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An empirical analysis of out-of-pocket payment for health care services in Greece

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Abstract: This study presents insights into the determinants of out-of-pocket payment for healthcare services in Greece. The empirical analysis is based on the estimation of binary logistic regression models Empirical results suggest that consumers are informally paying for healthcare services to speed up their service from the public health care system.
Keywords: out-of-pocket payment, health services, Greece.

1. Introduction

Policy interest in promoting social healthcare is a much debated topic worldwide. However, Greece differentiates from other countries. Greece currently has the most "privatized" health system among EU countries (Kondilis et al., 2011, Siskou, 2009, Niakas, 2013). The financial crisis has negatively affected negatively the funding of existing healthcare systems. In particular, Greece's commitment in 2012 was to reduce public health funding to less than 6% of GDP reaching finally 6.22% (OECD, 2015, Economou, et al., 2014). Due to the reduction of public spending the share of health expenditure paid directly by households has increased by 4 % since 2009 (OECD 2015). Public spending cuts have been substituted for a large proportion of private spending as consumers have been forced to seek private health services, which rose from 2.1% to 3.1% as a percentage of GDP in 2008- 2014 (OECD, 2015).

Under these circumstances out-of –pocket payment in the healthcare system has become a common social pathogen. Thus, the aim of this study is to examine the determinants that affect consumers' out –of - pocket payment for healthcare services. For the purpose of the study, an extensive survey among consumers in Athens was carried out. The structure of the paper is as follows. The next section reviews the existing literature. The successive two sections present the data and the adopted methodology of the analysis. Subsequently the derived empirical results are presented and discussed. The last section concludes the paper and present policy implications of the analysis.

2. Literature review

Several studies have been conducted on the issue of out-of-pocket payments. The term out-of-pocket payment is used for informal transactions that are not institutionalized by each country's health system, such as reward or prepayment for satisfaction and better service respectively. They are payments for services provided free of charge to the citizen but for specific reasons the consumer is required to pay extra money in addition to the statutory participation fee (Docteur and Oxley, 2003). Informal payments are consumer health payments to healthcare providers in the form of donations, money or money transactions in order to ensure higher quality and faster medical care (Lewis, 2002). The most common type of informal payment is when health workers request reward from their patients and until they are paid delayed treatment or surgery (Ensor, 2004). With regard to the private health sector, informal payments are made when patients pay without health professionals to issue legal tariffs for their wages (Pappadà and Zylberbergn, 2014, Stepurko et al., 2010).

Informal payments include all the costs additionally paid by healthcare users and are classified as direct official payments, official cost allocation and informal payments (Mossialos and Thomson, 2002).

Surveys on informal payments refer to the economic impact that healthcare affects households in developing countries. Covering demand for health care is a major challenge if costs are inaccessible to the household (WHO, 2010). Households are forced to borrow money, sell property, borrow from relatives or even banks, or find money leaving behind other needs to seek healthcare (Mwabu, 1986, Dercon and Krishnan, 2000). They may choose less expensive or non-optimal care or not have the healthcare services they need (Goudge, et.al., 2009, Malik and Syed, 2012). In Romania and Georgia, poorer patients make significant sacrifices to pay for basic health services, which in some cases could not afford. In Kyrgyzstan, one in three reported that he borrowed money for hospital care, while in rural areas, 45% of the hospitals donated real estate to cover hospital costs (Lewis, 2007).

The economic impact of informal healthcare payments is seen in households and low-income countries with inadequate or virtually non-existent social health systems (Scheil-Adlung and Bonan 2013, Alam and

Mahal, 2014, Ekwochi et al., 2014, Narci et al., 2014, Misra et al., 2013, Van Minh et al., 2013, Gotsadze et al., 2009, Su et al., 2006, Gaal et al., 2006).

In Greece, 36% of the patients reported at least one informal payment to a doctor (Liaropoulos et al., 2008). Payments accounted for almost 20% of households' total hospital expenditure; they are not a cultural feature or conscious choice of luxury, but an established forced social behavior that becomes necessary in seeking easier access to qualitative treatment (Siskou, 2008). Also, none of the socio-economic characteristics of the respondents are related to the likelihood or magnitude of additional payments (Liaropoulos et al., 2008) (Beazoglou et al., 1998).

Taking into account the cuts and reductions in health financing, the satisfaction of citizens from the public system is low (Blendon et al., 2001, Moumtzoglou et al., 2000, Eurobarometer, 1998, Niakas and Gardellis, 2000). The main reasons for paying an informal payment are the lack of financial resources of the public system, the effort to influence suppliers and the consumer culture. In particular, it is noted that when health care is insufficient, healthcare consumers, in order to meet the need for medical care, pay an informal payment. Also in the Mediterranean countries, informal payments are considered a prerequisite for a better quality of health services. Finally, the culture and tradition - perception of a people affects the introduction of informal payments to institutionalized ones.

3. Methodological issues

3.1 Sampling and data

This research presents insights into some of the determinants that affect consumers' intention to out-of-pocket payment. Data for the current research were obtained from a random sample of 663 Greek consumers. The survey took place in the area of Athens, using an anonymous structured questionnaire. The questionnaire consisted of two sections: The first section included closed type questions on demographic and economic characteristics of the consumers such as gender, age and educational background. In the second section, consumers were asked to describe their experience towards healthcare services such the frequency of use and the magnitude of health care services, questions on admission procedures and size of ne payments for in-hospital care in the last 12 months and their health status.

3.2 Model specification

Empirical results are based on the estimation of logistic regression model. Logistic regression is used for predicting the probability of an event occurring by fitting data to a logit function. In our case, under the binary logistic model, the estimated value of the dependent variable is interpreted as the probability that a consumer was asked to give an out-of-pocket payment for healthcare services, as identified by the values of the explanatory independent variables. Taking into account previous studies (Laokri et al., 2014, Kankeu et al.,2013, Saksena et al., 2010, Vian et al., 2006, Belli, 2004, Grigorakis et al., 2016), in the empirical study, we employed the following expanded specification for a consumer's informal payment for healthcare services:

$$\text{Logit}[Pr(Y=1)] = b_o + b_1 age_i + b_2 univ_i + b_3 public_i + b_4 dis_i + b_6 hosp_i + b_7 priv_i + b_8 hours_i + b_9 days_i + b_{10} surg_i + \varepsilon_i \quad (1)$$

where Y is a binary variable indicating whether the consumer has informally paid for healthcare services in the last 12 months or not; specifically, the variable takes the value 1 when the consumer give an out-of-pocket payment and zero otherwise. age_i is the consumer's age; age^2_i is the square of the consumer's age; $univ_i$ is a dummy variable accounting for 1 if the respondent has completed graduate studies and zero otherwise; $public_i$ is a dummy variable accounting for 1 if the respondent is a public servant and zero otherwise; dis_i is a dummy variable accounting for 1 if the respondent has a chronic disease and zero otherwise; $hosp_i$ is a dummy variable accounting for 1 if the respondent has experience a visit to an outpatient hospital and zero otherwise; $priv_i$ is a dummy variable accounting for 1 if the respondent has experience a visit to a private doctor and zero otherwise; $hours_i$ is a qualitative variable that express the waiting hours at outpatient public clinic; $days_i$ is a qualitative variable that express the days of waiting for an appointment in a public hospital; $surg_i$ is a qualitative variable that express the days of waiting schedule a surgery in a public hospital and ε_{it} is disturbance term. The empirical results from the estimation of Eq. (1) are presented in Table 1 in the next section of this study.

4. Results

In this section we present the results of the statistical and econometric analyses to estimate the determinants that affect consumers' informal payment for healthcare services. From the sample of 663 consumers, 69.8% were women and 30.2% men. Most consumers had completed secondary education (39.6%), 35% were university-educated and 22.2% had a master degree. Most respondents were between the ages of 41

and 50 years (49.5%); 13.4% were between 18 and 25 years, 12.8% between 41 and 50 years and the rest above 50 years. 41.6% of consumers were married. The monthly income of 24.1.0% of consumers varied between €750 and €1.000 and 20.8% of consumers' declared income no higher than €600. However, 26.1% of consumers declared having an income above €1250. 68.9% of respondents replied that they have given an informal payment at the request of doctors. Several interesting results were obtained from the empirical estimation of Eq. (1). Table 1 presents the results of the fitted binary logistic model with respect to consumer's informal payment for healthcare services in the last 12 months or not; From Table 1 can be concluded that the variable "dis" is statistically insignificant. This result implies that having a chronic disease does not affect consumer informal payment for health care services. Contrary, the variable "age" is statistically significant at a 10% level. In particular, the coefficient of "age" is -0.0481 and the relative risk of this particular variable is 0.114, which implies that the corresponding percentage change is -0.086. This means that in relation to age the odds of consumers' out-of pocket payment for health care services decreases by 0.086 per cent while all other remain fixed. Concerning the educational level, the result implies that is not a statically significant factor of consumer informal payment for health care services. Contrary, "public" is a statically significant factor or out-of-pocket payment at a 1% level of significance. The coefficient of "public" is -0.463 and the relative risk of this particular variable is 1.411, which implies that the corresponding percentage change is 0.411. This means that in relation to public servant consumers the odds of informal payment for health care services increases by 0.411 all other variables remain fixed. This means that public servants have an increased probability of almost 41% over private sector employees to informally pay for health care services. As far as how the characteristics of the health care system affect the out-of-pocket payment results imply that, in all cases, there is a statically significant positive effect to the probability of this event to occur. In particular, it is estimated that "surg" is a statistical significant variable at a 5% level of significance with an estimated coefficient of 0.257 and a corresponding percentage change of 0.814. This means that as the number of waiting days to schedule a surgery in a public hospital increases the probability a consumer to informally pay for health care services increase by 81.4%, all other variables remain fixed. Similarly, as the waiting hours at outpatient public clinic increases the probability of a consumer to informally pay for healthcare services increases too by 61%. The estimated confident for the variable "days" is also positive and statistical significant, with a relative risk of 1.314, which implies that the corresponding percentage change is 0.314. Thus, as the days of waiting for an appointment in a public hospital increases the probability a consumer to give an out-of-pocket health care services increases by 31.4%, all other variables remain fixed. Contrary, the estimated coefficient of "priv" is statistical significant at a 5% with a negative sign. This result suggests that consumers that have experience a visit to a private doctor are less probable than others to give an out-of pocket payment.

Table 1: Estimated binary logistic regression of consumer's our-of-pocket payment for healthcare services (yes: 1 no: 0)

lependent variables	*Regression*
Constant	-0.038 (-0.07)
age	– 0.048* (-1.77)
univ	- 0.161 (-1.36)
public	0.463*** (4.04)
dis	0.018 (1.18)
hosp	0.385*** (3.40)
priv	-0.120** (-2.36)
hours	0.031*** (4.45)
days	0.181* (1.79)
surg	0.257** (2.41)
Log likelihood	-231.811
Nagelkerke R2	0,1515

N	663

The Nagelkerke R square which is a measure of predictability of the proposed model is equal to 0.1515. The log likelihood statistic is quite high, rejecting the null hypothesis and concluding that at least one of the estimated coefficients is different from zero. Finally, the Hosmer and Lemeshow value equal to 4.02, with significance equal to 0.551.

5. Conclusions

This paper has focused on providing insights into which factors affect consumers' out-of-pocket payment for health care services in Athens, Greece. For this purpose logistic regression model was estimated to identify the reasons that affect consumers to informally pay for health care services. The empirical results suggest that the main reason behind the decision to give an out-of-pocket payment is the pathogen that characterizes the Greek health care public system. Regardless their educational and health status consumers are more probably to informally pay for health care services because the waiting time for an appointment at a public clinic or to schedule a surgery is long. Given the financial stress that shrinks the family budget, finding and dealing the reasons behind the decisions to out-of-pocket payment is an important issue for any government in order to implement a social healthcare policy plan.

A number of limitations of the current study can be noted, as well as some directions for future research. The sectional nature of this study might affect the interpretation of our empirical results. The analysis is based solely on self-reported intentions on the part of consumers without being able to verify their claims, regarding out-of-pocket payment for healthcare services. Nonetheless this is something common in all types of survey-based researches. Future research on this topic, based on different time and countries are highly recommended. Finally, it would be important for policy makers to examine the reasons why healthcare staff receives informal payments in order to provide them the appropriate incentives that would limit the phenomenon of out-of-pocket payment in the health sector.

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