

Does Public Health Insurance Provide Financial Protection Against Out-Of-Pocket Health Payments? Evidence from Turkey

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Kamu Sağlık Sigortası Cepten Yapılan Sağlık Harcamalarına Karşı Finansal Koruma Sağlar Mı? Türkiye Örneği

Abstract

Turkey has initiated comprehensive reforms to increase equity among its citizens for healthcare financing, access to health services, and health outcomes. A significant change in this process was expanding the benefits package for the non-contributory public health insurance for low-income households. This study examines the impact of the public insurance expansion on out-of-pocket healthcare expenditures for the poor. We find that public insurance helped the beneficiaries not spend a sizeable portion of their income to get medical treatment. Overall, the public insurance program provided financial protection for the poor households by decreasing out-of-pocket health expenditures.

Keywords : Non-Contributory Health Insurance, Out-Of-Pocket Health Expenditures, Vertical Equity, Middle-Income Countries, Turkey.

JEL Classification Codes : I13, I18.

Öz

Türkiye, vatandaşları arasında sağlık hizmetlerinin finansmanı, sağlık hizmetlerine erişim ve sağlık çıktıları açısından hakkaniyeti artırmak için kapsamlı reformlar başlatmıştır. Bu süreç içerisinde uygulanan önemli bir reform, düşük gelirli hanhalkları için yürürlükte olan prim ödemesi olmayan kamu sağlık sigortasının kapsamının genişletilmesidir. Bu çalışma kamu sigortasının kapsamının artırılmasının yoksulların cepten yapacakları sağlık harcamalarına olan etkisini incelemektedir. Bulgularımız, kamu sigortasından faydalanan bireylerin tıbbi tedavi görebilmek için gelirlerinin önemli bir kısmını harcamadıklarını ifade etmektedir. Genelde kamu sigortası, yoksul hanhalklarının cepten yaptıkları sağlık harcamalarını düşürerek finansal koruma sağlamıştır.

Anahtar Sözcükler : Prim Ödenmeyen Sağlık Sigortası, Cepten Yapılan Sağlık Harcamaları, Dikey Hakkaniyet, Orta-Gelirli Ülkeler, Türkiye.

1. Introduction

Last two and a half decades have witnessed the introduction of public health insurance programs targeting especially the poor population by several developing countries to achieve universal health coverage (Sepehri et al., 2006). World Health Organization (WHO) acknowledges that universal health coverage is a powerful tool to reduce catastrophic health care expenditures and to ease access to health care services (WHO, 2010; Atun et al., 2013: 82-84).

There has been growing interest in universal health insurance in many countries that are implementing health insurance reforms (Ruger & Kim, 2007: 805). The introduction of universal health insurance is especially critical in an era when the introduction of user fees for healthcare services can result in a major poverty trap in which increases in out-of-pocket expenditures are directing many households into poverty and are escalating the poverty of the already poor (Whitehead et al., 2001: 833). People resort to a variety of ways to finance unanticipated healthcare costs. They borrow money, sell their productive assets, or postpone their expenditures on other needs. Alternatively, they may get sub-optimal care or, at the extreme, may abstain from getting any treatment at all. Therefore, out-of-pocket payment is seen as the most inequitable financing mechanism and a crucial objective of health policy is to replace out-of-pocket payments with more equitable forms of financing (Malik & Syed, 2012: 1; Aran & Hentschel, 2012). Even in many OECD countries whose citizens are relatively wealthier, out-of-pocket payments remain as significant challenges to ensuring equity in healthcare financing (e.g., Wyszewianski, 1986; Baird, 2016; Krütilová & Yaya, 2012; Kronenberg & Barros, 2014). The problems are much more severe in countries with low income (e.g., Lara et al., 2011; Su et al., 2006; Pal, 2012; Van Minh et al., 2013; Njagi et al., 2018). In general, the empirical studies on out-of-pocket payments or catastrophic healthcare expenditures indicate that poor people living in rural areas are more likely to suffer from out-of-pocket healthcare expenditures. Furthermore, if the head of the household has a low educational level or is not working, catastrophic healthcare expenditures tend to be larger. Thus, income, education, and employment status are the primary determinants of catastrophic out-of-pocket payments (Azzani et al., 2019: 35). Given that already-disadvantaged (poor people living in rural areas, household heads with low education level, unemployed household heads) citizens are more likely to experience out-of-pocket payments, financial protection programs for these groups become particularly crucial in establishing equity in healthcare financing. An example of such a program is the Green Card (*Yeşil Kart*) health insurance scheme introduced in Turkey.

Turkey has initiated comprehensive reforms to increase equity among its citizens with respect to health financing, access to health services, and health outcomes. It started to implement such reforms in early 2000 under the Health Transformation Program (HTP) through which the goal was to achieve universal health coverage (UHC). Prior to the HTP, Turkey had a fragmented and a complex health financing system with four different types of health insurance programs with diverse benefits packages (Bump et al., 2014; Tatar et al., 2007).

In addition, Turkey launched a provisional and non-contributory (government-funded) health insurance scheme named as Green Card (*Yeşil Kart*) in 1992 for low-income households that are not covered by any formal health insurance schemes mentioned above. To target the poor in relation to their household per capita income, a proxy-means test (PMT) was implemented to determine eligibility for the Green Card. In the very beginning of its implementation, the Green Card scheme only covered inpatient services for the enrollees, and take-up rates were too low (Menon et al., 2013: 7-10). Until the very end of 2004, the Green Card program covered only inpatient costs for the poor and then it included outpatient doctor visits, pharmaceuticals, and some dentist visits into the program to achieve and improve equity and access to health care services. In 2005, Green Card holders were also provided access to outpatient care and outpatient pharmaceuticals. The objective of this change was to enhance access to care for Green Card holders and provide financial protection (Yardim et al., 2010).

A strand of the literature focuses on the determinants of catastrophic healthcare expenditures and healthcare-seeking behavior in Turkey (Tatar et al., 2007; Yardim et al., 2010; Sulku & Bernard, 2012; Yilmaz et al., 2009; Brown et al., 2014; Ipek, 2019; Yereli et al., 2014). On the other hand, the scientific analyses on the impact of the Green Card program have provided insufficient evidence. Aran and Hentschel (2012) and Atun et al. (2013) report that the Green Card coverage among low-income deciles increased over time. Erus et al. (2015) reveal that there was a considerable amount of non-take-up (43.6 percent) in the Green Card scheme (even among the vulnerable groups that are likely to be at a greater financial risk) and that the Green Card holders were more likely to use all types of healthcare services in comparison to those without insurance.

In this article, we examine whether and to what extent the Green Card scheme in Turkey provided adequate protection against high out-of-pocket expenditures for the poor. We utilize the eligibility condition as an instrument for insurance coverage to minimize unobserved differences between the treatment and the comparison groups. We explore the effects of the non-contributory health insurance coverage for the poor on total Green Card eligible health care expenditures by implementing an Instrumental Variable (IV) analysis. Then, we break these expenditures into subgroups (including doctor visits (outpatient), pharmaceuticals, dentist, and diagnostics) and evaluate the impacts separately for each eligible (covered) outcome variable.

The originality of our study stems from that it is the first study, to the best of our knowledge, that estimates the degree of financial protection on the poor ensured by the Green Card system by using disaggregated household-level information and explicitly modeling the eligibility condition. The findings have policy implications for equity in healthcare financing. The Green Card program provides financial protection for poor households by reducing the financial burden of healthcare expenditures. Other countries aiming at improving equity in healthcare financing could design temporary programs similar to the Green Card.

2. Methods

We use the datasets of Turkey Household Budget Surveys (THBSs) conducted annually by the Turkish Statistical Institute (TurkStat). The datasets cover the period of 2005-2008 when the Green Card holders gained the same benefits as other insurees. In late 2008, Turkey has implemented UHC covering for all citizens. Thus, we kept our sample between 2005 and 2008 to avoid contamination of our results with other policy reforms.

The datasets are repeated cross-sectional, and the information on out-of-pocket health expenditures is collected monthly. The final sampling unit is defined as the household. 8540 households in Jan-December 2005; 8558 households in 2006; 8548 households in 2007; and 8549 households in 2008 were surveyed for the actual survey sample to produce estimations for rural and urban areas, and Turkey. The datasets contain information on insurance coverage, different types of out-of-pocket health care spending, and household socio-economic backgrounds such as education, gender, age, and marital status.

Our dependent variable is out-of-pocket healthcare spending (including observations with no spending or zero health spending) on various outcome measures such as the cost of outpatient, dentist, diagnostics, pharmaceuticals, and total Green Card eligible healthcare expenditures. Nominal measures are deflated using consumer price indexes (CPIs) provided by TurkStat. We measure income by real monthly total consumption in the household. The variable of interest in this study is the health insurance variable which is defined as a dummy variable that is equal to 1 if the household head enrolled in the Green Card health insurance program, and 0 for the uninsured.

We also control for some observed characteristics in our regression analysis including education level of household head, marital status of household head, age of household head, fraction of kids, fraction of elderly, urban, household size, adjusted per capita household total expenditures, household head's disability status, and some wealth indicators such as land or house ownership. We add year fixed effects in our regression models to see how the healthcare spending changes across the country given the specified period and isolate any unobserved year fixed effects.

In this study, we assess the impact of the expansion of the non-contributory health insurance coverage for the poor in Turkey on out-of-pocket healthcare expenditures. The expansion originates from that the Green Card covered more services, i.e., outpatient care services (doctor visits), some dentistry services, pharmaceuticals, and some diagnostics under the insurance coverage as of 2005. To investigate the impact of the expansion, we undertake two types of analyses considering the nonlinear nature of our dependent variable and the endogeneity of the health insurance variable.

Our dependent variable is censored consisting of zero expenditures for a significant fraction of the sample, which is about 54 percent. In this case, using conventional regression models like OLS would not account for the difference between zero observations and non-zero observations (Greene, 2003). Therefore, we first implement the Tobit model (assuming

the exogeneity of health insurance) to analyze the impact of health insurance on out-of-pocket health care expenditures and then estimate the model:

$$y_{ht} = \alpha_0 + \alpha_1 Insurance_{ht} + \alpha_2 x_{ht} + u_{ht}, \quad (1)$$

where h indexes households, t denotes year (2005 through 2008), y_{ht} is the outcome of interest (i.e., household level out-of-pocket health expenditures such as the cost of outpatient care, diagnostics, dentist, and cost of total out-of-pocket health expenditures), x_{ht} denotes the vector of exogenous and fully observed set of regressors, $Insurance_{ht}$ is the variable of interest taking a value of 1 if household head holds a Green Card insurance and 0 if household head is uninsured, and u_{ht} is the unobserved error term.

We define health insurance in all data sets as having a Green Card insurance scheme for the poor. Therefore, we exclude those who report having other types of insurances from our sample. We also control for some observed characteristics of households and household heads such as age, marital status, the fraction of kids and elderly in the household, household heads' education level, household size, urbanicity, and monthly per capita consumption in the household. We also include a control variable indicating whether the household head has any physical or mental disability, which may hinder her/him from working. We then include in the regression analysis some household wealth indicators whether the household owns land or house.

While the Tobit model will take the nature of our limited dependent variable into account, there still exist endogeneity of regression predictors. Health insurance in our model might be correlated with the unobserved household characteristics, which may lead to the endogeneity of health insurance (Finkelstein et al., 2012; Wagstaff & Lindelow, 2008; Ettner, 1997). In other words, healthcare consumers with certain health conditions might self-select themselves into the health insurance program after the expansion of the non-contributory insurance coverage. The endogeneity of health insurance will then yield a biased estimate of the coefficient on the insurance variable in the estimating equation. We use the IV estimation method to tackle the endogeneity problem and obtain consistent estimates. The literature on addressing endogeneity in linear models by using IV estimation strategy is very broad (Finkelstein et al., 2012; Angrist & Pischke, 2008; Baicker et al., 2014; Galarraga et al., 2010; Angrist & Evans, 1996). However, linear IV models are not appropriate for the regression models where the dependent variable, such as healthcare costs, has a limited nature which means a significant fraction of the observations consists of zeros. Therefore, we implement a model with IV with two-stage residual inclusion (2SRI), which is suggested (Terza et al., 2008) and widely used in the literature (Galarraga et al., 2010; Erten et al., 2014; Rasu et al., 2015) to take the zero nature of dependent variables into account. The first stage equation in this set up is:

$$Insurance_{ht} = v_0 + v_1 Eligible_{ht} + v_2 x_{ht} + \gamma_{ht}, \quad (2)$$

where $Eligible_{ht}$ is the IV, γ_{ht} is the normally distributed unobserved error term, and all other covariates are defined as in equation 1.

2SRI method addresses endogeneity in a nonlinear regression model by taking into account both potentially endogenous treatment variable $Insurance_{ht}$ and our limited dependent variable. The 2SRI method estimates equation 2 (first stage) by running a nonlinear regression of the endogenous $Insurance$ variable on the vector of covariates (x_{ht}) and the instrument ($Eligible_{ht}$). Then, it will run a nonlinear regression of equation 3 on the endogenous treatment, the vector of covariates, and the residuals obtained from the first stage:

$$y_{ht} = \beta_0 + \beta_1 Insurance_{ht} + \beta_2 x_{ht} + \beta_3 residuals_{ht} + \varepsilon_{ht}, \quad (3)$$

where ε_{ht} is the regression error term, $residuals_{ht}$ are the residuals from estimating equation 2, and all other covariates are defined as in equation 1.

Our instrument for the Green Card health insurance is the *Eligible* variable, which we construct based on households' per capita consumption level and automobile ownership. Eligibility criteria for the non-contributory health insurance scheme for the poor in Turkey were conditional on three things. First, the applicant must be a Turkish citizen who lives within the border of the country. Second, the applicant should not be covered by any formal social security plan. Third, the applicant must have a per capita household income of less than one-third of the minimum wage at the time of the application (Menon et al., 2013). In addition to these in determining the eligibility, we include whether the applicant owns an automobile because ownership of this type of asset will prevent one from obtaining the Green Card insurance (Aran & Hentschel, 2012). In our analysis, we take advantage of the third condition and automobile ownership to define the "eligibility" variable. When these conditions are satisfied, then one has a right to apply for the non-contributory health insurance plan. However, this does not necessarily mean that he/she will certainly obtain the insurance. We also approximate income by total household consumption as the latter will be much more accurate in comparison to income measure in survey data (Sepehri et al., 2006; Erus & Aktakke, 2012). The reason for this approximation is that in the survey, while the income variable is asked only once, consumption expenditures are recorded in diaries on a daily basis by households. Finally, in surveys, people with higher income levels tend to underreport their income level while those with lower income are inclined to over report their earnings (Bound & Krueger, 1991). Therefore, approximating income by total household consumption expenditure will give more reliable results.

3. Results

Panel A of Table 1 shows that the comparison group is spending more than the treatment group across all outcomes. Another critical result to note here that 78 percent of the eligible people to the Green Card report holding one and only about 3 percent of Green Card holders own a car. This indeed states that over the studied period, the Green Card targeting is pro-poor. The descriptive statistics for the sample characteristics for the treatment (the Green Card health insurance) and the comparison (uninsured) groups are provided in Panel B of Table 1. The Green Card holders constitute 45 percent of the sample. The Green Card holders have a slightly larger household size, whereas the fraction of elderly

is not different across the treatment and the comparison groups. More than half of the Green Card holders live in rural areas while a greater portion of the uninsured (~57 percent) live in urban areas. Controlling health status in the regression analysis is of great importance since the health insurance variable is more likely to be correlated with the error term if it is not controlled for. We include a variable in the regression analysis, which asks individuals whether they have any mental or physical disability which hinders them from working. As a result, we observe that the treatment group is twice more likely to have a disability problem compared to the comparison group. In addition, we also add some wealth indicators for households such as apartment or land ownership to the regression analysis since families' wealth indicators may have an impact on healthcare spending. Table 1 shows that uninsured households have higher probabilities of owning a house or land.

Table: 1
Descriptive Statistics

	GC Health Insurance		Uninsured		P value (t-test)
	Mean	Standard Deviation	Mean	Standard Deviation	
Panel A. Out-of-Pocket Health Spending:					
The total cost of care	8.446	23.399	13.533	39.311	0.000
Cost of outpatient	2.898	12.640	4.341	17.230	0.000
Cost of diagnostics	0.467	7.082	1.568	15.458	0.000
Cost of dentist	0.328	4.208	1.290	19.691	0.004
Cost of pharmaceutical	4.753	15.323	6.333	17.473	0.000
Panel B. Control variables:					
Married	0.898	0.303	0.891	0.312	0.331
Age	44.537	13.960	44.188	12.922	0.241
Fraction of kids	0.137	0.161	0.098	0.148	0.000
Fraction of elderly	0.078	0.216	0.073	0.206	0.199
Urban	0.436	0.496	0.565	0.496	0.000
Household size	5.511	2.645	4.530	2.203	0.000
Per capita total consumption (in Turkish Liras)	104.551	77.413	179.112	165.197	0.000
Disability	0.082	0.276	0.041	0.199	0.000
Apartment	0.048	0.213	0.166	0.372	0.000
Land	0.007	0.081	0.020	0.140	0.000
Eligibility	0.776	0.417	0.453	0.498	0.000
Automobile	0.033	0.179	0.146	0.353	0.000
Observations	3639		4546		
Percent of the sample	45%		55%		

Notes: This analysis is using data sets from 2005 through 2008. Married, Age and Disability are for household heads. In Panel A, the total cost of care includes the cost of outpatient care, diagnostics, dentist, and pharmaceuticals spending. t-test in the last column shows whether there exist any differences between the treated and the comparison groups in terms of specified variables.

We report our main results in Tables 2-3. We present coefficient estimates for the endogenous health insurance variable by executing nonlinear models (i.e., Tobit model and IV 2SRI for actual expenses, including zero expenditures). We include the full set of covariates in the model in all cases and focus on results obtained by IV 2SRI for the outcome variables as this approach will correct for the effect of endogeneity while taking nonlinear nature of our dependent variable into account. Our results indicate a first stage coefficient of 0.20 for the sample.

Table 2 presents results for the actual healthcare spending, including zero expenditures. Column 2 is estimated based on IV 2SRI nonlinear model and indicates that health insurance has a statistically significant impact on reducing the healthcare spending for the poor. In other words, on average, the poor with the GC health insurance spend less than uninsured patients by about 38.00 Turkish Liras (TL) per month.

Table: 2
Estimated Effects of Having Green Card Health Insurance on Actual Out-of-Pocket Green Card Eligible Total Healthcare Expenditures (in Turkish Liras)

<i>Dependent variable: Total health expenditures</i> (including zero expenditures)	Tobit (Marginal Effects) (1)	2SRI (2)
Green Card Health Insurance	-0.599 (0.555)	-37.745*** (5.200)
No school (Base)		
Primary education	2.226*** (0.671)	-5.015*** (1.127)
Secondary education	2.242* (1.272)	-7.220*** (2.136)
University education	2.796 (5.359)	-9.586 (9.344)
Per capita total consumption	0.033*** (0.004)	0.030*** (0.007)
Married	4.505*** (0.924)	4.729*** (1.029)
Household head age	0.108*** (0.032)	-0.020 (0.048)
Fraction of kids	5.958*** (2.032)	13.116*** (3.083)
Fraction of elderly	3.702** (1.578)	9.785*** (2.155)
Urban	-0.670 (0.541)	-2.592*** (0.709)
Household size	0.949*** (0.135)	2.121*** (0.216)
Disable	3.199*** (0.988)	6.901*** (1.523)
Land	1.461 (1.731)	-7.560*** (2.631)
Apartment	1.479 (1.041)	-3.133* (1.834)
Year 2006	0.545 (0.737)	4.150*** (1.147)
Year 2007	0.398 (0.727)	6.281*** (1.300)
Year 2008	0.532 (0.741)	6.565*** (1.532)
First-Stage estimates of being eligible for the health insurance for the poor (Green Card)	-	0.200*** (0.013)
Residuals	-	36.246*** (5.214)
N	8,185	8,185

*Notes: *** indicates that a coefficient is significant at the 1% level, ** significant at the 5% level, and * significant at the 10% level. We report coefficient estimates and robust standard errors in parenthesis (Delta-method standard errors are reported for the Tobit model). For regression analysis, nonlinear 2SRI and Tobit model estimations are used. Marginal effects for the censored mean are reported for the Tobit model. Estimates are obtained from pooled cross-sections for 2005, 2006, 2007, and 2008; which cover the period after the expansion of the non-contributory insurance coverage for the poor in Turkey. The dependent variable for actual expenses is total health expenditures including zero expenditures, which is deflated to 2003 prices using CPI provided by TurkStat. Column (1) and column (2) present the coefficients and standard errors on independent variables from estimating equation (1) by Tobit and equation (2) and (3) by IV 2SRI, respectively. Health_Insurance is the endogenous variable and defined as whether having non-contributory health insurance for the poor. The comparison group is uninsured. Those who have other types of insurance are excluded from the sample. "Eligible" is utilized to instrument for Health_Insurance. "Eligible" is being determined based on 1/3 of the minimum wage and automobile ownership of a household. All specifications include household head (hh) marital status, hh education level, hh age, the fraction of kids, the fraction of elderly, urban/rural, household size, year fixed effects (waves of the surveys), per capita consumption, disability status, and ownership of house or land. Green card enrollees are 45 percent of the sample.*

Table: 3
Estimated Effects of Having Green Card Health Insurance on Various Actual Out-of-Pocket Green Card Eligible Healthcare Expenditures (in Turkish Liras)

<i>Dependent variable: outpatient health expenditures (doctor visits)</i>			<i>Dependent variable: diagnostics health expenditures</i>			<i>Dependent variable: dentist health expenditures</i>			<i>Dependent variable: pharmaceutical health expenditures</i>		
(1)	Tobit (2)	2SRI (3)	(4)	Tobit (5)	2SRI (6)	(7)	Tobit (8)	2SRI (9)	(10)	Tobit (11)	2SRI (12)
Green Card	-1.347*** (0.310)	-14.950*** (2.432)	Green Card	-0.744*** (0.174)	-2.673 (2.066)	Green Card	- 0.422** (0.210)	-2.350** (1.128)	Green Card	0.251 (0.299)	-17.772*** (2.824)
First stage F-statistics	-	0.200*** (0.013)	First stage F-statistics	-	0.200*** (0.013)	First stage F-statistics	-	0.200*** (0.013)	First stage F-statistics	-	0.200*** (0.013)
N	8,185	8,185	N	8,185	8,185	N	8,185	8,185	N	8,185	8,185

*Notes: *** indicates that a coefficient is significant at the 1% level, ** significant at the 5% level, and * significant at the 10% level. We report coefficient estimates and robust standard errors in parenthesis (Delta-method standard errors are reported for the Tobit model) for the health insurance variable only. For regression analyses, nonlinear 2SRI and Tobit model estimations are used. Marginal effects for the censored mean are reported for the Tobit model. Estimates are obtained from pooled cross-sections for 2005, 2006, 2007, and 2008; which cover the period after the expansion of the non-contributory insurance coverage for the poor in Turkey. The dependent variables for actual expenses are outpatient, diagnostics, dentist, and pharmaceutical expenditures, which are deflated to 2003 prices using CPI provided by TurkStat. Column (2) and column (3) present the coefficients and standard errors on independent variables from estimating equation (1) by Tobit and equation (2) and (3) by IV 2SRI, respectively. Health_Insurance is the endogenous variable and defined as whether having non-contributory health insurance for the poor. The comparison group is uninsured. Those who have other types of insurance are excluded from the sample. Eligible is utilized to instrument for Health_Insurance. Eligible is being determined based on 1/3 of the minimum wage and automobile ownership of a household. All specifications include household head (hh) marital status, hh education level, hh age, the fraction of kids, the fraction of elderly, urban/rural, household size, year fixed effects (waves of the surveys), per capita consumption, disability status, and ownership of house or land. Green card enrollees are 45 percent of the sample.*

We then break our analysis into its parts to see the effects of insurance on individual outcomes. According to the IV 2SRI estimates, outpatient expenditures decline with the non-contributory insurance (column 3 in Table 3). The same is true for diagnostics health spending (columns 6 in Table 3) though the estimate is not statistically significant. Columns 8-9 in Table 3 report coefficient estimates for dentist healthcare expenses. Regression estimates show declining out-of-pocket healthcare expenditures for the poor. Column 9 indicates a greater reduction in out-of-pocket expenses in magnitude relative to the estimates where the insurance variable is assumed to be exogenous (column 8). We also report coefficient estimates for the insurance variable in columns 11-12 in Table 3 for pharmaceutical expenditures. IV 2SRI estimates for the insurance display declining actual expenses for the poor, which is about 18 TL per month.

4. Conclusion

Household healthcare expenditures can quickly become catastrophic. Damme et al. 2004 suggest that more evidence is required for designing policies aiming at providing financial protection. Whitehead et al. 2001 argued that there has been little assessment of payments for healthcare as to how much of a burden they form on the household budget. This is especially true of developing countries which have only recently begun conducting household surveys at the national level. This type of household-focused research at micro-level is especially valuable in an era during which governments are attempting to replace inequitable financing mechanisms with more equitable forms of financing.

The findings of the current study provide key policy implications regarding equity in health care financing. It is significant to note that Turkey's Green Card provides some financial protection for the poor. The decrease in health care expenditures which is equivalent to 38 TL per month is a significant amount which corresponds to 7percent of the minimum wage (we averaged the minimum wages over the studied period). Considering many households that benefit from Green Card earned much lower than the minimum wage, we can firmly conclude that the Green Card helped the beneficiaries not spend a sizeable portion of their income to get medical treatment. Thus, we argue that the Green Card scheme has been successful in improving the welfare of poor Turkish citizens. Overall, the Green Card program had provided financial protection for Turkish households by decreasing out-of-pocket expenditures. In this respect, it can be argued that the Green Card scheme served vertical equity principle, which states that health payments should be associated with the ability to pay (WHO, 2000).

Turkey implemented a significant healthcare reform about two decades ago to reach universal health coverage by which the intention was to reduce inequity and inequality in healthcare and improve health outcomes. A transitional reform in this process included the introduction of a non-contributory health insurance scheme, called the Green Card. Although Turkey's implementation of this reform was crucial to the broader audience, few looked at the implications of these significant reforms on healthcare expenditures, utilization of services, and health outcomes (Atun et al., 2013; Aran & Hentschel, 2012; Erus & Aktakke, 2012). In this study, we have investigated the impact of expanding the Green Card scheme

on out-of-pocket health expenditures. In doing so, we have implemented a nonlinear IV 2SRI regression model to account for unobserved confounding factors to remove the endogeneity of health insurance as well as considering the nonlinear nature of our dependent variable.

According to the empirical findings, we could firmly state that the expansion of the non-contributory insurance program in Turkey has a positive impact on declining the poor's health expenses, which appears to be there for a four-year period right after the expansion of benefits package went into effect. Overall, we can conclude that the non-contributory Green Card program has contributed to the alleviation of the medical poverty trap and ensured more equitable financing of healthcare services for the poor in Turkey despite many inefficiencies and moral hazard problems.

Even though the Green Card provided some degree of financial protection against out-of-pocket expenditures, it did not entirely prevent moral hazard problems and informal payments. Even though the program was designed to work through a means-testing procedure, where entitlement was based on a low income, local administrations which gave the final decisions on Green Card applications may have misused their discretionary powers (Erus et al., 2015). Furthermore, people with Green Cards had to incur informal payments known as "knife payments," which interrupted treatments for an overwhelming majority of Green Card holders (Tatar et al., 2007). We left these important topics untouched for future studies. Notwithstanding, Turkey's path to universal health coverage to overcome inequity issues, inequality in health care, and to improve health outcomes presents valuable lessons for those countries which are in the process of universal health coverage.

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