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Article

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Economics and Business Letters

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Reference: Blázquez-Fernández, Carla/Cantarero-Prieto, David et. al. (2024). Did the Great Recession matter for health care utilization? : an approach from the working-age population in Spain. In: Economics and Business Letters 13 (3), S. 122 - 131.
<https://reunido.uniovi.es/index.php/EBL/article/download/20039/16462/68168>.
doi:10.17811/ebl.13.3.2024.122-131.

This Version is available at:
<http://hdl.handle.net/11159/703090>

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Did the Great Recession matter for health care utilization? An approach from the working-age population in Spain

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Received: 26 July 2023

Revised: 21 February 2024

Accepted: 10 March 2024

Abstract

This paper tests for the determinants of health care services utilization in Spain. Data from the Spanish National Health Survey for 2006 and 2011-2012, two different phases of the economic cycle, is used. The analysis is carried out using count data models. Results show that the determinants are mainly related to gender, age, and health status. However, we find some differences prior the Great Recession and through it. Besides, there appear to be some differences between the services analysed. Findings should be considered first, under the framework of the Spanish National Health Care System and secondly, in terms of austerity measures. From a policy economic perspective, this contribution would be valuable to policymakers when planning to improve health services management.

Keywords: health care utilization, economic downturn, count data modelling, Spain

JEL Classification Codes: I10, I18

1. Introduction

Since the seminal papers of both Arrow (1963) and Grossman (1972a, b), several papers have studied the relationship between health care utilization and sociodemographic factors (Clavero-Barranquero and González-Álvarez, 2005; Urbanos-Garrido, 2011; Devaux, 2015; Lopez-Pereira, Casanova, and Sanz-Barbero, 2016; or Fiebig et al. 2021). Those studies suggest that the lower the socioeconomic level, the higher the expected health care demand. In this regard, Van der Heyden et al. (2003) found that underachiever individuals, understood as people with lower education, in Belgium would more often make use of the general practitioner and would be more frequently admitted to hospital

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Citation: C. Blázquez-Fernández, D. Cantarero-Prieto and P. Pérez (2024) Did the Great Recession matter for health care utilization? An approach from the working-age population in Spain, *Economics and Business Letters*, 13(3), 122-131. DOI: 10.17811/ebl.13.3.2024.122-131.

than those individuals with higher education. However, after controlling for health status and demographic characteristics, people with higher socioeconomic status reported visiting specialist health care more frequently. Besides, Morris, Sutton and Gravelle (2005) showed how low-income individuals and ethnic minorities have lower use of specialist health care in England, despite having higher use of primary health care. Notwithstanding, in Åhs and Westerling (2006) it is highlighted how results regarding positive association between unemployment and health care consumption are not conclusive.

Turning to the Spanish evidence, it could be argued that it broadly supports the above-mentioned findings. Then, as stated by Lostao et al. (2011), lower socioeconomic collectives exhibit higher rates of medical visits than the upper socioeconomic groups for the same level of health needs. Nevertheless, it is because the high socioeconomic people have also double (public and private) health coverage. Meanwhile, García-Pérez et al. (2007) showed that labor status and educational level do not influence consultations when it has been adjusted by income. Conversely, González-Álvarez and Clavero-Barranquero (2008) and Regidor et al. (2008) found inequity in visits to a general practitioner favoring low socioeconomic levels. The opposite effect is observed in specialist visits. Moreover, Abásolo et al. (2014a, b) examined health care utilization and waiting times. As they have shown, there is clear evidence of inequity in the access to specialist and hospital services which gives advantages to the highest socioeconomic levels.

With a grounding in those previous contributions, the current study aims to investigate the effect that socioeconomic characteristics of the individuals have on the demand for health care in Spain when controlling for the business cycle. That is, the goal of our study is to disentangle two main hypotheses: i) health care utilization is associated with socioeconomic characteristics of the individual and ii) this relationship could be modified by the economic cycle. In doing so, we compare the periods before and during the Great Recession. So, the novelty here is that we test if the Great Recession (2008-2013) matters. Precisely, as pointed by García-Gómez et al., the Great Recession has had strong consequences on individual behavior and health, but the magnitude and direction of the effects are not uniform. Therefore, this is an overarching empirical question that is pertinent in the context of the financially constrained Spanish health system. Our findings support significant differences between services (general practitioner and specialist) and periods (pre- and mid-recession). Overall, from an economic policy perspective, this paper highlights an awareness of some changes that could emerge during economic downturns. Actually, it would shed light on the main points in the policymakers' considering efficiency, equity and scarce resources.

1.1. The Spanish Health Care System: A Brief Overview

Health protection has been consolidated in Spain along with the change in 1986 from a Social Security model to a National Health System (NHS). The Spanish NHS is based on the fundamental principle of universalism understood as basic coverage for all residents. Further, health care has been decentralized to all the regions since 2002. Financing is covered through regional and shared taxes and block-grants from the central government.

The organization of health care services is organized in different ways. The general practitioner is the first contact for patients within the NHS. There is a possibility of them having a choice, but access to specialist services is restricted by a gatekeeping system.

Once the general practitioner has authorized the visit or procedure, patients are free to choose any provider among those accredited by the NHS inside their region of origin. There is a special health care fund for the displacement of patients. In emergency cases, direct and free access is allowed to all health care services, regions and population groups.

As with other OECD countries (e.g., Italy, Denmark, Sweden, Switzerland or Canada), decentralization of health care has been seen as a way to improve responsiveness and efficiency. Regional governments are free to organize their own health care services. As a result, huge differences appear across regions but mainly in complementary supply and coverage of (and access to) some health care programs (González and Urbanos, 2004).

2. Methods

The decision-making process underlying the demand for health care services is based on the individual's perception of medical symptoms and the incentive towards action (Rivera, 2004). Two theoretical approaches are worthy of study in this regard. First, Grossman (1972a, b) emphasizes the role played by patient choice inside the traditional consumer theory. Second, Zweifel (1981) points out that a physician as the patient's agent determines the medical services used by the patient, once the first visit has been undertaken (supplier-induced demand model).

In this paper, we focus on both general practitioner and specialist services in order to analyze health care utilization. Accordingly, our econometric approach should consider that the dependent variable takes non-negative integer values and hence the suitable framework is count data modeling (Cameron and Trivedi, 1986; Jones et al., 2012). The Poisson or negative binomial model, as appropriate, has the following form:

$$E(u_i|x_i) = \exp(x_i \beta), \quad (1)$$

where u_i denotes health care utilization and x_i is a vector of characteristics for individual i . Eq. 1 can be specified equivalently as:

$$E(u_i|x_1 \dots x_k) = \exp(\beta_0 + \beta_1 \text{labour}_i + \beta_2 \text{health}_i + X_i' \gamma + \eta_r) \quad (2)$$

where *labour* measures labour status (1 if the individual declares to be unemployed, 0 otherwise). In addition, we include *health* because not doing so the impact of other variables might be biased (indeed, the demand for health services positively correlates to health status since people need health assistance when they are ill). The vector X_i contains a set of explanatory variables such as demographic and social ones. Finally, η_r represents unobserved effects. Below, we provide marginal and average effects estimates for Eq. 2.

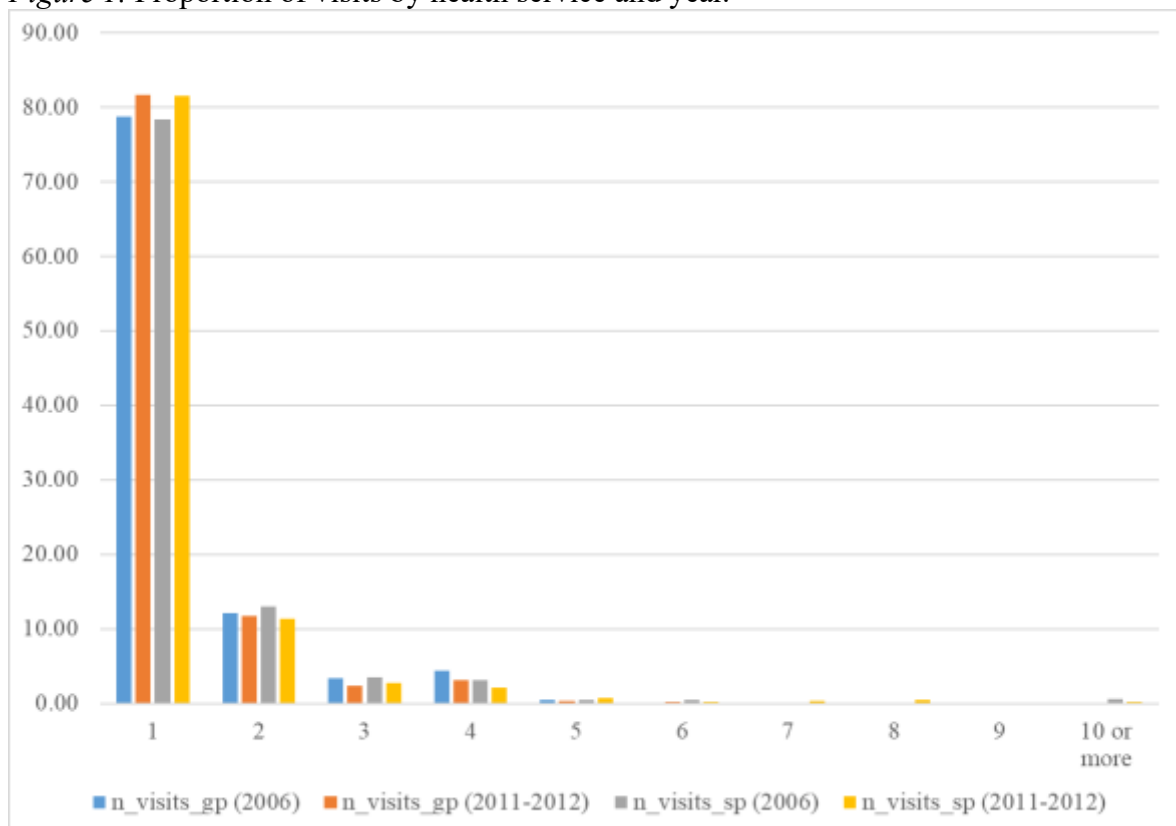
3. Data

The present analysis requires both individual-level data on an adult's characteristics and a source of time variation in them. This is the reason for using microdata drawn from the Spanish National Health Survey (SNHS) for 2006 and 2011-2012, before and during the Great Recession in Spain (2008-2013). The survey sample for 2006 and 2011-2012, consists of approximately 31,300 and 24,000 homes divided into 2,236 and 2,000 census areas, respectively. Here, three caveats need to be made: (i) survey data for the intervening

years 2007-2010 are unavailable; (ii) it is not a panel survey in which a sample of households had been interviewed year after year and we work with different individuals on each occasion; (iii) we restricted the sample to working-age population, 16-65 years, since special emphasis is placed on the impact of labor status. Table 1 shows the basic descriptive statistics of all the variables used in this analysis. It can be observed that the dependent variables are somehow stable between periods. Besides, it should be mentioned that there is high concentration on one visit for both services (around 80% of total visits, being irrelevant period and service). Figure 1 plots the proportion of visits by health service and year.

Demand for medical services is measured through two dependent variables: (i) *n_visits_gp*, number of visits to general practitioner in the last four weeks, and (ii) *n_visits_sp*, number of visits to the specialist in the same period. Regarding the explanatory variables, most of them are dummy variables and they include: gender (1 if female), age (in years), labor status (through employed that would take value 1 if the respondent is unemployed), social-class (based on occupation of the reference person interviewed, which has six levels from high to low), Self-Assessed Health (SAH: 1 if respondent reporting good or better health status), suffering any chronic disease and having limitation in daily activities (1 if chronic and 1 if limited, respectively).

Figure 1. Proportion of visits by health service and year.



Source: authors' elaboration based on SNHS 2006 and 2011-2012.

Table 1. Summary statistics.

Variables		Pre-crisis (2006)				Crisis (2011-2012)			
		Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
Health care utilization	<i>n_visits_gp</i>	1.396	1.048	1	20	1.317	0.862	1	12
	<i>n_visits_sp</i>	1.444	1.349	1	20	1.366	1.100	1	16
Gender	<i>Female</i>	0.592	0.492	0	1	0.509	0.500	0	1
Age	<i>Age</i>	42.139	12.807	16	65	42.845	12.966	16	65
Employment status	<i>Unemployed</i>	0.082	0.274	0	1	0.171	0.376	0	1
Social class	<i>Social-class</i>	3.857	1.506	1	6	3.867	1.566	1	6
Self-Assessed Health	<i>SAH-good or better</i>	0.703	0.457	0	1	0.770	0.421	0	1
Diseases	<i>Chronic</i>	0.225	0.417	0	1	0.380	0.485	0	1
	<i>Limit</i>	0.206	0.404	0	1	0.159	0.366	0	1

Source: authors' elaboration based on SNHS 2006 and 2011-2012.

Observations: 6,222 (*gp*) and 1,871 (*sp*) for 2006, and 3,734 (*gp*) and 1,063 (*sp*) for 2011-2012.

As for control ones, 21,537 and 14,912 for 2006 and 2011-2012, respectively.

4. Results

Table 2 shows the Poisson/Negative binomial marginal effects estimates from Eq. 2 for both general practitioner and specialist. It is found that age, social-class and health status are the main determinants of health care utilization (in both directions: reducing (age and social-class) and/or increasing health care utilization (“bad-health”). Not surprisingly, in accordance with previous literature, our results change between general practitioner and specialist services and support that there are differences prior to and after the onset of the Great Recession (2008-2013).

Table 2. Marginal effects (dy/dx) for health care utilization. Poisson/negative binomial model estimation.

Variable	General Practitioner		Specialist	
	Pre-crisis (2006)	Crisis (2011-2012)	Pre-crisis (2006)	Crisis (2011-2012)
<i>Female</i>	0.020	0.007	-0.071	-0.002
<i>Age</i>	-0.003 **	-0.003 **	0.002	-0.009 ***
<i>Unemployed</i>	-0.054	-0.022	0.038	-0.086
<i>Social-class</i>	-0.007	-0.026 **	-0.008	-0.050 **
<i>SAH-good or better</i>	-0.213 ***	-0.218 ***	-0.032	-0.138
<i>Chronic</i>	0.224 ***	0.047	0.065	0.123
<i>Limit</i>	0.296 ***	0.337 ***	0.326 ***	0.396 ***
Observations	5,573	3,630	1,699	1,031

Note. dy/dx is for discrete change of dummy variable from 0 to 1.

***, **, and * denote significant at 1%, 5%, and 10% respectively.

Precisely, regarding the general practitioner service, it is found that regardless of the period, the higher the age the less use of this service (marginal effects are -0.003). Similar results for good or better SAH are obtained. In opposition, having limitation in daily activities would increase health care utilization each time. Besides, for both, suffering any chronic disease and social-class, a key point to be highlighted is that while the former ceases to be significant in the crisis, the latest becomes statistically significant and so, the lower the social-class the less use of the general practitioner service. As for the specialist service, only limitations in daily activities would increase that utilization over time. Then, chronic disease, in spite the fact it means has increase between the period considered, becomes not significant. However, during the crisis age and social-class would also contribute to explain the utilization of specialist services. Again, a negative effect for both variables is found.

To summarize, our results show that an elder respondent, of low social class and with no limitations in daily activities is likely to report less medical consultations. Besides, we reject the fact that being unemployed is related to a higher health care utilization. Additionally, it is not found that a crisis worsens the effect for this collective. On the contrary, having limitations

in daily activities is the only variable that is stable between both services and periods. Then, our findings support that the Great Recession matters, mainly through social-class variable, drawing a worsening effect. That is, concerning social class, our results pointed out a clear turning point through the crisis. Figures here could be related to the opened debate regarding health care as not being a 'luxury good'.

5. Concluding remarks

Recent literature provides mixed answers concerning demand for health care. In this paper, data from the SNHS has been used to examine the determinants for health care utilization (general practitioner and specialist services) in Spain, prior to the onset of and during the Great Recession. The overarching empirical question that is modeled by our study is a pertinent one, especially in the context of the financially constrained health systems that now operate around the world (Evans, 2009).

Our estimation results are in accordance with those of Van der Heyden et al. (2003) for Belgium. Broadly speaking, the effects on this issue are mostly concentrated on sociodemographic characteristics (Van der Heyden et al., 2003; Morris, Sutton, and Gravelle, 2005; Åhs and Westerling, 2006; Lostao et al., 2001). Precisely, in this study the higher the age the less use of this service. Intuitively, this finding would be a question of time constraints for that working-age population cohort here considered (16-65 years) (Fell et al., 2007). Besides, as expected, the fact that more healthy individuals mostly use medical care services less frequently is corroborated. It should also be noted that SAH is not statistically significant for specialist services. We can postulate that it should be a combination of both the gatekeeping and budgets constraints through the crisis. Moreover, gender and unemployment status are not significant. In spite the fact unemployed individuals have increased during the crisis. All in all, previous results at this regard are far from conclusive (Urbanos-Garrido, 2011; Åhs and Westerling, 2006). Besides, there are some differences between the health care services analyzed and from the period prior to the financial downturn that are related to the later one. We then speculate that the higher the social-class the more specialist consultations and that there is an increase in time constraints during the crisis. Overall, we suggest that our findings must be considered in light of the painful effects of the financial crisis on the Spanish NHS that is characterized by universal coverage and tax funding (Bosch, Moreno, and Lopez-Soto, 2014).

We hypothesize that our insights could be relevant for current debates in the literature on health economics (Urbanos-Garrido, 2023). As stated above, this issue is a crucial source of information when it comes to staying healthy and promoting human capital attainments (Wang, 2015). Moreover, our findings are related to the Spanish austerity measures through the financial downturn, with health expenditure cuts and its impact on health care supply. Being amplified their effects when the recession comes to an end (Urbanos-Garrido and Lopez-Valcarcel, 2015). From a policy economic perspective, this contribution would be valuable to interconnected policymakers when planning to improve health services management.

This paper could be extended in several ways. For example, it would be valuable to test our results by using other methods and control variables or making a multi-country study. These and other extensions of this study are left for further research, when there will be available new

data on health indicators. More information is needed in order to carry out appropriate policies at both macro- and microeconomic levels. Here, our focus is on the global economic downturn and its derived effects.

Acknowledgements.

Carla Blázquez-Fernández wants to thank the Spanish Ministry of Education [grant number FPU AP-2012- 04156].

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