	141.6667
Richest	444	1.825176	9.679495	.0016667	179.7619

Table C.20: Total Formal Payments according to Income Quintiles, Insurance Status and Type

Variable	Obs	Mean	Std. Dev.	Min	Max
Average	2654	447.9778	2250.806	1	74000
Poorest	185	555.6919	1809.15	2	20215
2 nd	367	448.5313	1271.895	1	14500
3 rd	374	480.7219	3148.335	1	59000
4 th	470	382.166	1376.726	1	21615
Richest	747	470.8206	3006.003	1	74000
Covered	1523	441.9396	2812.71	1	74000
Uncovered	1125	457.3796	1115.43	1	14500
ES	344	448.157	4167.529	1	74000
SSK	824	331.5121	2248.385	1	59000
Bagkur	229	790.0131	2584.315	3	21615
Private	61	325.1967	602.0678	5	3300

Table C.21: Total Informal Payments by Income Quintiles, Insurance Status and Type

Variable	Obs	Mean	Std. Dev.	Min	Max
Average	280	374.5821	1174.159	1	14000
Poorest	20	266.2	350.9729	9	1500
2 nd	35	370.5429	871.5787	2	5000
3 rd	32	680.2813	2452.139	2	14000
4 th	55	294.8	583.7643	2	3000
Richest	75	310.28	958.4706	2	8000
COVERED	179	411.9832	1378.586	1	14000
UNCOVERED	100	310.38	678.8002	2	5010
ES	40	375.275	1269.429	2	8000
SSK	94	384.4362	1463.18	1	14000
BAGKUR	27	705.7037	1668.509	2	7000
PRIVATE	6	167	153.408	2	400

Table C.22: Total Transport and Accommodation Payments by Income Quintiles, Insurance Status and Type

Variable	Obs	Mean	Std. Dev.	Min	Max
Average	1442	182.7483	634.9932	1	16750
Poorestans~t	112	257.7589	581.6031	2	3530
2nd	184	239.0326	759.1641	1	9000
3rd	214	238.6402	1227.286	2	16750
4 th	288	124.1979	290.0267	2	2000
Richest	381	169.5302	413.8771	1	5000
COVERED	895	187.3877	746.11	1	16750
UNCOVERED	543	176.2081	391.8651	1	3530
ES	225	181.6889	386.3075	2	2200
SSK	499	187.6854	910.595	1	16750
BAGKUR	105	229.9048	662.4049	2	5000
PRIVATE	32	96.46875	124.926	5	500

Table C.23: Total Formal Payments According To Settlement

Variable	Obs	Mean	Std. Dev.	Min	Max
Urban	1697	430.2463	2578.329	1	74000
Rural	957	479.4201	1504.64	1	21615
THRACE	528	518.0739	1736.197	1	20000
AEGEAN-MARMARA	479	352.8559	1042.375	1	14500
Mediterranean	387	244.4651	736.3673	1	11250
CentrAnatolia	510	376.5765	1341.947	1	20215
Blacksea-West	135	322.2	855.9922	1	6650
Blacksea-East	146	761.3973	2524.979	4	21615
EasternAnatolia	256	392.4648	889.0595	1	6900
SouthEastAnatolia	213	960.4601	6473.316	1	74000

Table C.24: Total informal payments by settlement

Variable	Obs	Mean	Std. Dev.	Min	Max
Urban	177	387.1412	1346.678	2	14000
Rural	103	353	800.6374	1	5010
Thrace	47	483.3404	1397.35	2	8000
Agean-Marmara	38	219.2632	391.1194	2	2000
Mediterranean	36	165.3333	224.0407	2	1000
CentrAnatolia	58	303.0862	419.9767	1	1700
Blacksea-West	25	212.48	220.124	2	1000
Blacksea-East	20	696.35	1643.526	2	7000
EasternAnat.	34	293.7941	864.2981	5	5010
SouthEastAna.	22	957.9545	2979.573	15	14000

Table C.25: Transportation And Accomodation Cost by Settlemnt

Variable	Obs	Mean	Std. Dev.	Min	Max
Urban	891	159.3692	677.3377	1	16750
Rural	551	220.5535	558.3099	2	9000
Thrace	241	174.4813	396.733	2	2500
Agean-Marmara	265	132.5358	373.5209	3	3280
Mediterranean	157	120.6752	296.6743	1	2000
CentrAnatolia	321	172.2991	606.9198	1	9000
Blacksea-West	86	117.7326	348.6049	2	3000
Blacksea-East	72	292.5833	547.438	3	4000
EasternAnatol	178	240.9045	447.6349	2	3530
SouthEastAnat	122	311.6803	1581.303	4	16750

Table C.26: Type of health service applied in the past two weeks by income group (%)

Type of health service	Poorest 20%	2nd	3 rd	4 th	Richest 20%
Health centre	26.72	26.57	23.50	23.40	21.07
Public hospital	40.31	42.07	48.14	47.24	48.00
Private hospital	0.46	0.00	0.29	0.88	1.73
Private physician	26.26	28.41	23.50	22.52	25.07
Uncertified	1.37	0.00	1.15	0.44	0.27
Pharmacy	4.89	2.95	3.44	5.52	3.87

All Chi² significant at (p<0.04)

Table C.27: Type of health service applied in the past two weeks by insurance status (%)

15days	insurance coverage		Total
	under cov	not under	
Health center	335 21.41	256 28.32	591 23.94
Pub.Hosp.	838 53.55	279 30.86	1,117 45.24
Priv.Hosp.	15 0.96	6 0.66	21 0.85
Priv.Phys.	315 20.13	303 33.52	618 25.03
Uncertified	8 0.51	9 1.00	17 0.69
Pharmacy	54 3.45	51 5.64	105 4.25
Total	1,565 100.00	904 100.00	2,469 100.00

Pearson $\chi^2(5) = 126.6605$ Pr = 0.000

Table C.28: Type of health service applied in the past two weeks by type of insurance (%)

Type of health service	ES	SSK	BAGKUR	Private insurance	Uninsured
Health centre	26.08	19.51	16.67	14.52	28.32
Public hospital	59.33	57.07	38.89	35.48	30.86
Private hospital	0.24	1.10	2.53	0.00	0.66
Private physician	11.48	17.93	39.39	41.94	33.52
Uncertified	0.00	0.85	0.00	1.61	1.00
Pharmacy	2.87	3.54	2.53	6.45	5.64

All χ^2 significant at ($p < 0.000$)

Table C.29: Type of health service applied during last two weeks by place of settlement

Type of place	Urban	Rural
Health center	19.09	34.04
Public hospital	50.30	34.54
Private hospital	1.07	0.37
Private physician	24.52	26.18
Uncertified	0.54	1.00
Pharmacy	4.47	3.87

All Chi² significant at (p<0.000)

Table C.30: Correlation Matrix

	age3	sex	hhincome	hysize	edstat	worklw	insured	region	rural/urban
age3	1.0000								
sex	-0.0171	1.0000							
hhinc	-0.0179	-0.0416	1.0000						
hysize	-0.2493	-0.0009	0.0167	1.0000					
edstat	-0.4162	-0.2522	0.1768	-0.1204	1.0000				
worklw	-0.0132	0.4428	-0.1172	0.0293	-0.1959	1.0000			
insured	-0.0927	0.0040	-0.1537	0.2623	-0.2461	0.0373	1.0000		
region	-0.0737	0.0101	-0.0665	0.3545	-0.1839	0.0925	0.2207	1.0000	
urban/ru	0.0400	0.0112	-0.1280	0.1985	-0.2281	0.0389	0.3379	0.2656	1.0000

Table C.31:

Model 1. Logit Estimation for the Probability of Reporting Chronic Illness

<i>chronic</i>	<i>Coef.</i>	<i>Std.Err.</i>	<i>z</i>	<i>P> z </i>	<i>[95% Conf.Interval]</i>	
<i>age3</i>	.0596898	.0008894	67.11	0.000	.0579465	.061433
<i>male</i>	-.4286994	.0340286	-12.60	0.000	-.4953942	-.3620047
<i>hhinc</i>	-2.922304	.6968369	-4.19	0.000	-4.288079	-1.556529
<i>hhinc2</i>	1.526327	.9698016	1.57	0.116	-.3744491	3.427103
<i>hhsiz</i>	-.0570895	.0072478	-7.88	0.000	-.071295	-.042884
<i>employ</i>	-.0872481	.0406734	-2.15	0.032	-.1669665	-.0075297
<i>litnodip</i>	-.0689415	.0502382	-1.37	0.170	-.1674066	.0295235
<i>primary</i>	-.1386361	.0399625	-3.47	0.001	-.2169612	-.0603111
<i>secondary</i>	-.2857964	.0592237	-4.83	0.000	-.4018726	-.1697201
<i>highschl</i>	-.2693948	.0656006	-4.11	0.000	-.3979696	-.1408201
<i>universt</i>	-.3837685	.0989829	-3.88	0.000	-.5777714	-.1897657
<i>Thrace</i>	.007213	.0531618	0.14	0.892	-.0969822	.1114082
<i>AgeanMar</i>	-.2181342	.0509446	-4.28	0.000	-.3179838	-.1182846
<i>Mediterr</i>	.1498396	.0546282	2.74	0.006	.0427703	.2569088
<i>WBlackse</i>	-.0319036	.0761049	-0.42	0.675	-.1810664	.1172592
<i>EaBlackse</i>	.6115645	.0694969	8.80	0.000	.4753531	.7477759
<i>EaAnatolia</i>	.0591178	.0583445	1.01	0.311	-.0552354	.173471
<i>SEAnatolia</i>	.153197	.0661755	2.32	0.021	.0234955	.2828986
<i>ES</i>	.0697151	.0522921	1.33	0.182	-.0327755	.1722057
<i>SSK</i>	.1213079	.0395199	3.07	0.002	.0438504	.1987654
<i>BK</i>	.0256682	.0591585	0.43	0.664	-.0902805	.1416168
<i>Private</i>	.2445656	.1070793	2.28	0.022	.034694	.4544373
<i>totbedsp</i>	.0032385	.0017063	1.90	0.058	-.0001058	.0065829
<i>_cons</i>	-2.016802	.0825376	-24.43	0.000	-2.178573	-1.855031

<i>Logit estimates</i>	<i>Number of obs</i> =	27404
	<i>LR chi2(24)</i> =	7435.13
	<i>Prob > chi2</i> =	0.0000
<i>Log likelihood</i> = -13489.48	<i>Pseudo R2</i> =	0.2160

Table C.32:

Model 2. Logit Estimation for the Probability of Chronic Disease Diagnosed by Physician

<i>chrondr</i>	<i>Coef.</i>	<i>Std.Err.</i>	<i>z</i>	<i>P> z </i>	<i>[95% Conf.Interval]</i>	
<i>age3</i>	.0506238	.0008806	57.49	0.000	.0488978	.0523498
<i>male</i>	-.3685152	.036557	-10.08	0.000	-.4401656	-.2968648
<i>hhinc</i>	-.8663958	.7638923	-1.13	0.257	-2.363597	.6308057
<i>hhinc2</i>	-.444004	1.440903	-0.31	0.758	-3.268122	2.380114
<i>hhsiz</i>	-.0416408	.0076742	-5.43	0.000	-.0566819	-.0265997
<i>urban</i>	.0942189	.0373499	2.52	0.012	.0210145	.1674232
<i>employ</i>	-.1209151	.0436944	-2.77	0.006	-.2065546	-.0352756
<i>litnodip</i>	-.0445374	.052366	-0.85	0.395	-.1471728	.058098
<i>primary</i>	-.1026095	.0422367	-2.43	0.015	-.1853918	-.0198272
<i>secondary</i>	-.2394862	.065772	-3.64	0.000	-.3683969	-.1105756
<i>highschl</i>	-.1539923	.0714721	-2.15	0.031	-.2940751	-.0139095
<i>universt</i>	-.4397659	.1110925	-3.96	0.000	-.6575032	-.2220286
<i>Thrace</i>	-.1468065	.0573879	-2.56	0.011	-.2592848	-.0343282
<i>AgeanMar</i>	-.2043715	.0539709	-3.79	0.000	-.3101525	-.0985906
<i>Mediterr</i>	.10039	.0584504	1.72	0.086	-.0141707	.2149507
<i>WBlackse</i>	-.0721541	.0808235	-0.89	0.372	-.2305652	.086257
<i>EaBlackse</i>	.74705	.0706957	10.57	0.000	.608489	.885611
<i>EaAnatolia</i>	.1044839	.0616843	1.69	0.090	-.0164151	.2253828
<i>SEAnatolia</i>	-.0429371	.072826	-0.59	0.555	-.1856735	.0997993
<i>ES</i>	.1953169	.054863	3.56	0.000	.0877873	.3028464
<i>SSK</i>	.2238074	.0421018	5.32	0.000	.1412893	.3063254
<i>BK</i>	.0711135	.0622436	1.14	0.253	-.0508818	.1931088
<i>private</i>	.1023699	.1187614	0.86	0.389	-.1303981	.3351379
<i>totbedsp</i>	-.0011476	.0018254	-0.63	0.530	-.0047252	.0024301
<i>_cons</i>	-2.416986	.0885236	-27.30	0.000	-2.590489	-2.243483

<i>Logit estimates</i>	<i>Number of obs</i>	=	27404
	<i>LR chi2(24)</i>	=	5216.60
	<i>Prob > chi2</i>	=	0.0000
<i>Log likelihood = -12088.705</i>	<i>Pseudo R2</i>	=	0.1775

Table C.33:

Model 3. Logit Estimation for the Probability of Seeking Care Under Age 15

seek	Coef.	Std.Err.	z	P> z	[95% Conf.Interval]	
age3	-.2152085	.0236745	-9.09	0.000	-.2616097	-.1688073
male	.2580047	.0943159	2.74	0.006	.0731488	.4428605
hhinc	11.36966	3.59511	3.16	0.002	4.32337	18.41594
hhinc2	-50.27706	24.67237	-2.04	0.042	-98.63402	-1.920103
hhsize	-.1408977	.0267083	-5.28	0.000	-.193245	-.0885505
urban	.1553339	.1109633	1.40	0.162	-.0621502	.372818
employ	.2409837	.4721923	0.51	0.610	-.6844962	1.166464
litnodip	.3414096	.1853936	1.84	0.066	-.0219551	.7047743
primary	.5766795	.2799584	2.06	0.039	.0279712	1.125388
secondary	.7438418	.3030654	2.45	0.014	.1498445	1.337839
highschl	.3304553	1.047207	0.32	0.752	-1.722033	2.382944
universt	1.838947	1.177846	1.56	0.118	-.4695896	4.147484
Thrace	-.3262529	.1544463	-2.11	0.035	-.628962	-.0235437
AgeanMar	-.2667326	.1579342	-1.69	0.091	-.5762778	.0428127
Mediterr	-.0633301	.1541012	-0.41	0.681	-.3653629	.2387026
WBlackse	-.5122289	.2697613	-1.90	0.058	-1.040951	.0164936
EaBlackse	-.8095358	.2853211	-2.84	0.005	-1.368755	-.2503167
EaAnatolia	-.1010516	.1809504	-0.56	0.577	-.4557079	.2536047
SEAnatolia	-.19653	.1949334	-1.01	0.313	-.5785925	.1855325
ES	.3880565	.1483739	2.62	0.009	.097249	.678864
SSK	.2129907	.1209264	1.76	0.078	-.0240207	.4500021
BK	-.0126895	.2072309	-0.06	0.951	-.4188546	.3934756
private	.7893147	.2732766	2.89	0.004	.2537024	1.324927
totbedsp	.0151494	.0049689	3.05	0.002	.0054106	.0248882
_cons	-1.639336	.2478026	-6.62	0.000	-2.12502	-1.153652

Logit estimates	Number of obs	=	10198
	LR chi2(24)	=	410.32
	Prob > chi2	=	0.0000
Log likelihood = -1813.7024	Pseudo R2	=	0.1016

Table C.34:

Model 4. Logit Estimation for the Hospitalization Last Year

hosply	Coef.	Std.Err.	z	P> z	[95% Conf.Interval]	
age3	.0206878	.0014876	13.91	0.000	.0177721	.0236036
male	-.2100574	.0678523	-3.10	0.002	-.3430454	-.0770694
hhinc	1.451401	1.496831	0.97	0.332	-1.482333	4.385135
hhinc2	-2.61934	3.707833	-0.71	0.480	-9.88656	4.64788
hhsiz	-.0649927	.0158764	-4.09	0.000	-.0961099	-.0338754
urban	.2088841	.0715439	2.92	0.004	.0686607	.3491076
employ	-.5350895	.0938279	-5.70	0.000	-.7189888	-.3511903
litnodip	-.2832146	.1011804	-2.80	0.005	-.4815246	-.0849046
primary	.0081916	.0764698	0.11	0.915	-.1416865	.1580698
secondary	-.2756705	.1244567	-2.21	0.027	-.5196013	-.0317398
highschl	-.1630038	.1350589	-1.21	0.227	-.4277143	.1017067
universt	-.2832635	.2129495	-1.33	0.183	-.7006368	.1341099
Thrace	-.3065746	.1041477	-2.94	0.003	-.5107004	-.1024489
AgeanMar	-.1957736	.0959481	-2.04	0.041	-.3838284	-.0077188
Mediterr	-.0319727	.1051674	-0.30	0.761	-.238097	.1741517
WBlackse	.1069028	.1386157	0.77	0.441	-.1647789	.3785845
EaBlackse	-.0481171	.138108	-0.35	0.728	-.3188037	.2225696
EaAnatolia	-.2034836	.1193256	-1.71	0.088	-.4373575	.0303903
SEAnatolia	-.8887734	.1745297	-5.09	0.000	-1.230845	-.5467014
ES	.4049637	.0985882	4.11	0.000	.2117343	.598193
SSK	.4693837	.0771974	6.08	0.000	.3180795	.6206879
BK	.1115644	.1204015	0.93	0.354	-.1244183	.3475471
private	-.0324993	.24235	-0.13	0.893	-.5074966	.442498
totbedsp	-.0006363	.0033976	-0.19	0.851	-.0072955	.0060229
_cons	-3.341322	.1670196	-20.01	0.000	-3.668675	-3.01397

Logit estimates	Number of obs	=	27403
	LR chi2(24)	=	537.64
	Prob > chi2	=	0.0000
Log likelihood = -4506.3552	Pseudo R2	=	0.0563

Table C.35:

Model 5. Logit Estimation for the Probability of Been to Hospital During Last Two Weeks

hospl15	Coef.	Std.Err.	z	P> z	[95% Conf.Interval]	
age3	.0118559	.0013389	8.85	0.000	.0092317	.0144801
male	-.1445667	.0608961	-2.37	0.018	-.2639209	-.0252124
hhinc	2.355467	1.223963	1.92	0.054	-.0434563	4.75439
hhinc2	-2.871265	2.202598	-1.30	0.192	-7.188277	1.445747
hysize	-.1262163	.0151079	-8.35	0.000	-.1558273	-.0966053
urban	.4147508	.0680184	6.10	0.000	.2814371	.5480645
employ	-.2979621	.083245	-3.58	0.000	-.4611194	-.1348048
litnodip	-.390821	.0880725	-4.44	0.000	-.5634399	-.2182021
primary	-.48003	.0722437	-6.64	0.000	-.621625	-.338435
secondary	-.5333632	.1059711	-5.03	0.000	-.7410628	-.3256636
highschl	-.4528565	.1147847	-3.95	0.000	-.6778304	-.2278827
universt	-.5598288	.1722146	-3.25	0.001	-.8973633	-.2222944
Thrace	-.0321041	.092873	-0.35	0.730	-.2141319	.1499236
AgeanMar	.0444269	.0896327	0.50	0.620	-.1312499	.2201038
Mediterr	-.0124577	.1037595	-0.12	0.904	-.2158226	.1909072
WBlackse	-.0345137	.1455642	-0.24	0.813	-.3198142	.2507868
EaBlackse	-.154461	.1438979	-1.07	0.283	-.4364956	.1275737
EaAnatolia	.2776875	.1082784	2.56	0.010	.0654658	.4899092
SEAnatolia	.122176	.1283242	0.95	0.341	-.1293348	.3736869
ES	.8702281	.0861363	10.10	0.000	.7014039	1.039052
SSK	.7847189	.0715152	10.97	0.000	.6445517	.9248861
BK	.1472198	.119811	1.23	0.219	-.0876053	.382045
private	.5489053	.1874404	2.93	0.003	.1815289	.9162817
totbedsp	.0038018	.0031587	1.20	0.229	-.0023891	.0099927
_cons	-3.040318	.1558471	-19.51	0.000	-3.345773	-2.734864

Logit estimates	Number of obs	=	27286
	LR chi2(24)	=	708.25
	Prob > chi2	=	0.0000
Log likelihood = -5210.8631	Pseudo R2	=	0.0636

Table C.36:

Model 6. Results of Logit Estimate Used for the Calculation of Chronic Disease Index

<i>chronic</i>	<i>Coef.</i>	<i>Std.Err.</i>	<i>z</i>	<i>P> z </i>	<i>[95% Conf.Interval]</i>	
<i>age3</i>	.0596285	.0008881	67.14	0.000	.0578877	.0613692
<i>male</i>	-.4273366	.034003	-12.57	0.000	-.4939811	-.360692
<i>urban</i>	.0930335	.0349201	2.66	0.008	.0245914	.1614757
<i>hhinc</i>	-2.879405	.6956158	-4.14	0.000	-4.242787	-1.516023
<i>hhinc2</i>	1.522338	.9752711	1.56	0.119	-.3891582	3.433834
<i>hhsiz</i>	-.0574899	.0072378	-7.94	0.000	-.0716758	-.043304
<i>totbedsp</i>	.0034585	.0017036	2.03	0.042	.0001194	.0067976
<i>employ</i>	-.0869019	.0406695	-2.14	0.033	-.1666127	-.007191
<i>litnodip</i>	-.0691958	.0502252	-1.38	0.168	-.1676353	.0292438
<i>primary</i>	-.1384753	.0399524	-3.47	0.001	-.2167805	-.0601701
<i>secondary</i>	-.2871847	.0591627	-4.85	0.000	-.4031415	-.171228
<i>highschl</i>	-.2720803	.0653127	-4.17	0.000	-.4000909	-.1440696
<i>universt</i>	-.3901901	.0976114	-4.00	0.000	-.581505	-.1988753
<i>Thrace</i>	.0102712	.0528432	0.19	0.846	-.0932996	.113842
<i>AgeanMar</i>	-.2151143	.0508044	-4.23	0.000	-.3146891	-.1155394
<i>Mediterr</i>	.1524011	.0545751	2.79	0.005	.0454358	.2593663
<i>WBlackse</i>	-.0237187	.0759998	-0.31	0.755	-.1726756	.1252383
<i>EaBlackse</i>	.612362	.0694505	8.82	0.000	.4762415	.7484825
<i>EaAnatolia</i>	.0597371	.0583496	1.02	0.306	-.054626	.1741003
<i>SEAnatolia</i>	.1581459	.0661828	2.39	0.017	.0284299	.2878619
<i>covered</i>	.0843669	.0342503	2.46	0.014	.0172375	.1514963
<i>_cons</i>	-2.019335	.082581	-24.45	0.000	-2.181191	-1.85748
<i>Number of observations</i>		= 27404				
<i>LR chi²(21)</i>		= 7428.15				
<i>Prob > chi²</i>		= 0.0000				
<i>Log likelihood</i>		= -13492.968		<i>Pseudo R² = 0.2158</i>		

APPENDIX D: COMPARISON OF HEALTH BENEFITS AMONG EMEKLI SANDIĞI, SSK AND BAG-KUR

Table 1: Premium Rates

Premiums	SSK	BAG-KUR	ES
Premium rates	Worker: %5 Employer: %6 Total:%11	%20 of the income level	No premium
	Base salary: Minimum Wage rate or SSK wage levels	There is a range of level which premiums can be paid between 1-24 (max) depending on income levels. These levels are set by the Board of Ministers once a year or more if needed using inflation and growth rate. People who are between the levels 1-8th pay 20 % of the 8th income level, from 8-24th, people pay 20% of each income level.	

Table 2: Comparison of Benefits provided by Social Security Institutions at Outpatient Care

Health benefit	SSK	BAG-KUR	ES
Specialist doctor Examination	covered	Covered	Covered
General Practitioner examination	covered	Covered	Covered
Referral	covered	Covered	Covered
Examination in private health clinic	If the service is not available in public hospitals	Covered	At contracted private health clinics
Travel expenses in case of referral	Doctor's approval needed	Not covered	Only Transportation Fee
Allowance in case of referral	covered	Not covered	Covered
Payment for companion in case of referral	Doctor's approval needed and for companions of the children under 15 r	Not covered	Doctor's approval needed
Esthetic Examination	not covered	Not covered	Not covered
Treatment of diseases before insurance.	Not covered	No objection in the law	No objection in the law
Preventive care	Covered	No clause in the law	No clause in the law
Emergency	Covered	Covered (payments are made according to official rates set in the BUT)	First intervention and treatment
Individual health expenditures	Payments are made according to official rates	Payments are made according to official rates	Payments are made according to official rates which are specified in the BUT
Duration of health benefits	6 months from the beginning of treatment. More than 6 months of treatment requires medical report	Provided until recovery If the insurance status ends treatment will be provided for the next 90 days	No clause in the law but health benefits are not provided if insurance status ends

Table 3: Comparison of Benefits provided by Social Security Institutions at Inpatient Care

Health Benefits	SSK	BAG-KUR	ES
Operation	Covered	Covered	Covered
Room-meals	Covered	Covered	Covered
Companion	Covered	Not covered	Covered
Intensive care	Covered	Covered	Covered
Physiotherapy	Covered	Covered	Covered
SPA etc.	Covered	Not covered	Daily allowance is given, spa treatment is paid,
Home care	No clause in the law	No clause in the law	Covered
Rehabilitative services	Covered	Covered	Covered
Bed classification	2nd class bed	First 1-10th level. 1st class bed, 11-24th level 2nd class bed	First 1-4th level 1st class 5-12th level 2nd class
Aesthetics surgery	Not covered	Not covered	Not covered
Physiological treatment	Covered	Covered	Covered
Organ transplantation	Covered	Covered	Covered
Hemodialysis	Covered	Covered	Covered
Treatment at Sanatorium	Covered	Covered	Covered
Geriatric	Covered	No clause in the law	No clause in the law
Treatment of handicapped children	Covered	Treatment should be provided in public institutions	Covered
Referral to private clinics	In case of treatment cannot be made or there is a contract with private clinic	Requires Ministerial Board decision	Referral can be made to the public associations and institutions which have tax exemptions
Individual payments at emergency cases	Covered	Payments are made according to official rates	First intervention and treatment
Duration of care	6 months from the beginning of treatment. More than 6 months of treatment requires medical report	Provided until recovery If the insurance status ends treatment will be provided for the next 90 days.	No clause in the law but health benefits are not provided if insurance status ends

Table 4: Drug Reimbursement rules

Health benefits	SSK	BAG-KUR	Emekli Sandığı/ civil servants
Drugs given at outpatient level	Covered	Covered	Covered
Drug list	Budget Implementation Directive (Butce Uygulama Talimatı-BUT)	BUT	BUT
Co-payment	Active workers and their dependants: %20 Retired and their dependants:%10	Active workers and their dependants: %20 Retired and their dependants:%10	Active workers and their dependants: %20 Retired and their dependants:%10
Diseases that are exempted from co-pay	Tuberculosis, cancer, chronic dialysis, organ transplantation, cardiac, mental disorders	Same with ES	Tuberculosis, cancer, chronic dialysis, organ transplantation, cardiac, mental disorders Drug groups specified in the BUT
How drugs are provided	Contract with Pharmacies	Contract with Pharmacies	Contract with Pharmacies
Vaccines	Covered	Covered	Covered
Drugs given at inpatient level	Covered	Covered	Covered
Drug list	BUT	BUT	BUT
Co-pay	No	No	No
How drugs are provided	Pharmacies	Pharmacies	Pharmacies

Table 5: Diagnose and tests

Diagnose and tests	SSK	BAG-KUR	Emekli Sandığı/ Civil servants
Laboratory tests and analysis	Covered	Covered	Covered
X-ray	Covered	Covered	Covered
Ultrasound	Covered	Covered	Covered
CT	Covered	Covered	Covered
Endoscopy	Covered	Covered	Covered
Magnetic Rezonans	Covered	Covered	Covered
Sintigrafi	Covered	Covered	Covered
ESWL	Covered	Covered	Covered

Table 6: Others

	SSK	BAG-KUR	Emekli Sandığı/ civil servants
Medical supplies used in curative services	Covered	Covered	Covered
Dental treatment	Covered	Covered	Covered
Endodonti	Covered	Covered	Covered
Pedodonti	Covered	Covered	Covered
Protheis	Covered	Covered	Covered
Surgery	Covered	Covered	Covered
Periodontology	Covered	Covered	Covered
Ortodonty	Covered	Covered	Covered
Work accident and occupancy disease	Covered	Covered	Covered
Treatment abroad in case of work accident/occupancy disease	Covered	Uncovered	Covered

Table 7: Prosthesis and spectacles

Type of Benefits	SSK	BAG-KUR	ES
Spectacles	covered	covered	covered
Kontakt Lens	uncovered	uncovered	uncovered
Hearing aid, Speaking Aid	valid for 5 years. All expenses are covered	Same with ES	valid for 5 years ES determines the rate, the part above the rate is paid by the patient
Organ prosthesis, Orthopaedic Prosthesis	covered	Covered	covered

Table 8: Health benefits from maternity

Type of Benefits	SSK	BAG-KUR	Emekli Sandığı/ Civil servants
Prenatal examination	Doctor or midwife	covered	Covered
Health benefits at Delivery	By the Doctor or midwife	covered	Covered
Delivery at health institution	Doctor or midwife	covered	Covered
Delivery at home	covered	Not covered	Covered
Referral	covered	covered	Covered
Drugs	covered	covered	Covered
Medical supplies	covered	covered	Covered

TABLE 9. Co-payments for health care services and pharmaceuticals

	SSK	ES	BAG-KUR	Green Card	Uninsured
Preventive care	No co-payment	No co-payment	No co-payment	No co-payment	No co-payment
Emergency services	No co-payment	No co-payment	No co-payment	No co-payment	No co-payment
Outpatient services					
Active workers and dependants	No co-payment	No co-payment	No co-payment	No co-payment	Full price
Retired and dependants	0.8YTL per visit	No co-payment	No co-payment		
Inpatient services					
Active workers and dependants	No co-payment	No co-payment	No co-payment	No co-payment	Full price
Retired and dependants	No co-payment	No co-payment	No co-payment	No co-payment	Full price
Pharmaceuticals					
Active workers and dependants	20% outpatient care / Free inpatient care	20% outpatient care / Free inpatient care	20% outpatient care / Free inpatient care	20% outpatient care / Free inpatient care	Full price
Retired and dependants	10% outpatient care / Free inpatient care	10% outpatient care / Free inpatient care	10% outpatient care / Free inpatient care		

Source: Compiled from Budget Implementation Directives, 2005; SSK Health Services Contracts; SSK Drug Reimbursement Directives and SSK Directorate General for Health Services Circular

APPENDIX F. DECOMPOSED CHRONIC DISEASE INDEX BY PROVINCES

Appendix F Calculation of Decomposed CDI for 1980

	(Male/1980/ Population 1980) x β_2	Hhold Income 1980 x β_4	population 1980/ 1980	school 1980/ 1980	school 1980/ 1980	school 1980/ 1980	1980/ 1980	Z	Z*(-1)	CHRONIC DISEASE INDEX 1980
Logit coefficients (β_i)*	-0.4273366	-2.879405	-0.0869019	-0.1384753	-0.2871847	-0.2720803	-0.3901901		-1	
Adana+Osmaniye	-0.215781	-2.8546852	-0.0322647	-0.0424478	-0.0143712	-0.0076108	-0.0064534	-3.1736141	3.1736141	0.040170825
Adiyaman	-0.2151232	-1.3115964	-0.0339877	-0.023476	-0.0071289	-0.0045838	-0.0024117	-1.598307	1.598307	0.168218358
Afyon	-0.2191524	-1.833524	-0.0392881	-0.0470973	-0.0112607	-0.0080329	-0.005279	-2.1636342	2.1636342	0.103063998
Agri	-0.2244774	-0.9965573	-0.0368519	-0.0216464	-0.0065263	-0.005145	-0.0020919	-1.2932962	1.2932962	0.215295404
Amasya	-0.2159165	-2.0385676	-0.0404717	-0.0468091	-0.0119591	-0.0100234	-0.0015206	-2.3652679	2.3652679	0.085859815
Ankara+Kırıkkale	-0.2195423	-2.8688736	-0.029961	-0.0470778	-0.0229996	-0.0231317	-0.017934	-3.2295201	3.2295201	0.038069812
Antalya	-0.2151009	-2.5529909	-0.0408096	-0.0520087	-0.0108697	-0.0101785	-0.0060959	-2.8880543	2.8880543	0.052747243
Artvin	-0.2101367	-1.9771977	-0.0438917	-0.0470617	-0.0148272	-0.0110675	-0.0078022	-2.3119847	2.3119847	0.090135236
Aydin	-0.2139008	-2.1479228	-0.0415982	-0.0527075	-0.0115303	-0.0099973	-0.0061576	-2.4838146	2.4838146	0.077000643
Balıkesir	-0.2171426	-2.2271575	-0.0417622	-0.0534939	-0.0126581	-0.0112474	-0.0065422	-2.5700039	2.5700039	0.071094034
Bilecik	-0.2168413	-2.6406962	-0.0446419	-0.0586048	-0.0123586	-0.0115532	-0.0048548	-2.9895507	2.9895507	0.047900168
Bingöl	-0.2188684	-1.0524136	-0.0358115	-0.0252208	-0.007086	-0.0051227	-0.0021958	-1.3467188	1.3467188	0.206407309
Bilis	-0.2238783	-1.2367113	-0.0322825	-0.0194799	-0.0070942	-0.0051693	-0.0019698	-1.5275853	1.5275853	0.178342724
Bolu+Düzce	-0.2123027	-2.2798316	-0.0425757	-0.0228464	-0.0104275	-0.008289	-0.0056682	-2.581941	2.581941	0.070309736
Burdur	-0.2135328	-2.1876489	-0.0421462	-0.0546892	-0.0122446	-0.0101291	-0.0055355	-2.5259263	2.5259263	0.074060505
Bursa	-0.2157151	-2.9164298	-0.0375162	-0.0544777	-0.0154856	-0.0112659	-0.0090218	-3.2599121	3.2599121	0.03697233
Çanakkale	-0.2232711	-2.506949	-0.0464191	-0.0555955	-0.0118125	-0.0105304	-0.0059151	-2.8604927	2.8604927	0.054141453
Çankırı	-0.2080132	-1.9111445	-0.0423978	-0.0450437	-0.0117347	-0.0077644	-0.0044615	-2.2305598	2.2305598	0.097039569
Çorum	-0.2088896	-1.5602737	-0.0402133	-0.0388751	-0.0073846	-0.0049279	-0.0051668	-1.8675731	1.8675731	0.134036441
Denizli	-0.2113713	-2.4446909	-0.0395055	-0.0504452	-0.011592	-0.0097299	-0.0060973	-2.7729993	2.7729993	0.058800794
Diyarbakır	-0.2216466	-1.6327607	-0.0301765	-0.0203676	-0.0095472	-0.0072182	-0.0033802	-1.9250971	1.9250971	0.127294243
Edirne	-0.2301307	-2.8569221	-0.0471841	-0.0564031	-0.0127732	-0.0125006	-0.0057999	-3.2217138	3.2217138	0.038356715
Elazığ	-0.2143585	-3.5244761	-0.0321048	-0.0328744	-0.0142541	-0.0120181	-0.0044347	-3.8345208	3.8345208	0.021154503
Erzincan	-0.2174852	-1.7741897	-0.0385235	-0.0439315	-0.0132258	-0.0099871	-0.005007	-2.1023499	2.1023499	0.108868624
Erzurum	-0.2194123	-1.5232341	-0.0381748	-0.0357562	-0.0103014	-0.0083262	-0.0049846	-1.8401897	1.8401897	0.097039569
Eskişehir	-0.2165814	-2.8676936	-0.0342088	-0.0566664	-0.0200453	-0.0165384	-0.0091068	-3.2208407	3.2208407	0.038388932
Gaziantep+Kilis	-0.2162859	-2.0103907	-0.0297622	-0.0338393	-0.0095023	-0.0072991	-0.0039434	-2.311023	2.311023	0.090214136
Giresun	-0.2065121	-1.5569019	-0.0399256	-0.036756	-0.0124485	-0.0083497	-0.0036233	-1.8645171	1.8645171	0.134177407
Gumush+Bayburt	-0.2021809	-1.0945692	-0.0409971	-0.0402638	-0.0092712	-0.0066915	-0.0037432	-1.397717	1.397717	0.198178622
Hak+Mard+Siirt+Sirna k+Batman	-0.2209026	-1.0107383	-0.0333865	-0.0179468	-0.0064328	-0.0044421	-0.0024889	-1.296338	1.296338	0.214781958
Hatay	-0.218503	-2.385626	-0.0322007	-0.0367741	-0.012125	-0.0099338	-0.0049059	-2.7000686	2.7000686	0.06299686
Isparta	-0.2226089	-0.2206626	-0.0400587	-0.0539614	-0.0146202	-0.0120958	-0.0076931	-0.5717006	0.5717006	0.360844498
Içel	-0.2175954	-4.5856942	-0.0352785	-0.0466917	-0.0141215	-0.0119235	-0.0114727	-4.9227774	4.9227774	0.007226285
Istanbul+Yalova	-0.2236988	-4.5503499	-0.0286614	-0.0534144	-0.0244352	-0.0223297	-0.0140378	-4.9169272	4.9169272	0.007268376
Izmir	-0.2209336	-4.1371719	-0.0355634	-0.054968	-0.0185028	-0.0179116	-0.0130418	-4.4980931	4.4980931	0.01100768
Kars+Ardeş+Iğdir	-0.2192554	-1.0438298	-0.0404427	-0.0336764	-0.0111361	-0.0075589	-0.0030608	-1.3589602	1.3589602	0.204409342
Kastamonu	-0.2048874	-1.8851286	-0.0463277	-0.0413768	-0.0075263	-0.0058405	-0.0050566	-2.196144	2.196144	0.100097279
Kayseri	-0.2136839	-1.9546898	-0.0305736	-0.0442282	-0.0124336	-0.0095744	-0.006052	-2.2712356	2.2712356	0.093533384
Kırklareli	-0.2310704	-2.4482377	-0.0474602	-0.061524	-0.0143609	-0.0140664	-0.0060041	-2.8227236	2.8227236	0.056108508
Kırşehir	-0.2042766	-1.9522468	-0.0340931	-0.0446979	-0.0134829	-0.0088639	-0.0047359	-2.2623971	2.2623971	0.05848546
Kocaeli	-0.2232528	-8.3257276	-0.031673	-0.0508425	-0.0172436	-0.0161813	-0.0076777	-8.6725985	8.6725985	0.000171184
Konya+Karaman	-0.2124188	-2.2827005	-0.0361119	-0.0509396	-0.0107857	-0.0082824	-0.0066903	-2.6079293	2.6079293	0.068629832
Kütahya	-0.215995	-3.2107669	-0.042571	-0.0491973	-0.0098093	-0.0075928	-0.0044836	-3.5404159	3.5404159	0.028183887
Malatya	-0.2174432	-1.7703409	-0.0341311	-0.0365609	-0.0140736	-0.010388	-0.0042336	-2.0871713	2.0871713	0.110349955
Manisa	-0.2155849	-2.3515588	-0.0435164	-0.0535017	-0.009499	-0.0078923	-0.0047033	-2.6862564	2.6862564	0.063789213
K. Maraş	-0.2186427	-2.3104361	-0.0338485	-0.0340362	-0.0092829	-0.0064939	-0.0038415	-2.6165818	2.6165818	0.06807883
Muğla	-0.2155151	-2.3832244	-0.0442718	-0.0579643	-0.0098554	-0.0100109	-0.0061029	-2.7269448	2.7269448	0.061401993
Muş	-0.2213091	-1.421591	-0.0357788	-0.0219756	-0.0069639	-0.0050222	-0.0017561	-1.7143967	1.7143967	0.152594304
Neveşehir	-0.2076849	-2.3734322	-0.0394901	-0.048299	-0.011468	-0.0083922	-0.0034883	-2.6922548	2.6922548	0.063431925
Niğde+Aksaray	-0.2083236	-1.8867175	-0.0369358	-0.0394643	-0.0091107	-0.0063872	-0.0027668	-2.1897058	2.1897058	0.100678716
Ordu	-0.2098734	-1.6307838	-0.0418364	-0.0355353	-0.0102383	-0.0065895	-0.0048308	-1.9396875	1.9396875	0.125682181
Rize	-0.2054139	-2.5791353	-0.0392001	-0.0429159	-0.0116859	-0.0077559	-0.0041983	-2.8903053	2.8903053	0.052634885
Sakarya	-0.2149708	-2.6276448	-0.0393953	-0.0526464	-0.0115052	-0.0089674	-0.0056991	-2.960829	2.960829	0.04922718
Samsun	-0.2100404	-2.4670762	-0.040378	-0.0403837	-0.0070048	-0.0074814	-0.0055782	-2.8409426	2.8409426	0.055151389
Sinop	-0.2063527	-1.5241324	-0.0438703	-0.0419052	-0.0069737	-0.0065971	-0.0035326	-1.8333641	1.8333641	0.137837988
Sivas	-0.2123575	-1.3912953	-0.0356073	-0.0371641	-0.0115372	-0.0080763	-0.0042393	-1.700277	1.700277	0.154429079
Tekirdağ	-0.2294982	-3.4738179	-0.0464807	-0.0599681	-0.0140956	-0.0126393	-0.0060431	-3.842543	3.842543	0.020998024
Tokat	-0.2172046	-1.5664022	-0.0398466	-0.0391937	-0.0090978	-0.0065242	-0.0035945	-1.8818815	1.8818815	0.132172892
Trabzon	-0.204304	-1.9119441	-0.0385241	-0.0377702	-0.0144562	-0.0104062	-0.0078599	-2.2251964	2.2251964	0.097510542
Tunceli	-0.2143175	-1.1886784	-0.0380209	-0.0346631	-0.0133581	-0.0097104	-0.0031739	-1.5019223	1.5019223	0.182138978
Ş. Urfa	-0.2210057	-1.3417488	-0.0308633	-0.0194242	-0.0074143	-0.0053894	-0.0026393	-1.628485	1.628485	0.164037999
Uşak	-0.2078604	-1.8823349	-0.0395158	-0.0469124	-0.0120752	-0.0094437	-0.0051973	-2.2033397	2.2033397	0.099450974
Van	-0.2232236	-1.3196617	-0.0350231	-0.0194331	-0.0063234	-0.0047502	-0.0024919	-1.6109071	1.6109071	0.166462704
Yozgat	-0.2081495	-1.4468371	-0.0392461	-0.0398634	-0.0094023	-0.0040043	-0.0037864	-1.7512891	1.7512891	0.147884663
Zon+Bart+Karabuk	-0.2127053	-3.8935233	-0.0298588	-0.044643	-0.0114042	-0.0089054	-0.0062258	-4.2072659	4.2072659	0.01466864

* The logit estimation for reported chronic disease are re-estimated using 'insured' instead of ES, SSK and BAGKUR separately, see Table C.36 in Appendix C
 The analysis is based on 65 provinces by merging some provinces into one. For a similar application, see Flitztekin (1999).
 The mean values of variables are obtained using 1980 census data (SIS, 2003).
 The income data is taken from Öztütün 1988.
 Average household income is calculated by multiplying per capita GDP with average household size for each province.
 Then household income has been converted by dividing the household income for each province to the average household income in 1980.

Appendix F Calculation of Decomposed CDI for 1990

	(Male 1990 Population n1990) x β_2	Weighted Household Income x β_4	Employed population 1990/Population 1990 x β_8	Primary school 1990/Population 1990 x β_{10}	Secondary school 1990/Population 1990 x β_{11}	High school 1990/Population 1990 x β_{12}	University 1990/Population 1990 x β_{13}	constant Z	Z*(-1)	DECOMPOSED CHRONIC DISEASE INDEX 1990	
Logit coefficients (β_i)*	-0.427337	-2.879405	-0.086902	-0.138475	-0.287185	-0.27208	-0.39019	-2.01934	-1		
Adana, Osmaniye	1933337	-0.215262	-3.041395	-0.030605	-0.052389	-0.019667	-0.018634	-0.008699	-3.386652	3.386652	0.032715225
Adiyaman	510827	-0.214744	-2.496343	-0.034482	-0.040877	-0.012214	-0.008877	-0.004029	-2.811559	2.8115587	0.056702742
Afyon	738979	-0.213356	-1.729036	-0.040316	-0.061379	-0.016904	-0.014298	-0.006466	-2.081756	2.0817557	0.110882747
Agri	437093	-0.216387	-0.829593	-0.035192	-0.032169	-0.008677	-0.007432	-0.003003	-1.132452	1.1324524	0.243708786
Amasya	359265	-0.213981	-1.750328	-0.040238	-0.059524	-0.016643	-0.015589	-0.007819	-2.10412	2.1041204	0.108696969
Ankara, Kirikkale	3586738	-0.218755	-3.498855	-0.029536	-0.053738	-0.027873	-0.033618	-0.023468	-3.885843	3.8858427	0.020117493
Antalya	1132211	-0.22218	-2.717918	-0.042664	-0.063122	-0.01776	-0.020415	-0.013306	-3.097363	3.0973634	0.043216137
Artvin	212833	-0.209603	-3.040425	-0.044703	-0.058371	-0.020139	-0.017535	-0.006923	-3.397099	3.3970988	0.032386251
Aydin	824816	-0.215687	-2.319817	-0.042764	-0.064341	-0.015389	-0.015074	-0.009877	-2.682949	2.6829492	0.063987005
Balikesir	974274	-0.217846	-2.125496	-0.041625	-0.063446	-0.018611	-0.018512	-0.010393	-2.495929	2.4959288	0.076144072
Bilecik	175797	-0.221154	-3.292379	-0.042049	-0.067778	-0.0186	-0.020818	-0.008061	-3.67084	3.6708403	0.02482319
Bingöl	249074	-0.213965	-0.928608	-0.037624	-0.039514	-0.009237	-0.008116	-0.003923	-1.240987	1.2409867	0.224264264
Bitlis	330115	-0.221338	-1.240793	-0.032769	-0.032874	-0.010121	-0.008755	-0.003619	-1.550269	1.5502691	0.17504739
Bolu, Duzce	536598	-0.214123	-2.612539	-0.045244	-0.036088	-0.015241	-0.01523	-0.008226	-2.946691	2.9466912	0.049893121
Burdur	254899	-0.217512	-1.753166	-0.043194	-0.06723	-0.017877	-0.017388	-0.010594	-2.126962	2.1269617	0.106503763
Bursa	1596161	-0.217107	-3.30621	-0.03607	-0.0642	-0.022819	-0.019954	-0.01048	-3.67684	3.6768396	0.024678377
Çanakkale	432263	-0.222534	-2.506465	-0.050023	-0.067584	-0.016144	-0.016335	-0.009637	-2.888722	2.888722	0.052713892
Çankırı	249344	-0.238267	-1.758209	-0.045779	-0.06639	-0.021176	-0.017921	-0.007648	-2.15539	2.1553902	0.10382859
Çorum	608660	-0.206473	-2.074336	-0.040579	-0.057161	-0.008454	-0.008347	-0.005337	-2.400867	2.4008689	0.083120324
Denizli	750882	-0.215767	-2.468922	-0.042529	-0.064162	-0.017021	-0.015781	-0.008629	-2.832812	2.8328118	0.05557662
Diyarbakır	1096447	-0.218042	-2.601882	-0.02893	-0.021601	-0.011608	-0.011092	-0.005073	-2.898229	2.8982291	0.052241167
Edirne	404599	-0.22599	-1.949133	-0.046992	-0.064934	-0.018828	-0.021855	-0.010484	-2.338217	2.3382171	0.08006086
Elağz	498225	-0.212132	-2.767408	-0.031817	-0.046001	-0.019159	-0.018231	-0.008534	-3.103282	3.1032815	0.042972091
Erzurum	290251	-0.223324	-1.533312	-0.039385	-0.053767	-0.021319	-0.019289	-0.007546	-1.897941	1.8979414	0.130341628
Erzincan	848201	-0.215482	-1.397606	-0.036381	-0.048997	-0.014153	-0.014905	-0.006337	-1.733861	1.7338612	0.150094327
Gaziantep, Kilis	641301	-0.21452	-2.306997	-0.032306	-0.06324	-0.026726	-0.026838	-0.013043	-2.68367	2.6836703	0.06394383
Giresun	1140594	-0.21651	-3.150314	-0.029111	-0.049568	-0.013884	-0.010509	-0.005236	-3.475131	3.475131	0.030028124
Gumushane, Bayburt	499617	-0.210921	-1.484591	-0.041061	-0.05146	-0.018412	-0.016045	-0.006948	-1.829439	1.8294387	0.138305141
Hakkari, Mardin, Siirt, S Hatay	276175	-0.207696	-1.100182	-0.041019	-0.054738	-0.055638	-0.013506	-0.006106	-1.478886	1.4788862	0.185595702
İsparta	1580316	-0.220942	-1.516284	-0.032179	-0.029106	-0.009101	-0.00828	-0.00331	-1.818402	1.8184023	0.139625677
İstanbul, Yalova	1109754	-0.214312	-2.709697	-0.034943	-0.052999	-0.015849	-0.014137	-0.006877	-3.048813	3.0488134	0.045268724
Izmir	434771	-0.220566	-1.719911	-0.039751	-0.063948	-0.021242	-0.021145	-0.011653	-2.098216	2.0982158	0.109270349
Kars, Ardahan, Iğdir	1267253	-0.217586	-3.312176	-0.03462	-0.058481	-0.020159	-0.019666	-0.009951	-3.672639	3.6726394	0.024779676
Kastamonu	7330894	-0.22144	-3.607088	-0.031019	-0.059424	-0.027935	-0.028643	-0.018418	-3.993058	3.9930582	0.018109228
Kayseri	2694770	-0.218805	-3.345396	-0.034839	-0.061052	-0.023646	-0.025462	-0.017267	-3.726468	3.7264683	0.02351161
Kırklareli	626155	-0.215596	-1.056853	-0.04177	-0.047113	-0.01513	-0.012137	-0.004608	-1.393207	1.3932072	0.198896226
Kırşehir	423206	-0.20456	-1.739575	-0.047093	-0.056623	-0.010929	-0.011021	-0.006933	-2.076735	2.0767345	0.11137874
Kocaeli	944091	-0.213591	-1.854718	-0.031068	-0.058076	-0.018888	-0.0164	-0.008487	-2.201227	2.2012272	0.099640324
Konya, Karaman	309512	-0.229293	-3.898064	-0.045941	-0.067711	-0.021335	-0.022195	-0.010961	-4.295501	4.2955009	0.013446468
Kütahya	256684	-0.207503	-1.916758	-0.035501	-0.057594	-0.019054	-0.016353	-0.008002	-2.260766	2.2607659	0.094424842
Malatya	920255	-0.225885	-6.638887	-0.032748	-0.062069	-0.023958	-0.023296	-0.010184	-7.017026	7.0170262	0.000895684
Mansis	1967839	-0.212958	-2.090114	-0.036482	-0.061507	-0.015141	-0.013991	-0.007211	-2.437405	2.4374054	0.080364488
Maraş	577905	-0.214344	-1.990225	-0.042119	-0.064368	-0.016057	-0.013111	-0.006606	-2.34683	2.3468296	0.087318091
Miğla	704359	-0.214858	-2.152731	-0.034037	-0.05189	-0.02028	-0.017667	-0.008124	-2.499587	2.4995866	0.075887154
Muğla	1154418	-0.216122	-3.019877	-0.044397	-0.065799	-0.013419	-0.011978	-0.006713	-3.378304	3.3783043	0.032980424
Muş	894264	-0.215155	-2.307494	-0.035953	-0.050108	-0.013908	-0.010961	-0.005551	-2.63913	2.63913	0.066662137
Neveşehir	562809	-0.223407	-2.839659	-0.047606	-0.070127	-0.015151	-0.017982	-0.012282	-3.226214	3.2262137	0.038191075
Niğde, Aksaray	376543	-0.218271	-1.202356	-0.036506	-0.032544	-0.008839	-0.006717	-0.002894	-1.508127	1.5081267	0.181216561
Ordu	289509	-0.212277	-2.734554	-0.041891	-0.062977	-0.017031	-0.014174	-0.007118	-3.090022	3.0900217	0.043520722
Rize	632260	-0.205949	-1.762638	-0.038937	-0.055688	-0.013852	-0.010293	-0.005426	-2.092782	2.0927822	0.109800323
Sakarya	826886	-0.211222	-1.513405	-0.041417	-0.052871	-0.016551	-0.013848	-0.007176	-1.851074	1.8510744	0.13574679
Samsun	348776	-0.20398	-2.623245	-0.040416	-0.060466	-0.016725	-0.014888	-0.006282	-2.966003	2.966003	0.048985581
Sinop	683281	-0.215895	-2.323288	-0.040967	-0.066095	-0.016482	-0.014633	-0.007285	-2.684644	2.6846436	0.063885597
Sivas	1161207	-0.206846	-2.521315	-0.039633	-0.055144	-0.015451	-0.01368	-0.007248	-2.859317	2.8593165	0.054201717
Tekirdağ	265153	-0.2034	-1.601378	-0.043702	-0.055873	-0.00979	-0.010622	-0.006378	-1.931143	1.931143	0.126624103
Tokat	766821	-0.213526	-1.566856	-0.036373	-0.051963	-0.019099	-0.016386	-0.007161	-1.911364	1.9113638	0.128827703
Trabzon	468842	-0.228545	-2.968916	-0.04417	-0.067271	-0.021503	-0.020946	-0.010207	-3.36156	3.3615596	0.033518657
Tunceli	718738	-0.210664	-1.730896	-0.040417	-0.054612	-0.014576	-0.011712	-0.005767	-2.068644	2.0686437	0.112182034
Şanlıurfa	795849	-0.20761	-2.119257	-0.040741	-0.053675	-0.020745	-0.020744	-0.008951	-2.471722	2.4717223	0.077864472
Uşak	133584	-0.215812	-1.28096	-0.039487	-0.047466	-0.019217	-0.01884	-0.005684	-1.627466	1.6274656	0.164177826
Van	1001455	-0.220177	-1.49071	-0.030355	-0.032237	-0.009475	-0.00787	-0.003514	-1.794338	1.7943383	0.142541639
Yozgat	290398	-0.212234	-1.757654	-0.040003	-0.059776	-0.018673	-0.014843	-0.007793	-2.110974	2.1109744	0.108034371
Zonguldak, Bartın, Kara	674333	-0.217629	-1.472644	-0.031659	-0.030781	-0.00796	-0.007643	-0.003525	-1.77184	1.7718403	0.1453136
	578719	-0.208529	-1.431797	-0.040651	-0.055298	-0.014041	-0.005125	-0.004712	-1.760153	1.7601528	0.146771188
	1103750	-0.203667	-2.179876	-0.036685	-0.059488	-0.016613	-0.014075	-0.006652	-2.517056	2.517056	0.074671126

* The logit estimation for reported chronic disease are re-estimated using 'insured' instead of ES, SSK and BAGKUR separately, see Table C.36 in Appendix C for estimation. The analysis is based on 65 provinces by merging some provinces into one. For a similar application, see Filiztekin (1999). The mean values of variables are obtained using 1990 census data (SIS, 2003). The income data is taken from SIS for 1990. Average household income is calculated by multiplying per capita GDP with average household size for each province. Then household income has been converted by dividing the household income for each province to the average household income in 1990.

APPENDIX G. SIMPLE OLS ESTIMATIONS FOR CONVERGENCE ACCROSS PROVINCES FOR 1980-1990 AND 1990-2000

Model 1: OLS Estimates for Simple Convergence for 1980-1990

<i>Source</i>		<i>SS</i>		<i>df</i>		<i>MS</i>		<i>Number of obs</i>	=	65
-----+										
<i>Model</i>		.000133143		1		.000133143		<i>F(1, 63)</i>	=	0.31
<i>Residual</i>		.026794202		63		.000425305		<i>Prob > F</i>	=	0.5778
-----+										
<i>Total</i>		.026927344		64		.00042074		<i>R-squared</i>	=	0.0049
-----+										
								<i>Adj R-squared</i>	=	-0.0109
								<i>Root MSE</i>	=	.02062

<i>VApEmpl~9080</i>		<i>Coef.</i>	<i>Std.Err.</i>	<i>t</i>	<i>P> t </i>	<i>[95% Conf.Interval]</i>				
-----+										
<i>lVApEmpl~80</i>		.0038316	.0068482	0.56	0.578	-.0098534	.0175166			
<i>_cons</i>		.008348	.0041433	2.01	0.048	.0000683	.0166277			

Model 2: OLS Estimates for Conditional Convergence with Decomposed CDI for 1980-1990

<i>Source</i>		<i>SS</i>		<i>df</i>		<i>MS</i>		<i>Number of obs</i>	=	64
-----+										
<i>Model</i>		.000318922		2		.000159461		<i>F(2, 61)</i>	=	0.37
<i>Residual</i>		.026599954		61		.000436065		<i>Prob > F</i>	=	0.6952
-----+										
<i>Total</i>		.026918876		63		.000427284		<i>R-squared</i>	=	0.0118
-----+										
								<i>Adj R-squared</i>	=	-0.0206
								<i>Root MSE</i>	=	.02088

<i>VApEmpl~9080</i>		<i>Coef.</i>	<i>Std.Err.</i>	<i>t</i>	<i>P> t </i>	<i>[95% Conf.Interval]</i>				
-----+										
<i>lVApEmpl~80</i>		.0128616	.0152626	0.84	0.403	-.0176577	.043381			
<i>lnDeHindex80</i>		.0044293	.0066738	0.66	0.509	-.0089158	.0177745			
<i>_cons</i>		.0156051	.0118477	1.32	0.193	-.0080857	.039296			

Model 3: OLS Estimates for Conditional Convergence with Decomposed CDI and Regional Dummies for 1980-1990

Source	SS	df	MS			
-----+-----				Number of obs =	64	
Model	.005832016	8	.000729002	F(8, 55) =	1.90	
Residual	.02108686	55	.000383397	Prob > F =	0.0783	
-----+-----				R-squared =	0.2167	
				Adj R-squared =	0.1027	
Total	.026918876	63	.000427284	Root MSE =	.01958	

VApEmpl~9080	Coef.	Std.Err.	t	P> t	[95% Conf.Interval]	
-----+-----						
lVApEmpl~80	-.0146756	.0219651	-0.67	0.507	-.0586945	.0293434
lnDeHindex80	-.0007828	.0076111	-0.10	0.918	-.0160358	.0144703
Thrace	.0209742	.0093985	2.23	0.030	.0021391	.0398093
Agean	.0029001	.0094568	0.31	0.760	-.0160518	.021852
Mediterran~n	-.0004804	.0103575	-0.05	0.963	-.0212372	.0202765
Blacksea	-.0077872	.0081395	-0.96	0.343	-.0240991	.0085247
East	-.0148557	.0112959	-1.32	0.194	-.0374933	.0077819
Southeast	.0118124	.0101473	1.16	0.249	-.0085232	.0321479
_cons	.0146074	.0123409	1.18	0.242	-.0101244	.0393392

Model 4: OLS Estimates for Simple convergence for 1990-2000

Source	SS	df	MS			
-----+-----				Number of obs =	65	
Model	.000511531	1	.000511531	F(1, 63) =	2.28	
Residual	.014165114	63	.000224843	Prob > F =	0.1365	
-----+-----				R-squared =	0.0349	
				Adj R-squared =	0.0195	
Total	.014676645	64	.000229323	Root MSE =	.01499	

VApEmpl~2090	Coef.	Std.Err.	t	P> t	[95% Conf.Interval]	
-----+-----						
lVApEmpl~90	-.0064082	.0042486	-1.51	0.136	-.0148983	.0020818
_cons	.0104598	.0030794	3.40	0.001	.0043062	.0166134

Model 5: OLS Estimates for Conditional Convergence with Decomposed CDI for 1990-2000

Source	SS	df	MS	Number of obs = 65		
Model	.000716927	2	.000358463	F(2, 62)	=	1.59
Residual	.013959718	62	.000225157	Prob > F	=	0.2117
-----+-----				R-squared	=	0.0488
Total	.014676645	64	.000229323	Adj R-squared	=	0.0182
-----+-----				Root MSE	=	.01501

VApEmpl~2090	Coef.	Std.Err.	t	P> t	[95% Conf.Interval]	
lVApEmpl~90	-.0138852	.0089083	-1.56	0.124	-.0316927	.0039224
lnDeHindex90	-.0043495	.004554	-0.96	0.343	-.0134528	.0047537
_cons	.0031032	.0082959	0.37	0.710	-.01348	.0196864

Model 6: OLS Estimates for Conditional Convergence with Decomposed CDI and Regional Dummies for 1990-2000

Source	SS	df	MS	Number of obs = 65		
Model	.005124807	8	.000640601	F(8, 56)	=	3.76
Residual	.009551838	56	.000170569	Prob > F	=	0.0014
-----+-----				R-squared	=	0.3492
Total	.014676645	64	.000229323	Adj R-squared	=	0.2562
-----+-----				Root MSE	=	.01306

VApEmpl~2090	Coef.	Std.Err.	t	P> t	[95% Conf.Interval]	
lnVApEmpl~90	-.0305258	.0104845	-2.91	0.005	-.0515287	-.0095229
lnDeHindex90	-.0086484	.0043184	-2.00	0.050	-.0172993	2.45e-06
Thrace	.0047722	.0065158	0.73	0.467	-.0082806	.017825
Agean	.0036403	.0062435	0.58	0.562	-.0088668	.0161474
Mediterran~n	.0002739	.0067375	0.04	0.968	-.0132229	.0137706
Blacksea	.0072184	.005466	1.32	0.192	-.0037314	.0181682
East	-.0143797	.0068456	-2.10	0.040	-.0280932	-.0006663
Southeast	-.0207165	.0066982	-3.09	0.003	-.0341346	-.0072985
_cons	.0028707	.0078603	0.37	0.716	-.0128753	.0186167

REFERENCES

- Agenor, P.R. and Montiel, P.J., 1996. *Development Macroeconomics*, Princeton University Press, USA.
- Aricanlı, T. and Rodrik, D., 1990. "An Overview of Turkey's Experience with Economic Liberalization and Structural Adjustment", 118 (10), pp. 1343-1350.
- Asteriou, D. and Agiomirgianakis, G.M., 2001. "Human Capital and Economic Growth. Time Series Evidence from Greece", *Journal of Policy Modeling*, 23, 481-489.
- Atun, R. and Gurol-Urganci, I., 2005. "Health Expenditure: An 'Investment' Rather Than Cost?", The Royal Institute of International Affairs, International Economics Programme Working Paper 05/01, London.
- Barro, R.J., 1991. "Economic Growth in A Cross-Section of Countries", *Quarterly Journal of Economics*, 1062, 407-443.
- Barro, R.J., 1996. "Health and Economic Growth, Program on Public Policy and Health Division of Health and Human Development". Pan American Health Organization, Washington, DC.
- Barro, R.J., 2001. "Human Capital and Growth", *American Economic Review*, 912, 12-17.
- Barro, R.J. and Sala-i-Martin, X., 1992. "Convergence", *Journal of Political Economy*, 100, 223-251.
- Barro, R.J. and Lee, J-W., 1993. "International Comparisons of Educational Attainment", *Journal of Monetary Economics*, 32, 363-394.
- Barro, R.J. and Sala-i-Martin, X., 1995. *Economic Growth*, McGraw-Hill Inc., New York.
- Benhabib, J. and Spiegel, M.M.1994. "The Role of Human Capital in Economic Development: Evidence from Aggregate Cross-Country Data", *Journal of Monetary Economics*, 342, 143-174.
- de Beyer, J.A., Preker A.S. and Feachem R.G.A., 2000. "The Role of the World Bank in International Health: Renewed Commitment and Partnership", *Social Science and Medicine*, 50, 169-176.

- Birdsall, N. and Londono, J.L., 1997. "Asset Inequality Matters; An Assessment of the World Bank's Approach to Poverty Reduction", *American Economic Review Papers and Proceedings*, 87(2), 32-37.
- Black, Sir D., Morris, J.N., Smith, C. and Townsend, P., 1982. "Inequalities in Health, The Black Report". London, Penguin Books.
- Bloom, D., Canning, D. and Sevilla, J., 2001. "The Effect of Health on Economic Growth: Theory and Evidence", National Bureau of Economic Research, Working Paper No. 8587, Cambridge.
- Budget Implementation Directives (Medical Treatment Benefits), 2005 Fiscal Year. The Ministry of Finance, Ankara.
- Burström, B., 2002. "Increasing Inequalities in Health Care Utilization Across Income Groups in Sweden During The 1990s?", *Health Policy*, 62, 117-129.
- Carrin, G. and Politi, C., 1996. "Exploring the Health Impact of Economic Growth, Poverty Reduction and Public Health Expenditures", Technical Paper, Macroeconomics, Health and Development Series, Number 18, World Health Organisation, Geneva.
- Çeçen, A.A., Doğruel, F. and Doğruel, A.S., 2003. "Erratic Growth *Cum* Weak Human Capital in an Open Economy: An Empirical Study of Education and Development in Turkey". ERC/METU International Conference in Economics VII September 6-9, Ankara, Turkey.
- Cermeno, R., 2000. "Education, Health and Growth: Panel Regressions for Latin America, Brazil, Columbia, and Mexico in Health, Growth and Income Distribution in Latin America and the Caribbean", Research in Public Health Technical Papers, 18, Pan American Health Organization, Washington, DC.
- Cheng, B.S. and Hsu, R.C., 1997. "Human Capital and Economic Growth in Japan: An Application of Time Series Analysis", *Applied Economic Letters*, 4, 393-395.
- Cleaver, F., 2000. "Politics, Society and Financial Liberalization: Turkey in the 1990s", *Development and Change*, 31(2), 481-507.
- Corbo, V., Fischer, S. and Webb, S.B., 1992. "Adjustment Lending Revisited: Policies to Restore Growth", Washington, D.C., World Bank.
- Cornia, G.A., Jolly, R. and Stewart, F., 1987. (Eds.), *Adjustment with a Human Face. 2* Volumes. Oxford, Clarendon Press.
- Culyer, A.J., 1991. "Health, Health Expenditures and Equity, Center for Health Economics", Health Economics Consortium, University of York, Discussion Paper 83, York.

Culyer, A.J. and Wagstaff, A., 1992a. "Need, Equality and Social Justice", Center for Health Economics, Health Economics Consortium, University of York, Discussion Paper 90, York.

Culyer, A.J. and Wagstaff, A., 1992b. "Need, Equity and Equality in Health and Health Care", Center for Health Economics, Health Economics Consortium, University of York, Discussion Paper 95, York.

Cumper, G., 1986. "Health Sector Financing. Estimating Health Expenditures in Developing Countries", A Discussion Paper. London, EPC Publication No.9.

Çalışkan, Z., 2005. "The Effect of Structural Adjustment on Poverty and Health in Turkey: An Empirical Investigation" in Yfantopoulos, J.N., Papanikos, G.T. (Eds.), *Health Economics, Management and Policy*, 12-38.

Department of Health, UK, 2005. "Resource Allocation Weighted Capitation Formula", <http://www.dh.gov.uk/assetRoot/04/11/20/67/04112067.pdf>, (accessed 15.01.2007)

Devlet Planlama Teşkilatı (DPT), 1996. "İllerin Sosyo-Ekonomik Gelişmişlik Sıralaması, 1996". <http://ekutup.dpt.gov.tr/bolgesel/dincerb/il> (accessed 27.12.2006)

Devlet Planlama Teşkilatı (DPT), 2005. "Dokuzuncu Kalkınma Planı Sağlık Özel İhtisas Komisyonu Raporu", Ankara.

Doğruel, F. and Doğruel, A.S., 2003. "Türkiye'de Bölgesel Gelir Farklılıkları ve Büyüme" in Köse, A.H., Şenses F. and Yeldan, E. (Eds.), *Küresel Düzen, Birikim, Devlet ve Sınıflar – Korkut Boratav'a Armağan*, İletişim Yayınları, İstanbul, 287-318.

Dolan, P, 2004. "Output Measures and Valuation in Health," in Drummond, M. and McGuire, A. (Eds.) *Economic Evaluation in Health Care, Merging Theory with Practice*, Oxford University Press, Oxford.

Donaldson, C., and Gerard, K., 1994. *Economics of Health Care Financing: The Visible Hand*, London, Mac Millan.

Ehrlich, I., 1990. "The Problem of Development", *Journal of Political Economy*, 98 (5), pt.2, S1-S11.

Ekinci, Nazim.K., 2000. "The IMF and Reforming the Public Sector in Turkey". ERC Working Papers in Economics, No.00/04, METU Economic Research Center, Ankara.

Emil, F. and Yılmaz, H.H., 2003. "Kamu Borçlanması, İstikrar Programları ve Uygulanan Maliye Politikalarının Kalitesi: Genel Sorunlar ve Türkiye Üzerine Gözlemler", ERC Working Papers in Economics 03/07, Middle East Technical University, Ankara.

EuroQol Group, www.euroqol.org. (accessed in 20.12.2006)

- Evans, R. and Stoddart, G., 1990. "Producing Health, Consuming Health Care", *Social Science and Medicine*, 31, 1347-1363.
- Falkingham, J., 2003. "Poverty, Out-of-Pocket Payments And Access to Health Care: Evidence from Tajikistan", *Social Science and Medicine*, 58, Iss.2, 247-258.
- Filiztekin, A., 1999. "Convergence Across Turkish Provinces and Sectoral Dynamics". Background Paper for Turkey: Economic Reforms, Living Standards and Social Welfare Study; World Bank Report, Poverty Reduction and Economic Management Unit.
- Filiztekin, A., 2004. "Bölgesel Büyüme, Eş-hareketlilik ve Sektörel Yapı", Türkiye Ekonomi Kurumu Bölgesel Gelişme Sempozyumu Bildirileri.
- Gilson, L., 1988. "Government Health Care Charges: Is Equity Being Abandoned?" A Discussion Paper. London, EPC Publication.
- Gilson, L. and Mills, A., 1995. "Health Sector Reform in Sub-Saharan Africa: Lessons of The Last Ten Years", *Health Policy*, 32, 215-243.
- Govindaraj, J., Ganandaraj, C. and Murray, C.J.L., 1997. "Health Expenditures in Latin America and the Caribbean", *Social Science and Medicine*, 44(2), 157-169.
- Grossman, M., 1975. "The Correlation Between Health and Schooling" in Terleckyj, N.E. (Ed.) *Household Production and Consumption*. National Bureau of Economic Research, Columbia University Press, New York.
- Grossmann, G.M.S., Helpman, E., 1994. "Endogenous Innovation in the Theory of Growth", *Journal of Economic Perspectives*, 8(1), 23-44.
- Gunatilleke, G., 1995. "Poverty and Health in Developing Countries, and The Potential Role of Technical Co-operation Among Developing Countries (TCDC) for The Poverty Alleviation and Health Development". Technical Paper, Macroeconomics, Health and Development Series, Number 16, World Health Organization, Geneva.
- Güngör, N.D., 1997. "Education and Economic Growth in Turkey 1980-1990: A Panel Study", *METU Studies in Development*, 24(2), 185-214.
- Handa, S. and King, D., 1997. "SAP, Income Distribution and Poverty; A Review of the Jamaican Experience", *World Development*, 25(6), 915-930.
- Handa, S. and King, D., 2003. "Adjustment with a Human Face? Evidence from Jamaica", *World Development*, 31(7), 1125-1145.
- Heller, P., 1982. "A Model of the Demand for Medical and Health Services in Peninsular Malaysia", *Social Science and Medicine*, 16, 267-284.
- Hoare, G. and Mills, A., 1986. "Paying for the Health Sector". London, EPC Publication No:12, London.

- Huber, M. and Orosz, E., 2003. "Health Expenditure Trends in OECD Countries, 1990-2001". *Health Care Financing Review*, 25 (1), 11-22.
- Huddle, D.L., 1997. "Review Article: Post-1982 Effects of Neoliberalism on Latin American Development and Poverty; Two Conflicting Views", *Economic Development and Cultural Change*, 881-897.
- Jowett, M., Deolalikar A. and Martinsson, P., 2004. "Health Insurance and Treatment Seeking Behaviour: Evidence From a Low-Income Country," *Health Economics*, 13, 945-857.
- Kanji, N., Kanji, N. And Manji, F., 1991. "From Development to Sustained Crisis: Structural Adjustment, Equity and Health", *Social Science and Medicine*, 33(9), 985-993.
- Karacık, A. ve Atlı, H (2006). "Sağlık Sigortaları"
http://www.sabem.saglik.gov.tr/Akademik_Metinler/goto.aspx?id=2268 , accessed 18.01.2007
- Kenkel, D., S., 1991. "Health Behavior, Health Knowledge and Schooling". *Journal of Political Economy*, 99(2), 287-305.
- Keskimäki, I., Salinto, M. and Aro, S., 1995. "Socioeconomic Equity in Finnish Hospital Care in Relation to Need", *Social Science and Medicine*, 41(3), 425-431.
- Keskimäki, I., 2003. "How Did Finland's Economic Recession in The Early 1990s Affect Socio-Economic Equity in The Use of Hospital Care?" *Social Science and Medicine*, 56, 1517-1530.
- Kickbusch, I., 2000. "The Development of International Health Policies-Accountability Intact?" *Social Science and Medicine*, 51, 979-989.
- Klein, R., 1988. "Acceptable Inequalities", in Green, D.G. (Eds.). *Acceptable Inequalities? Essays on the Pursuit of Equality in Health Care*. London, Goron Pro-Print Co. Ltd. Churchill Industrial Estate, Lancing, West Sussex, The IEA Health Unit.
- Knowles, S. and Owen, P.D.1995. "Health Capital and Cross-Country Variation in Income Per Capita in the Mankiw-Romer-Weil Model", *Economic Letters*, 48, 99-106.
- Knowles, S. and Owen, P.D., 1997. "Education and Health in an Effective-Labor Empirical Growth Model", *The Economic Record*, 73 (223), 314-328.
- Kurian, N.J., 1989. "Anti-Poverty Programme: A Reappraisal", *Economic and Political Weekly*, Vol, 24, No.12, pp. A13-A24.
- Labonte, R. and Schrecker, T., 2004. "Committed to Health for All? How the G7/G8 Rate", *Social Science and Medicine*, 59, 1661-1676.

- Le Grand, J., 1987. "Three Essays on Equity". Discussion Paper no.23 Welfare State Program Suntory Toyota International Center for Economics and Related Disciplines, Number WSP/23, London.
- Le Grand, J., 1991. *Equity and Choice: An Economics and Applied Philosophy*. London, Harper Collins Academic.
- Liaropoulos, L. and Tragakes, E., 1998. "Public/Private Financing in the Greek Health Care System: Implications for Equity", *Health Policy*, 43, 153-169.
- Lipton, M., 1997. "Editorial: Are There Holes in the Consensus?", *World Development*, Vol.25, No.7, pp.1003-1007.
- Liu, Y., Hsiao and W.C., Eggleston, K., 1999. "Equity in Health and Health Care: The Chinese Experience", *Social Science and Medicine*, 49, 1349-1356.
- Litvack, J. and Bodart, C., 1993. "User Fees Plus Quality Equals Improved Access to Health Care: Results of a Field Experiment in Cameroon", *Social Science and Medicine*, 37(3), 369-383.
- Lucas, R.E.Jr., 1988. "On the Mechanics of Economic Development", *Journal of Monetary Economics*, 22(1), 3-42.
- Mankiw, N.G., Romer, D. and Weil, D.N., 1992. "A Contribution to the Empirics of Economic Growth", *Quarterly Journal of Economics*, 107, 407-438.
- Maral, I., Aycan, S., Saraç, A., and Bumin, M.A., 1996. "Yeşil Kart Alan Kişilerin Bazı Özellikleri ve Yeşil Kart Kullanımı", *Toplum ve Hekim*, 11 (71), 15-19.
- Maynard, A., 1979. "Pricing, Demanders, and The Supply of Health Care", *International Journal of Health Services*, 9(1), 121-133.
- McCallum, A., Brommels, M., Robinson, R., Bergman, S.-E. and Palu, T., 2005. "The impact of primary care purchasing in Europe: A comparative Case Study of Primary Care Reform in Primary Care in Driver's Seat?" in Saltman, R.B, Rico, A. and Boerma, W. (Eds.), *Organizational Reform in European Primary Care*.
- McDonald, S. and Roberts, J., 2002. "Growth and Multiple Forms of Human Capital in an Augmented Solow Model: A Panel Data Investigation", *Economic Letters*, 74, 271-276.
- McGuire, A., Henderson, J. and Mooney, G., 1992. *The Economics of Health Care, An Introductory Text*. London, Routledge & Kegan Paul.
- McPake, B., 1993. "User Charges for Health Services in Developing Countries: A Review of the Economic Literature", *Social Science and Medicine*, 361(1), 1397-1405.

- Mesa-Lago, C., 1997. "Social Welfare Reform in the Context of Economic-Political Liberalization: Latin American Cases", *World Development*, 25(4), 497-517.
- Mills, A. and Gilson, L., 1988. *Health Economics for Developing Countries: A Survival Kit*. London, EPC Publication No 17.
- Ministry of Health (MoH), 1992. *2001 Preparing for the Third Millennium, Health Reform*, Health Project Coordination Unit, Ankara, Turkey.
- Ministry of Health (MoH), 1993. *2001 Preparing for the Third Millennium, National Health Policy of Turkey*, Health Project Coordination Unit, Ankara, Turkey.
- Ministry of Health, (MoH), 1995. *Health Services Utilization Survey in Turkey*, Health Project Coordination Unit, Ankara.
- Ministry of Health (MoH), 1997. *Health Sector Reforms in Turkey*, Health Project Coordination Unit, Ankara.
- Ministry of Health, 2004a. *Health Statistics 2003*. The Ministry of Health, Research Planning and Coordination Council, Publication No.677, Ankara.
- Ministry of Health (MoH), 2004b. *Turkey Health Report*. Ankara.
- Ministry of Health, 2006. *Turkey National Health Accounts Household Health Expenditures 2002-2003*. Refik Saydam Hygiene Center, School of Public Health, Ankara.
- Ministry of Health and Başkent University, 2004. *National Burden of Disease and Cost Effectiveness Project Burden of Disease Report*, Refik Saydam Hifzıssıha Merkezi Başkanlığı, www.gm.saglik.gov.tr/burdenofdisease
- Ministry of Health and Hacettepe University (HU) Institute of Population Studies (2003). "Turkish Demographic and Health Survey"
<http://www.hips.hacettepe.edu.tr/tnsa2003eng/reports.htm>
- Montoya-Aguilar, C. and Marchant-Cavieres, L., 1994. "The Effect of Economic Changes on Health Care and health in Chile", *International Journal of Health Planning and Management*, 9, 279-294.
- Mooney, G., 1983. "Equity in Health Care: Confronting the Confusion", *Effective Health Care*, Vol.1, No.4, 179-184.
- Mooney, G., 1987. "What Does Equity in Health Mean?", *World Health Statistics Quarterly*, 40, 296-303.
- Mooney, G., 1992. *Economics, Medicine and Health Care*, Second Edition, Harvester Wheatsheaf, Great Britain.

- Mooney, G. and Olsen, J.A., 1991. "QALYs: Where Next?" in McGuire, A., Fenn, P and Mayhew, K., (Eds.) *Providing Health Care: The Economics of Alternative Systems of Finance and Delivery*, Oxford University Press, Oxford.
- Mora, H. and Barona, A.B., 2000. "Health in the Economic Growth of Latin America in Health, Growth and Income Distribution in Latin America and the Caribbean". Research in Public Health Technical Papers, 18, Pan American Health Organization, Washington, DC.
- Murray, C.J.L., Govindaraj, R. and Musgrove, P., 1994. "National Health Expenditures: A Global Analysis, in Global Comparative Assessments" in Murray, J.J.L., Lopez, D.D.(Eds.), *The Health Sector, Disease Burden, Expenditures and Intervention Packages*, WHO, Geneva, 141-155.
- Murthy, N.R. and Chien, I.S., 1997. "The Empirics of Economic Growth for OECD Countries: Some New Findings", *Economic Letters*, 55, 425-429.
- Murthy, N.R. and Ukpolo, V. 1999. "A Test of Conditional Convergence Hypothesis: Econometric Evidence from African Countries", *Economic Letters*, 65, 249-253.
- Musgrove, P., 1986. "Measurement of Equity in Health", *World Health Statistics Quarterly*, 39, 325-335.
- Musgrove, P., 1987. "The Economic Crisis and Its Impact on Health and Health Care in Latin America and The Caribbean", *International Journal of Health Services*, 17 (3), 411-441.
- Mushkin, S.J., 1958. "Towards a Definition of Health Economics", *Public Health Reports*, 72, 785-793.
- Mushkin, S.J., 1962. "Health as an Investment", *Journal of Political Economy*, 70, 129-157.
- OECD Health Data 2006.
- Ökem, Z.G., 1996. Sağlık Hizmetlerinde Hakkaniyet Analizi. Toplum ve Hekim, 11(72), 67-72.
- Ökem, Z.G. and Özgülbaş, N., 2002. "Poverty Alleviation in Healthcare: The Green Card in Turkey", Global Engagement in Creating Financially Viable Healthcare Systems. Second International Healthcare Conference, Proceedings, Ankara.
- Özötün, E., 1988. *Türkiye Gayri Safi Yurtiçi Hasılasının İller İtibariyle Dağılımı 1979-1986*, Publication No. 1988/8, İstanbul Chamber of Industry Research Department, İstanbul.
- Pannarunothai, S. and Mills, A., 1997. "The Poor Pay More: Health-Related Inequality in Thailand", *Social Science and Medicine*, 44(12), 1781-1790.

- Peabody, J.W., 1996. "Economic Reform and Health Sector Policy: Lessons from Structural Adjustment Programs", *Social Science and Medicine*, 43(5), 823-832.
- Pereira, J., 1993. "What Does Equity in Health Mean?", *Journal of Social Policy*, 221, 19-48.
- Pfeffermann, P., 1991. "Poverty Alleviation" in Meier, G.M. (Ed.), *Politics and Policy Making in Developing Countries: Perspectives on the New Political Economy*, An International Center for Economic Growth Publication, USA.
- Ranis, G., Stewart, F. and Ramirez, A., 2000. "Economic Growth and Human Development", *World Development*, Vol.28, No.2, pp.197-219.
- Rapley, J., 1996. *Understanding Development, Theory and Practice in the Third World*, Lynne Rienner Publishers, Inc., the United States of America.
- Rebelo, S., 1991. "Long-Run Policy Analysis and Long-Run Growth", *Journal of Political Economy*, 99, 500-521.
- Romer, P.M., 1986. "Increasing Returns and Long-Run Growth", *Journal of Political Economy*, 94, 1002-1036.
- Romer, P.M., 1990a. "Endogenous Technological Change", *Journal of Political Economy*, 98 (5) pt.2, S71-S101.
- Romer, P.M., 1990b. "Human Capital and Growth: Theory and Evidence", *Carnegie Rochester Conference Series on Public Policy*, 32, 251-286.
- Russell, S., 1996. "Ability to Pay for Health Care: Concepts and Evidence", *Health Policy and Planning*, 11(3): 219-237.
- Sahn D. and Bernier, R., 1995. "Has Structural Adjustment Led to the Health Sector Reform in Africa?", *Health Policy*, 32, 193-214.
- Saltman, R et al. (eds)., 2004. *Social Health Insurance Systems in Western Europe*. OUP; <http://www.euro.who.int/observatory>
- Santana, P., 2002. "Poverty, Social Exclusion and Health in Portugal", *Social Science and Medicine*, 55, 33-45.
- Savaş, B.S., Karahan, Ö. and Saka, Ö., 2002. "Health Care Systems in Transition: Turkey", in Thompson, S., Mossialos, E. (Eds.). *European Observatory on Health Care Systems*, 4(4), Copenhagen.
- Schmitz, J.A., 1993. "Early Progress on the Problem of Economic Development", *Federal Reserve Bank of Minneapolis Quarterly Review*, Spring, 17-35.

- Schultz, T.W., 1961. "Investment in Human Capital", *American Economic Review*, 51, 1-17.
- Self, S. and Grabowski, R., 2003. "How Effective is Public Health Expenditure in Improving Overall Health? A Cross-country Analysis", *Applied Economics*, 35, 835-845.
- Sepehri, A. and Chernoma, R., 2001. "Are User Charges Efficiency- and Equity-Enhancing? A Critical Review of Economic Literature with Particular Reference to Experience from Developing Countries", *Journal of International Development*, 13, 183-209.
- Soral, B., 2003. "TUSIAD Dikkatleri Ücrete Çekiyor", *Aydınlık Haftalık Haber-Yorum Dergisi*, 819, 30-31.
- Soyer, A., 2000. "1980 Sonrası Sağlıkta Neler Oldu?", *Toplum ve Hekim*, Cilt 15(4), 259-264.
- State Institute of Statistics (SIS), 2003. "Statistical Indicators 1923-2002", Ankara.
- State Institute of Statistics (SIS), 2004. "Türkiye İstatistik Yıllığı 2004", Ankara.
- State Planning Organization (SPO), 2005. "Economic and Social Indicators 1950-2004", Ankara.
- Summers, L.H. and Pritchett L.H., 1993. "The Structural Adjustment Debate", *The American Economic Review*, 83, 2, 383-389.
- Sundberg, G., 1996. "Essays on Health Economics". Department of Economics, Uppsala University, Uppsala.
- Sutton, M. and Lock, P., 2000. "Regional Differences in Health Care Delivery: Implications for a National Resource Allocation Formula", *Health Economics*, 9, 547-559.
- Syquire, L., 1993. "Economic Development; Recent Lessons: Fighting Poverty", *American Economic Review, Papers and Proceedings*, Vol.83, No.2, pp.377-382.
- Tallman, E.W. and Wang, Pi. 1994. "Human Capital and Endogenous Growth, Evidence From Taiwan", *Journal of Monetary Economics*, 34, 101-124.
- Tansel, A. and Güngör, N.D., 1998. "Economic Growth and Convergence: An Application to the Provinces of Turkey, 1975-1995". METU Economic Research Center, ERC working paper no.98/9.
- T.C. Başbakanlık, 2005. "Sosyal Güvenlik Reformu: Sorunlar ve Çözüm Önerileri", Kamu Yönetiminde Yeniden Yapılanma: 9, Ankara.
- T.C.Sağlık Bakanlığı Sağlık Bakanlığı (TCSB), 1996. *Yataklı Tedavi Kurumları İstatistik Yıllığı, 1995*. Tedavi Hizmetleri Genel Müdürlüğü, Yayın No.580, Ankara.

- T.C.Sağlık Bakanlığı (TCSB), 1997. *Türkiye Sağlık Harcamaları ve Finansmanı, 1992-1996*, Sağlık Projesi Genel Koordinatörlüğü, Ankara.
- T.C.Sağlık Bakanlığı (TCSB), 1998. *Türkiye Sağlık Harcamaları ve Finansmanı, 1997*, Sağlık Projesi Genel Koordinatörlüğü, Ankara.
- T.C.Sağlık Bakanlığı (TCSB), 1999. *Türkiye Sağlık Harcamaları ve Finansmanı, 1998*, Sağlık Projesi Genel Koordinatörlüğü, Ankara.
- T.C.Sağlık Bakanlığı (TCSB), 2004. *Türkiye Ulusal Sağlık Hesapları 1999-2000*. Refik Saydam Hıfzıssıha Merkezi Başkanlığı, Ankara.
- T.C.Sağlık Bakanlığı (TCSB), 2006. *Sağlıkta Performans Yönetimi, Performansa Dayalı Ek Ödeme Sistemi*. Ankara.
- TEPAV/EPRI Economic Policy Research Institute, 2005. "Mali İzleme Raporu Aralık 2005. Kasım Bütçe Sonuçları, Ek Analiz Sağlık Harcamalarında Neler Oluyor?" www.tepav.org.tr (accessed 10.12.2006).
- Türel, O., 1999. "Restructuring The Public Sector in Post-1980 Turkey: An Assessment", ERC Working Papers In Economics, No.99/6, METU Economic Research Center, Ankara.
- Türkiye İstatistik Kurumu (TUIK), Household Laborforce Survey, 2005 <http://www.die.gov.tr/TURKISH/SONIST/ISGUCU/istgucu.html> (accessed 13.01.2007)
- Türkiye İstatistik Kurumu (TUIK), İstatistiksel Tablolar, Kurumsal Olmayan Sivil Nüfusun Yıllar Ve Cinsiyete göre İşgücü Durumu, Türkiye . http://www.tuik.gov.tr/PreIstatistikTablo.do?istab_id=446 (accessed 17.01.2007).
- van der Gaag, J. and Barham, T., 1998. "Health and Health Expenditures in Adjusting and Nonadjusting Countries", *Social Science and Medicine*, 46 (8), 995-1009.
- van Doorslaer, E., Wagstaff, A. and Rutten, F., 1993. *Equity in the Finance and Delivery of Health Care*. Oxford, Oxford University Press.
- van Doorslaer, E., Wagstaff A and van der Burg, H.et al., 1999. "Redistributive Effect of Health Care Finance in Twelve OECD Countries", *Journal of Health Economics*, 18, 291-313.
- van Zon, A. and Muysken, J., 1997. "Health, Education and Endogenous Growth", MERIT, Working Paper No:2/97-009, Maastricht, The Netherlands.
- van Zon, A. and Muysken, J., 2001. "Health and Endogenous Growth", *Journal of Health Economics*, 20, 169-185.
- Verspagen, B., 1992. "Endogenous Innovation in Neo-Classical Growth Models: A Survey", *Journal of Macroeconomics*, 14 (4), 631-662.

- Wagstaff, A., 1986. "The Demand for Health. Some New Empirical Evidence", *Journal of Health Economics*, 5, 195-233.
- Wagstaff, A. and van Doorslaer, E., 1993. "Equity in The Finance and Delivery of Health Care: Concepts and Definitions", in Van Doorslaer, E., Wagstaff, A and Rutten, F., (Eds.) *Equity in the Finance and Delivery of Health Care*, Oxford University Press, Oxford.
- Wagstaff, A., van Doorslaer, E. and van der Burg, H. et al., 1999. "Equity in the Finance of Health Care: Some Further International Comparisons", *Journal of Health Economics*, 18, 263-290.
- Wagstaff, A., Van D., Eddy and Pigliaru, P., 1991. "Equity in the Finance and Delivery of Health Care: Some Tentative Cross-Country Comparisons" in McGuire, A., Fenn, P., Mayhew, K. (Eds.) *Providing Health Care: the Economics of Alternative Systems of Finance and Delivery*, Oxford, Oxford University Press.
- Waters, H.G., 2000. "Measuring Equity in Access to Health Care", *Social Science and Medicine*, 51, 599-612.
- Webber, D.J., 2002. "Policies to Stimulate Growth: Should We invest in Health or Education?" *Applied Economics*, 34, 1633-1643.
- Whitehead, M., 1992. "The Concepts and Principles of Equity and Health", *International Journal of Health Services*, 22, (3), 429-445.
- WHO Taskforce on Research Priorities for Equity in Health, WHO Equity Team, 2005. "Priorities for Research to Take Forward The Health Equity Policy Agenda", *Bulletin of the World Health Organization*, 83(12), 948-953.
- Williams, A. 1986. "Health Economics: The Cheerful Face of the Dismal Science?" in Willimas, A. (Ed.) *Health and Economics*. Proceedings of Section F (Economics) of the British Association for the Advancement of Social Science, Bristol.
- World Bank, 1990. *World Development Report 1990 Poverty*, Oxford, Oxford University Press.
- World Bank 1992. *Adjustment Lending Revisited*.
- World Bank, 1993. *World Development Report 1993 Investing in Health*, Oxford, Oxford University Press.
- World Bank, 2003. "Turkey Reforming The Health Sector for Improved Access and Efficiency Volume I and II: Background Papers", Report No: 24358-TU.
- Yetkiner, I.H. 2002. "Health and Growth: Understanding The Importance of Health in Economic Growth", unpublished PhD Thesis, Middle East Technical University, Ankara.

Yılmaz, B.E. and Susam, N., 2001. “Türkiye’de Kamu Harcamalarının GSMH İçindeki Payının Analizi ve Ülkeler Arası Karşılaştırma”, XVI.Türkiye Maliye Sempozyumu, 28-31 Mayıs 2001, Antalya.

Zamora, J.A.C., 2000.” Investment in Health and Economic Growth: a Perspective from Latin America and the Caribbean”, XXXV Meeting of the Advisory Committee on Health Research, Havana, Cuba, 17-19 July 2000.

Zschock, D.K., 1979. “Health Care Financing in Developing Countries”, Washington, American Public Health Association International Health Programs Monograph Series No.1.