www.turkishstudies.net/economy

Turkish Studies - Economics, Finance, Politics

eISSN: 2667-5625

Research Article / Araştırma Makalesi

INTERNATIONAL
BALKAN
UNIVERSITY
Sponsored by IBU

Analysis of the Equity of Health Care Financing System in Turkey

Türkiye’de Sağlık Bakım Finans Sisteminin Hakkaniyetinin İncelenmesi

Neslihan Turguttopbaş*

Abstract: Universal Health Coverage (UHC) mainly aims to build a health system that health care is provided to everyone when they need without creating financial burden personally. In this study firstly the theoretical framework about equity in a health finance system is elaborated. In order to measure the equity in the finance of health care and to discuss the consequences of the reforms, Turkish case is used by comparing the relevant data for 2010 and 2016. In the period of concern, several measures taken in order to improve Turkish health system, and the period of 6 years is determined to be long enough to capture the achievements. The literature on the measurement of equity in health finance has been built especially by focusing on the inequality measurement. In order to assess the equity, generally Kakwani index (K) is used which incorporates the findings of both gini coefficient and concentration index. In this framework, Kakwani indexes are calculated for 2010 and 2016 by using Turkish data. It is determined that out-of-pocket payments are regressive which mean that the share of health care payments contributed by the poor is more than their share of ability to pay. However, the degree of regressivity has been reduced in 2016 as compared to 2010, as Kakwani index increased to -0,1209 from -0,1400. The results indicate that despite the deterioration in income distribution, the equity in health finance increased in Turkey during the period 2010-2016 by the reforms undertaken.

Structured Abstract: Universal Health Coverage (UHC) aims to build a health system that health care are given to everyone when they need without creating financial burden personally. It includes the full spectrum of essential, quality health services, from health promotion to prevention, treatment, rehabilitation, and palliative care. Health financing systems are designed in the light of health policy of a country to meet the goals of UHC. These financing of health care can be realized through the means of revenue raising, pooling of funds, purchasing of services and benefit package design.

In this study the conceptual aim is to provide insight about the equity in health system finance by giving experience of Turkey. It is a fact that the universal health cover is a common target for many of the countries which have divergent peculiarities in terms of many factors, including but not limited to income level, population, as well as health and also health finance system structure. The relevant research analyzing equity in health finance generally report about individual countries, and sometimes cross country comparisons are made, mainly by analyzing the developed countries. While developed countries are generally represented by stationary and aging population, high life time expectancy, high per capita income, settled health finance system; the developing countries, on the other hand, have differing characteristics referring to their peculiarities in terms of population and income level, as well as the development stage of their health system. This study

* Doç. Dr., Atılım Üniversitesi, İşletme Fakültesi, Uluslararası Ticaret ve Lojistik Bölümü
Assoc. Prof, Atılım University, Management Faculty, International Trade and Logistics
ORCID 0000-0002-5491-8074

ntopbas@atilim.edu.tr

Cite as/ Atıf: Turguttopbaş, N. (2020). Analysis of the equity of health care financing system in Turkey. *Turkish Studies - Economy*, 15(3), 1639-1653. <https://dx.doi.org/10.47644/TurkishStudies.42036>

Received/Geliş: 06 March/Mart 2020

Accepted/Kabul: 20 September/Eylül 2020

Copyright © INTAC LTD, Turkey

Checked by plagiarism software

Published/Yayın: 25 September/Eylül 2020

CC BY-NC 4.0

will contribute to the literature by providing a developing country evaluation on equity in health finance. The equity in health finance is generally evaluated on the basis of progressivity concept. The progressivity of health care financing measures whether health care payments account for an increasing proportion of ability to pay (ATP).

On the financing side, health care systems are designed to collect enough revenue from different kinds of sources to finance health expenditures. The revenue sources can be in the form of general governmental budget pooling which includes direct and/or indirect taxes, social insurance contributions, out-of-pocket payments and even grants or donations. It is accepted that to ensure equity in a health system under the mission of UHC, requires that the governments provide health service to all who needs but the contributions of the individuals for health care financing should depend on their ability to pay. The literature on the measurement of equity in health finance has been built especially by focusing on the inequality measurement. The main measurement means are the Gini coefficient for the measurement of the inequality in mortality developed by Le Grand (1989) and Le Grand and Rabin (1986) and concentration index proposed by Wagstaff et al. (1989) for the measurement of relative socioeconomic inequality in health and health care. Kakwani progressivity index of Wagstaff and van Doorslaer (2000) and Kakwani (1977) has widespread application by many analysts elaborating the progressivity of the health systems in many countries.

The Kakwani index (K) which incorporates the findings of both gini coefficient and concentration index is based on the difference between the Lorenz and concentration curves and can be calculated as follows:

$$K = C - G$$

where C corresponds to the concentration index of the contributions to healthcare financing and G to the Gini coefficient for income (before contributions). The Kakwani index is calculated in between -2 and 1. The positive values means the concentration curve lies below the Lorenz curve and the system is progressive. In a purely proportional system, both curves overlap and the index is equal to zero. Negative values indicate that the concentration curve lies above the Lorenz curve and therefore the financing system can be regarded as regressive.

In this framework, Kakwani indexes are calculated for 2010 and 2016 by using Turkish data. It is determined that out-of-pocket payments are regressive which mean that the share of health care payments contributed by the poor is more than their share of ability to pay. However, the degree of regressivity has been reduced in 2016 as compared to 2010, as Kakwani index increased to -0,1209 from -0,1400. The results indicate that despite the deterioration in income distribution, the equity in health finance increased in Turkey during the period 2010-2016 by the reforms undertaken.

Keywords: Health care, health care finance, equity

Öz: Evrensel Sağlık İçeriği temel olarak tüm bireylerin kişisel olarak finansal sıkıntı yaşamadan ihtiyaç duydukları sağlık hizmetlerine ulaşmaları hedeflemektedir. Bu çalışmada ilk olarak bir sağlık finansmanı sisteminin hakkaniyetine ilişkin teorik yapı incelenmiştir. Sağlık hizmetlerinin finansmanındaki hakkaniyetin ölçülmesi ve reformların etkisinin değerlendirilmesi amacıyla Türkiye bir vaka olarak kullanılmıştır. Bu amaçla 2010 ve 2016 yıllarındaki verileri karşılaştırılmıştır. Söz konusu dönemde, Türk sağlık sistemini iyileştirmek amacıyla birçok düzenleme gerçekleştirilmiş olup, 6 yıllık dönem bu düzenlemelerin etkisinin belirlenmesine yönelik olarak yeterli bir zaman dilimi olarak değerlendirilmiştir. Sağlık finansmanının hakkaniyetinin ölçümüne ilişkin literatür özellikle eşitsizliğin ölçümüne yönelik olarak Yapılan çalışmalardan oluşmaktadır. Hakkaniyet derecesini ölçmek amacıyla genellikle Kakwani endeksi (K) kullanılmaktadır. Bu endeks gini katsayısı ve konsantrasyon endeksinin içerdiği bilgileri kullanılmaktadır. Bu çalışmada da Türkiye verileri kullanılarak 2010 ve 2016 yılları için Kakwani endeksleri hesaplanmıştır. Hasta tarafından yapılan ödemelerin azaltıcı nitelikte olduğu belirlenmiştir. Böylelikle, düşük gelir grubunun sağlık hizmeti ödemelerinin ödeme güçlerinin üstünde olduğu tespit edilmiştir. Ancak, Kakwani endeksinin -0,14'den -0,1209'a düşmesi, bu azalmanın 2016 yılında 2010 yılına göre gerilediğini ortaya koymaktadır. Bu durum, gelir dağılımındaki bozulmalara rağmen 2010- 2016 döneminde uygulanan yenilikçi politikaların sağlık harcamalarının hakkaniyetini artırdığını göstermektedir.

Anahtar Kelimeler: Sağlık harcamaları, sağlık harcamalarının finansmanı, eşitlik

1. Introduction

Universal Health Coverage (UHC) aims to build a health system that health care are given to everyone when they need without creating financial burden personally.¹ It includes the full spectrum of essential, quality health services, from health promotion to prevention, treatment, rehabilitation, and palliative care². Health financing systems are designed in the light of health policy of a country to meet the goals of UHC. These financing of health care can be realized through the means of revenue raising, pooling of funds, purchasing of services and benefit package design. In this framework, the cross country analysis performed by WHO revealed the following determinations³:

- In order to improve the health system governance, national health planning and monitoring are critical,
- The share of the state in the financing of health care is associated with better coverage of health services but this does not ensure efficiency of the system as whole,
- More health workers contribute to a higher level of essential health service coverage, but not necessarily mean more equitable in excess to health services,
- More domestic government health expenditure is associated with less reliance on out-of-pocket spending

Although each country has been implementing different strategies, the achievement of UHC is a socio-economical goal for nearly all and it can be achieved either through the extension of social insurance or government provision to the whole population. The rising costs of health care together with the demands of the population create motivation for reform that has common features as summarized below (Guinness and Wiseman, 2011, p. 142):

- The separation of the responsibilities of the health service providers and users,
- Improvement of the role and responsibility of the state in health care,
- Rephrasing the role and responsibility of the private sector in health care,
- Optimizing the level of competition between health service providers,
- Creating new finance schemes for health care

The demographic changes, including not only the absolute population growth, but also the relative changes within the population affect health care indicators. Additionally, economic considerations, including but not limited to economic growth resulting employment and income level, affect the expenditure types and level and also financing strategies towards UHC. The Figure 1 shows the Current Health Expenditure (CHE) as percentage Gross Domestic Product (GDP) and also CHE as per capita \$ income as of 2015 for the countries selected by the comparable population. The difference between developed and developing countries can be seen clearly from the graph, especially referring to the indicator of CHE per capita income in \$. While the ratio is highest in Germany, UK and Canada, it is lowest in Turkey, Iran and South Africa. The same positioning confirmed by the other indicator of CHE as % Gross Domestic Product.

¹[http://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-\(uhc\)](http://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc))

² [http://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-\(uhc\)](http://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc))

³ http://www.who.int/universal_health_coverage/plan_action-hsgov_uhc.pdf

Referring to the forum paper submitted in the “Third Annual UHC Financing Forum: Greater Equity for Better Health and Financial Protection” dated April 19–20, 2018, it is revealed that achieving UHC is a goal of complete coverage of high quality services that are accessible and affordable for all. Although some wealthy countries come close with relatively large guaranteed coverage packages that include a broad range of health services available for low or no out-of-pocket payments, for many countries, UHC is in the distant future. One of the agreed points is that policy-makers must raise the financing in a way that removes the financial burden for people who are unable to pay.

The budgetary pressures and political climate changes in many countries have resulted with the health sector and governments seeking out alternative ways of mobilizing resources, either on macro or micro level. While micro-level changes do not affect the basic method of funding such as the introduction of co-payments, the macro-level changes involve a change in the basic principle of funding. The recent examples to this are the moves in Italy and Spain from social insurance towards a system mainly based on taxation or the development of the tax-based universal health coverage system in Thailand (Guinness and Gruen, 2011). The Figure – 2 shows the financing schemes of the selected countries in 2015, which differs each other considerably. Taken population constant, regardless of the economical development level each country has its unique health financing scheme. While in some countries such as UK, Canada and Italy, governmental financing arrangements dominates, in others such as France and South Africa voluntary health insurance leads the other methods of financings.

In this study the conceptual aim is to provide insight about the equity in health system finance by giving experience of Turkey. It is a fact that the universal health cover is a common target for many of the countries which have divergent peculiarities in terms of many factors, including but not limited to income level, population, as well as health and also health finance system structure. The relevant research analyzing equity in health finance generally report about individual countries, and sometimes cross country comparisons are made, mainly by analyzing the developed countries. While developed countries are generally represented by stationary and aging population, high life time expectancy, high per capita income, settled health finance system; the developing countries, on the other hand, have differing characteristics referring to their peculiarities in terms of population and income level, as well as the development stage of their health system. This study will contribute to the literature by providing a developing country evaluation on equity in health finance.

In this framework, in the first section a theoretical framework for elaborating on the equity in a health finance system will be provided. The prior research in relation with the equity in health finance in Turkey is also summarized. In the second section Turkish health system, especially the achievement in the period 2006-2016, is evaluated. In the following section, the theoretical framework of World Bank and OECD about the analysis of equity of a health system is applied to Turkish system under the limitation of the available data. In the last section of conclusion, some recommendations are made from a financial point of view.

2. Theoretical Framework for Elaborating Equity In A Health Finance System

The equity in health finance is generally evaluated on the basis of progressivity concept. The progressivity of health care financing measures whether health care payments account for an increasing proportion of ability to pay (ATP)⁴. The health system is said to be regressive, which is the preferred position, when health payments constitutes a smaller share of ATP. The definition of ATP also requires elaboration especially in the developing economies where organized labor markets generally don't exist and consequently income varies. In this framework, rather than income, health related consumption is thought to be a better measure of ATP. This choice creates theoretical

⁴ <http://siteresources.worldbank.org/INTPAH/Resources/Publications/459843-1195594469249/HealthEquityCh16.pdf>

problems in relation with the definition of health payments as compared to savings, food consumption, even tax considerations. It is accepted that in order to assess the proportionality between health payments and some measure of living standards, it is appropriate such as household expenditures on food can be used (O'Donnell et al., 2008).

On the financing side, health care systems are designed to collect enough revenue from different kinds of sources to finance health expenditures. The revenue sources can be in the form of general governmental budget pooling which includes direct and/or indirect taxes, social insurance contributions, out-of-pocket payments and even grants or donations (Mossialos and Dixon, 2002, p.16). Tax collections may be pooled together and be used for health service finance referring to the budgetary decisions. Although it is not very common, in some cases tax may be earmarked for the health care such as the collection of a fixed proportion of the contribution sociale generale (CSG) in France (Mossialos et al., 2002, p.2).

It is accepted that to ensure equity in a health system under the mission of UHC, requires that the governments provide health service to all who needs but the contributions of the individuals for health care financing should depend on their ability to pay. In fact, the performance evaluations of many health reforms not only focus on the cover they provide but also on who pays for the service given their ability to pay. World Health Organization (WHO) has motivated and gave direction to health reforms especially in low- and middle-income countries by creating awareness about the impoverishing effects of out-of-pocket payments and financing the services by particularly general taxation and social insurance (McIntyre, 2007; Wagstaff, 2007).

The literature on the measurement of equity in health finance has been built especially by focusing on the inequality measurement. The main measurement means are the Gini coefficient for the measurement of the inequality in mortality developed by Le Grand (1989) and Le Grand and Rabin (1986) and concentration index proposed by Wagstaff et al. (1989) for the measurement of relative socioeconomic inequality in health and health care. Kakwani progressivity index of Wagstaff and van Doorslaer (2000) and Kakwani (1977) has widespread application by many analysts elaborating the progressivity of the health systems in many countries.

The Kakwani index (K) which incorporates the findings of both gini coefficient and concentration index is based on the difference between the Lorenz and concentration curves and can be calculated as follows:

$$K = C - G$$

where C corresponds to the concentration index of the contributions to healthcare financing and G to the Gini coefficient for income (before contributions). The Kakwani index is calculated in between -2 and 1. The positive values means the concentration curve lies below the Lorenz curve and the system is progressive. In a purely proportional system, both curves overlap and the index is equal to zero. Negative values indicate that the concentration curve lies above the Lorenz curve and therefore the financing system can be regarded as regressive. It is also possible to calculate overall progressivity as the weighted average of the Kakwani index for the different sources by using the proportion of each source to total revenue as weights (O'Donnell et al., 2008). Both of the graphical presentation and calculation of the index is required in order to give accurate policy responses especially when both curves cross.

Wagstaff (2005) analyzed the health systems of Japan and the Asian Tigers (Hong Kong (China), the Republic of Korea, Singapore and Taiwan (China)) and calculated the kakwani indexes. He proposed that each country may have its own peculiar financing system for health spending depending on the macroeconomic expenditure control principles. Ataguba and McIntyre (2008) evaluated South African health finance system in the framework of progressivity and reported that while general taxes and medical scheme contributions remain progressive, direct out-of-pocket

payments and indirect taxes, as well as private health insurance contributions are regressive. Savedoff (2004) focused on taxation practices in Britain, Malaysia, Sweden and Brazil, reported that while direct taxes are generally more progressive, indirect taxes are more regressive. This stems from the fact that indirect taxes are levied on consumption goods that proportionally low income households spent more.

3. Turkish Health Finance System

Turkey's population is roughly 81.94 million as of in 2018, 72.1 % of the population is urban (59 million in 2018). Turkish population is quite young with the median age in Turkey is 30.2 years, up from 20 years on average in 1990s. The annual population growth rate is %1,45 down from an average level of nearly %2 in 1990s⁵. Consequently, Turkey is aging rapidly; while the share for 65+ aged was 5.7% in 2000, it reached to 7.53% in 2017(est.). Life expectancy stands at 72,7 years for men and

77.5 years for women, with an overall average of 75 years⁶. The population pyramid is given in Figure-3.

Figure 3: Population Pyramid of Turkey.

Source: CIA World Factbook - This page was last updated on January 20, 2018

At the end of 1990s, the performance of Turkey's health sector in terms of health outcomes, financial protection, and patient satisfaction was the worst as compared to the OECD countries (Barış et al. 2011) and in the European Region of WHO (Tatar et al., 2011). In order to diminish the widespread dissatisfaction with Turkish health system, the health sector reform was amongst the key issues to be addressed by the government when it came into power in late 2002. Since 2003, great transformation has been realized in Turkish healthcare system by Health Transition Plan (HTP) (Gürsoy, 2015). The objectives of the Health Transition Project for Turkey were mainly structural transformation of Ministry of Health (MOH) and the Social Security Institute (SSI) to equip them with the ability manage health system by means of policies, regulatory mechanisms and health

⁵ <http://www.worldometers.info/world-population/turkey-population/>

⁶ https://www.indexmundi.com/turkey/age_structure.html

insurance functions. Furthermore, in order to improve the accessibility, quality, efficiency and fiscal sustainability of the health sector. In those days, there were three social security funds and the Green Card Program for the poor. The following measures are taken:

- Turkish Government would expand eligibility for the Green Card Program is expanded and premium payments are transferred to SSI;
- It was aimed to spread the health insurance coverage in order to cover the entire population;
- A single and unified public hospital system governed by MOI was established and all hospitals were transferred;
- The inefficiencies in the field of health services delivery system would be addressed through investments in infrastructure, equipment, and supplies as well as through training of staff;
- A new system named Family Medicine Program was created which assigns a specific doctor to each patient;
- Community Health Centres was established in order to provide better service for especially vaccination campaigns, maternal and child health, and family planning;
- A new reward policy was generated in order to increase the productivity of especially family doctors and hospital personnel;
- Public hospitals were decentralized and they were entitled to out-source some medical and non-medical services;
- The pre-hospital emergency system was improved and an emergency 112 hotline was established in parallel to EU applications;
- Patients' Rights Charter which was firstly enacted in 1998 was improved and a hotline was established exclusively for assisting patients.
- Major initiatives were taken to fight unhealthy lifestyles, in particular tobacco use and obesity.

In an evaluation report, World Bank states that Turkey significantly improved the supply of services referring to the HTP summarized above between 2003 and 2013 referring to the improved health outcomes and increased health utilization rates. It is argued that achievements in UHC were in the form of unification of enrollees under a single scheme for making health services accessible to all. The achievements with regard to HDP have contributed to the quality and also equity of health service⁷.

4. Analysis

The primary objective of this study is to measure equity in the finance of health care and to discuss the consequences of the reforms from the aspect of equity in Turkey by comparing the relevant data for 2010 and 2016. The analysis is performed by using mainly Household Budget Survey which has been realized since 2009 yearly by Turkish Statistics Institute. The second data source is financing sources of health care expenditures. In the period of concern, several measures taken in order to improve Turkish health system, and the period of 6 years is determined to be long enough to capture fully the achievements in terms of equity in the finance of health care. However, it should be noted that none of the data source provides individual level data so the calculations have been done on aggregate basis.

⁷ <http://www.worldbank.org/en/results/2018/04/02/turkish-health-transformation-program-and-beyond>

Before proceeding to the analysis, it should be noted that there exist very limited number of academic research about the progressivity of the health finance system of Turkey. The most update analysis which focuses on the effects of the regulations for the unification of Turkish health financing system to control out-of-pocket health expenditures deserve attention. Çınaroğlu (2018), without utilizing Kakwani index, calculated gini and concentration indexes for the years 2003, 2009 and 2015 by using relevant Household Budget Surveys. Both of the indexes reported separately and the conclusions were based on the decreasing gini indexes to stipulate a decreasing inequality. However, when Kakwani indexes are calculated by using the reported indexes, the results signal deterioration in progressivity.

In another study, the impact of the health reforms on out-of-pocket payments for health care in Turkey in the period 2003-2006 is analyzed (Gocmez, 2010). It is reported that the absolute out-of-pocket payments increased with ATP in both years. Furthermore, the comparison revealed that the spending of the richest income quintile spent as compared to that of the poorest income quintile decreased from 4.4 in 2003 to 3.2 in 2006. Kakwani indexes for both years to assess the equity in health care financing indicated the regressivity in both periods which is attributed to the introduction of user fees for health services that create a disproportionate burden on the poor.

The following Table 1 gives some aggregate statistics, as well as the nominal and real changes about the main indicators to evaluate the equity of a health system:

Table 1: Summary Statistics

<i>in TL</i>	2010	2010 Indexed CPI	2016	Nominal Change	Real Change
Equivalised Household Disposable Income	9.735	16.356	19.139	97%	17%
<i>Sample size</i>	13.414		24.355		
Average expenditure per household	1.843	3.096	3.406	85%	10%
Share of Out of pocket Health Exp.in Total Exp.	2,1%		2,0%	-6,79%	
Total Household	18.808.172		22.296.723	18,5%	

In 6 years time, average real income of the sample has increased by 17%, whereas the average expenditure per household has only increased by 10%. Together with an increase in the total household number of 18.5%, this may indicate a better positioning in 2016 as compared to 2006.

The equity of health finance system requires that the out of pocket health payments to be made according to ability to pay, this means people from higher income quintiles to pay more. The Figure 4 addresses such a radical improvement from 2010 to 2016 in Turkey. The share of the out of pocket health expenses in total expenditures is only increased for the fifth quintile and with a rate of 11.6%, the shares were decreased for the other four quintiles. The results as presented in Figure 4 show that OOP payments became more progressive because the richest 20% of the population pay more as a proportion of their income than the poorest 20% of the population in 2016. Even the richest 20% of the population pay nearly 50% as much as the poorest population. These achievements in terms of equity in health expenditures are mainly due to the compulsory General Health Insurance Scheme provided which is ruled as of October 2008 but into effect in the beginning of 2012.

Figure 4: Out of Pocket Expenditures by Quintiles

4.1 Progressivity of the Financial Sources of Health Expenditure

According to the Technical Note of World Bank about measuring progressivity of health care payments⁸, there exist two distinct stages for analyzing progressivity. First, the progressivity of each financing source should be determined. Then, by weighting the progressivity of the separate financial sources, the overall progressivity of the system can be established. In order to realize such an analysis, two types of data are required: survey data to establish the distribution of payments across households and aggregate data to determine the macro-weights to be assigned to each finance source.

Table 2: Financial Sources of Health Expenditures

TL Million	2010		2016	
Total Health Expenditure	61.678		119 756	
	Share in Total Exp.		Share in Total Exp.	
Taxes (Direct/Indirect)	17.786	29%	29 849	25%
Social Security System	30.695	50%	64 163	54%
Total - Public	48.482	79%	94.012	79%
Out Of Pocket	13.196	21%	22 382	19%
Private Insurance			3 363	3%
	Share in Total Tax		Share in Total Tax	
Income Tax	16%		18%	
Corporate Tax	9%		8%	
Vallue Added Tax	11%		10%	
Speacial Consumption Tax	23%		23%	

⁸Quantitative Techniques for Health Equity Analysis—Technical Note #16

Table 2 provides the sources of finance of health expenditure in Turkey as of the years 2010 and 2016 comparatively. The distributions of the total tax revenue into major types of taxes in both years are also given in Table 2. More than half of the total health expenditure in 2016 (54%) is financed by the social security system, which increased from 50% in 2010. Contrarily, the share of the tax finance decreased to 25% in 2016 from the level of 29% in 2010. It seems the private insurance as a financing source has gained momentum during 2010-2016 period, as 3% of the health expenditures in 2016 was financed by this source.

Survey data available for Turkey does not give opportunity to identify the progressivity of each financing source and it is thought that the possible approximation strategies required for calculating the progressivity can end up with incorrect estimations. However, it possible to make judgmental evaluations referring to some determinations made in prior research. Wagstaff (2005) reported that tax-financed systems are the most progressive financing source, and social insurance systems are somewhat regressive or close to proportional in Japan and the Asian Tigers verifying the similar situation in OECD countries. Wagstaff expressed some other characteristic of the health finance system affecting the level of progressivity which are the structure of the system, the dispersion on direct versus indirect taxes, the degree to which luxury goods are taxed at a higher rate, the applications of ceilings on social insurance contributions, the fraction of health spending covered by the benefit package and the extent to which the poor face reduced copayments.

The main achievement of HTP has been unification of the fragmented organization and the financing of health care services in Turkey. Before HTP, the population was divided into five subgroups in terms of financial protection and those different benefit schemes and facility options created an inequitable system. The HTP has resulted with the rapid expansion of the proportion of the population covered and of the services to which they are entitled. Through a series of progressive steps, service utilization rules and benefits packages were equalized so that all social security members, including Green Card beneficiaries, could access the same facilities.

The dispersion on direct versus indirect taxes: It is fact that indirect taxes dominate in Turkey; relative to the OECD average, the tax structure in Turkey is characterized by substantially higher tax revenues from goods & services taxes (excluding VAT/GST), and higher revenues from social security contributions and value-added taxes. A lower proportion of revenues are collected from taxes on personal income, profits & gains; taxes on corporate income & gains; and property taxes⁹. It is a generally accepted phenomenon that as indirect taxes generally are not based on income, they create a taxation burden on the tax payer and since they negatively affect personal income levels, indirect taxes are considered to be unfair taxes.

The degree to which luxury goods are taxed at a higher rate: The standard rate of VAT is 18% in Turkey. The special consumption tax is applicable to many of the luxury products. Furthermore, referring to the reduced rate policy, 1% is applied to certain agricultural products and 8% is applied to basic food stuffs, textiles, overnight services/accommodation performed in the hotels, motels, holiday villages, and similar accommodation facilities.

The applications of ceilings on social insurance contributions: The three insurance funds, namely SSK, Emekli Sandığı and Bağ-Kur, were merged under a sole body called the Social Security Institution (SSI) in 2007.

Whether the poor are exempt from social insurance contributions: In Turkey, the health benefit has reached the targeted poor groups of the population with the Green Card scheme and the health contribution for needy has been paid by the state since January 1, 2012.

⁹ <https://www.oecd.org/tax/tax-policy/revenue-statistics-turkey.pdf>

The fraction of health spending covered by the benefit package: Every insured person, including the poor, has the same benefits package, which covers inpatient and outpatient services, dental care, diagnostic tests, emergency care, and pharmaceuticals. The poor are exempt from co-payments if they use public facilities.

The extent to which the poor face reduced copayments: Public insurance bears a copayment of 20% for active premium payers and their dependents, and 10% for retirees.

Under these considerations, it is thought that although it is not possible to determine the progressivity of the individual financing sources of health expenditures in Turkey, the HTP system has been designed to improve the overall progressivity of the system.

4.2 Equity in Health Finance – Kakwani Index

The literature on the measurement of equity in health finance has been built especially by focusing on the inequality measurement. In order to assess the equity, generally Kakwani index (K) is used which incorporates the findings of both gini coefficient and concentration index. The Kakwani index is calculated in between -2 and 1. The positive values means the concentration curve lies below the Lorenz curve and the system is progressive. In a proportional system, both curves overlap and the index is equal to zero. Both of the graphical presentation and calculation of the index is required in order to give accurate policy responses especially when both curves cross. Table 3 displays the calculation of Kakwani indexes for Turkish health finance system in 2010 and 2016.

Table 3: Kakwani Index Calculation for 2010 and 2016

2010							2016						
Quintile	Income (annual)	Rel Per. Of income	Cum. % Income	Out of pocket (monthly)	Rel% Of Out Of Pocket	Cum.% out of pocket	Quintile	Income (annual)	Rel Per. Of income	Cum. % Income	Out of pocket (monthl)	Rel% Of Out Of Pocket	Cum.% out of pocket
poorest	2 841	0,058	0,058	4	0,100	0,100	poorest	5 880	0,061	0,061	6	0,092	0,092
2nd	5 151	0,106	0,164	5	0,140	0,240	2nd	10 174	0,106	0,168	9	0,137	0,230
Middle	7 457	0,153	0,317	7	0,172	0,412	Middle	14 288	0,149	0,317	11	0,163	0,392
4th	10 658	0,219	0,536	9	0,228	0,640	4th	20 194	0,211	0,528	14	0,206	0,598
Richest	22 573	0,464	1,000	14	0,360	1,000	Richest	45 173	0,472	1,000	27	0,402	1,000
C.I						0,2430	C.I						0,2751
gini in.						0,383	gini in.						0,396
Kakwani						-0,1400	Kakwani						-0,1209

Referring to the results of the calculation, it is evident that out-of-pocket payments are regressive which, as in line with the previous outcomes, means that the share of health care payments contributed by the poor is more than their share of ability to pay. However the degree of regressivity has been reduced from 2010 to 2016 as Kakwani index increased to -0,1209 from -0,1400. It can be said that although the burden of out-of-pocket payments falls on the poorest, there is a positive trend and OOP payments are turning out to be more progressive. This change can be split into two; the changes in the Gini coefficient and in the concentration index. The positive concentration indices for OOP payments in Table 3 indicate that in both years, the richers make more OOP payments for health care in absolute terms than the poor. Even though there is a slight difference between the years, in 2016 the concentration among the richer groups increased. The gini indices indicate a deterioration in the income distribution as it increased from 0,383 in 2010 to 0,396 in 2016. Consequently, it can be concluded that despite the deterioration in income distribution, the equity in health finance increased in Turkey during the period 2010-2016. The Figure 5 exhibits a graphic illustration of the above mentioned calculations.

Figure 5: Lorenz and Out of Pocket Payments Concentration Curves for 2010 and 2016

These results of the those calculations are illustrated in **Hata! Başvuru kaynağı bulunamadı.**, in which the cumulative percentage of households, categorized by wealth, is plotted on the x-axis and the cumulative percentage of out-of-pocket payments and income is plotted on the y-axis. In both of the graphs, Lorenz curves lie outside the concentration curves, which show the regressivity of out-of-pocket payments in the finance of health care in Turkey in both years. However, the distance to Lorenz curve diminishes in 2016, which indicates that the policies implemented to protect the poor are effective in this period.

Referring to the population size, regressiveness can be the consequence of higher rates of sickness and medical consumption of the poor (Wagstaff & Doorslaer, 1992). Such an analysis can be the topic of further research.

5. Conclusion

It is fact that the main properties Turkish population has changed considerable since 1990s. Although it is still young as compared to many other countries, the median age of the population has increased and the growth rate has decreased. At the end of 1990s, the performance of Turkey's health sector in terms of health outcomes, financial protection, and patient satisfaction was the worst as compared to the OECD countries and in the European Region of WHO. In fact, dissatisfaction with the health system was so widespread that government made health sector reform a key priority when it came into power in late 2002. Since 2003, great transformation has been realized in Turkish healthcare system by Health Transition Plan.

The primary objective of this study is determined as to measure the equity in the finance of health care and to discuss the consequences of the reforms from the aspect of equity in Turkey by comparing the relevant data for 2010 and 2016. In the period of concern, several measures taken in order to improve Turkish health system, and the period of 6 years is determined to be long enough to capture fully the achievements in terms of equity in the finance of health care. However, it should be noted that none of the data source provides individual level data so the calculations have be done on aggregate basis.

The equity of health finance system requires that the out of pocket health payments to be made according to ability to pay, this means people from higher income quintiles to pay more. Firstly, the out of pocket health expenditures incurred by quintiles are evaluated. It is determined that in the period between 2010-2016, the share of the out of pocket health expenses in total expenditures is only increased for the fifth income quintile and with a rate of 11.6%, the shares were decreased for the other four quintiles. The results showed that out of pocket health payments became more

progressive because the richest 20% of the population pay more as a proportion of their income than the poorest 20% of the population in 2016.

Secondly under the theoretical framework to evaluate the equity in a health finance system, the progressivity of each financing source of health is evaluated. It is determined that More than half of the total health expenditure in 2016 (54%) is financed by the social security system, which increased from 50% in 2010. Contrarily, the share of the tax finance decreased to 25% in 2016 from the level of 29% in 2010. It seems the private insurance as a financing source has gained momentum during 2010-2016 period, as 3% of the health expenditures in 2016 was financed by this source. Referring to the lack of required data to make evaluation for each financing source, judgmental evaluations referring to some determinations made in prior research have been made. Several characteristics of Turkish health finance system are evaluated including but not limited to the structure of health system, tax system properties, social insurance contribution levels and copayment levels. It is determined that the Health Transition Plan in Turkey has been designed to improve the overall progressivity of the system.

The literature on the measurement of equity in health finance has been built especially by focusing on the inequality measurement. In order to assess the equity, generally Kakwani index (K) is used which incorporates the findings of both gini coefficient and concentration index. The Kakwani indexes are calculated for 2010 and 2016. It is determined that out-of-pocket payments are regressive which mean that the share of health care payments contributed by the poor is more than their share of ability to pay. However, the degree of regressivity has been reduced from 2010 to 2016 as Kakwani index increased to -0,1209 from -0,1400. This change can be split into two; the changes in the Gini coefficient and in the concentration index. The positive concentration indices for OOP payments in Table 3 indicate that in both years, the richers make more OOP payments for health care in absolute terms than the poor. Even though there is a slight difference between the years, in 2016 the concentration among the richer groups increased. The giniindices indicates a deterioration in the income distribution as it increased from 0,383 in 2010 to 0,396 in 2016. Consequently, it can be concluded that despite the deterioration in income distribution, the equity in health finance increased in Turkey during the period 2010-2016.

References

- Akdag, R. (2011). Turkey Health Transformation Program Evaluation Report (2003-2010). Ministry of Health, Turkey.
- Ataguba, J. and McIntyre, D. (2013). Who benefits from health services in South Africa? *Health Economics, Policy and Law*, 8(1), 21-46.
- Bariş, E., Mollahaliloğlu, S. and Aydın, S. (2011). Healthcare in Turkey: from laggard to Leader, *BMJ*, 2011; 342:c7456.
- Cinaroğlu, S. (2018). Inequality and Inequity in Financing Out-of-Pocket Health Expenditures: An Applied Econometric Approach. *Journal of Business Research Turk*, 10/1 (2018) 876-897.
- Gomez, O. (2010). Out of Pocket Payments for Healthcare in Turkey and Equity in Financing, 2003-2006” Erasmus University/Erasmus MC Rotterdam, Institute of Health Policy and Management, Thesis Master of Science in Health Economics.
- Gower, A., Le Grand, J. and Rabin, M. (1986). Trends in British Health Inequality 1931–1983. In: Culyer AJ and Jonsson B (Eds.), *Public and Private Health Services*. Blackwell.

-
- Gürsoy, K. (2015). An Overview of Turkish Healthcare System after Health Transformation Program: Main Successes, Performance Assessment, Further Challenges, and Policy Options. *Sosyal Güvençe Dergisi*, 7.
- Guinness, L. and Gruen, R. (2011). The Changing World of Health Care Finance. In Guinness L and Wiseman V (eds.), *Introduction To Health Economics*, McGraw-Hill Education (UK).
- Kakwani, N.C. (1977). Measurement of Tax Progressivity: An International Comparison. *Economic Journal*, 87(345): 71–80.
- Le Grand, J. (1989). An international comparison of distributions of ages-at-death. In: Fox, J. (Ed.), *Health Inequalities in European Countries*.
- Le Grand, J. and Rabin, M. (1986). Trends in British health inequality: 1931-83. In: Culyer, A J and Jonsson B, *Public and Private Health Services*. Blackwell.
- McIntyre, D. (2007). Learning From Experience: Health Care Financing In Low- And Middle-Income Countries, Geneva, *Global Forum for Health Research*.
- Mossialos, E. and Dixon, A.(2002). Funding health care: an introduction, In Mossialos E, Dixon A., Figueras J and Kutzin J(eds.), *Funding health care: options for Europe, European Observatory on Health Care Systems*.
- Mossialos, E., Dixon, A., Figueras, J. and Kutzin, J. (2002). Policy brief Funding health care: options for Europe. European Observatory on Health Care Systems, No:4.
- O'Donnell, O., Van Doorslaer, E., Wagstaff, A. and Lindelow, M. (2007). *Analyzing Health Equity Using Household Survey Data: A Guide to Techniques and Their Implementation*. World Bank.
- O'Donnell, O., van Doorslaer, E., Wagstaff, A. and Lindelow, M. (2008). *Analyzing Health Equity Using Household Survey Data*, The World Bank.
- Savedoff, W. (2004). Tax-Based Financing for Health Systems: Options and Experiences. Geneva, World Health Organization.
- Wagstaff, A. (2007). Social Health Insurance Reexamined. *World Bank Policy Research Working Paper*, Issue 4111.
- Wagstaff, A. and van Doorslaer, E. (1992). Equity In The Finance Of Health Care: Some International Comparisons. *Journal of Health Economics*, 11(4): 361-88.
- Wagstaff, A., van Doorslaer, E. and Paci, P. (1989), Equity in the Finance and Delivery of Health Care: Some Tentative Cross-Country Comparisons, *Oxford Review of Economic Policy*, 5: 89–112.
- Wagstaff, A. and van Doorslaer, E. (2000), Equity in Health Care Finance and Delivery.” In North Holland Handbook in Health Economics, Culyer A. and Newhouse J (eds.), 1804–1862.
- Wagstaff, A. (2005), Health Systems in East Asia: What Can Developing Countries Learn from Japan and the Asian Tigers?, World Bank Policy Research Working Paper 3790.
- [http://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-\(uhc\)](http://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc))
- [http://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-\(uhc\)](http://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc))
- http://www.who.int/universal_health_coverage/plan_action-hsgov_uhc.pdf
-