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## Freedom of choice and health services' performance: Evidence from a National Health System

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### **Abstract**

Public policies fostering the freedom of choice of provider in the healthcare sector are becoming increasingly usual in many countries and regions in order to boost patient empowerment and improving health services' performance. However, the impact of choice on quality of care remains an unresolved issue in the literature. This study investigates whether increasing the freedom of choice by patients influence health systems' outcomes in terms of various non-clinical aspects of care, a dimension usually overlooked by the research in this field. We exploit a "natural experiment" in the Spanish National Health System in 2009 which allowed citizens to freely choose among any General Practitioner and Specialist within the region of Madrid. The empirical analysis is conducted by drawing on Spanish microdata for the period 2002-2016 and synthetic control estimation techniques. The key findings show a strong and long lasting positive impact of the reform on average waiting times and satisfaction for attention from a specialist doctor. Our analysis reveals that the freedom of choice policies could be useful to improve the health systems performance if combined with appropriate economic incentives for health providers.

### **Keywords:**

Health system performance; Responsiveness; Waiting times; Synthetic control method; Freedom of choice

### **JEL classification codes:**

C31; H42; I11; I18; L33; L38

## 1. Introduction

Policies enabling patients' freedom of choice of health provider (hereafter, freedom of choice policies) are increasingly common in Europe. For instance, between 2006 and 2008 the UK government extended patients' right to freely choose their specialist doctor to the whole country, in both public and private hospitals [1,2]. Similarly, in 2016 the Portuguese National Health System (NHS) allowed patients to freely choose any hospital within or outside their referral area for outpatient consultations [3]. Similar reforms have also been implemented in Norway, Finland and Sweden [4].

Policies increasing freedom of choice are aimed at improving efficiency and quality by providing mechanisms for greater competition [1,5]. However, merely extending freedom of choice may not directly produce increased competition among health providers [6]. In addition, further actions could be necessary to achieve effective improvements in the health systems, such as implementing economic incentives linked to providers' activities, expanding the capacity of the health system or providing performance-related information [1,4].

Previous studies about freedom of choice have mainly analysed the impact of policies seeking to increase competition among providers, focusing on areas such as the clinical quality of hospital care [7,8]. The majority of these studies have addressed the situation in the US and/or the UK [9]. The empirical evidence available on the effects of freedom of choice policies is mixed. In this respect, Dawson et al. and Ringard & Hagen found that greater freedom of choice in hospital care reduced average waiting times in London and Norway, respectively [10–12], while Moscelli et al. found that the reforms introduced in the English NHS in 2006 reduced mortality risks for hip fracture patients by 0.62% [13]. However, Simões et al. reported conflicting results in their study of a similar reform in Portugal [3]. As regards hospital quality, reforms extending the freedom of choice of hospital within the British NHS in 2006 were associated with decreased mortality rates for acute myocardial infarction for patients living in areas where stronger competition policies were implemented [1,14]. On the other hand, health care quality worsened in terms of emergency readmissions after hip and knee replacement [8].

By adopting a policy similar to the one implemented in the UK in 2006, in November 2009 the regional government of the Community of Madrid (Spain) enacted

a law that extended the patients' right to freely choose among any General Practitioner (GP), paediatrician or nurse available in the primary care service, and among any specialist at any hospital in the whole Community of Madrid [15], in the specialised care service, and not just among those professionals in their corresponding referral area. The Community of Madrid was the first, and to date the only, region in Spain to remove the main administrative barriers that prevented comprehensive freedom of choice of health providers by patients within its territory. Additional measures included proceedings to facilitate the choice of health provider, implementation of new information systems enabling patient to make more informed decisions and opening of new hospitals (see Table 1). In addition, a complementary measure of this reform provided a few hospitals in Madrid with strong economic incentives to attract patients as part of their receipts was based on the number of patients treated from other centres. While the new structure of the health system sought to develop citizens' right to take part in health-related decision making, its primary aim was to improve healthcare quality [15]. To our knowledge, the only study investigating this reform has been conducted by Matías-Guiu et al. by considering a Neurology Department in the region of Madrid [16]. The results of the study show relevant inflows of patients to the Department from other health areas following this policy. Waiting times and doctor reputation appear as the main reasons for the choice of the Department

Table 1

*Reform package (main and parallel reforms) related to the freedom of choice policy implemented in the Community of Madrid in 2009*

<b>Type</b>	<b>Subtype</b>	<b>Description</b>
<b>Main reform</b>	Extension of choice of health provider	Allowing patients of the Community of Madrid to choose among any general practitioner and specialist doctor of any health centre or hospital of the whole region instead of among those in their referral Health Area.
<b>Parallel reforms</b>	Proceedings to facilitate the choice of health provider	Allowing patients to communicate their choice in the health centre, hospital, or specialised centre where their preferred health provider is located by reducing paperwork.
		Telematic mechanisms to promote choice such as a website ( <i>Portal de Salud</i> ) where patients can freely make an appointment with the health provider of their choice.
		Appointment receipt system in specialised care. Patients receive from their GP an appointment receipt to visit specialised care with which they can choose their preferred specialist by internet, mobile app, or digital facilities in the health centre.
		<i>Appointment management centre</i> , a call centre contacting patients within three days after being referred by the GP. They provide patients with information about certain features of health providers and help them make the appointment.
	Implementation of new information systems enabling patient to make more informed decisions	Provision of information on the website about the freedom of choice system in the Community of Madrid to inform patients how to choose the health provider.
		Provision of information about health providers availability, as well as quality indicators by health centre and hospitals such as waiting times for surgery, outpatients' consultation or diagnostics test, clinical effectiveness, patient safety, efficiency, or satisfaction with care
	Opening of new hospitals managed by private companies	Several hospitals were built and managed by means of private companies such as Hospital Rey Juan Carlos, Villalba, Infanta Elena, and Torrejón. The concession contracts provide a reimbursement system rewarding economically those hospitals attracting patients from other centres.
Adaptation of the regional health service to the requirements of the freedom of choice	Development of management tools (AP-Madrid) to centralise patients' medical records	
	Implementation of the Corporate Intranet	
	Installation of several software to manage the request for denial of free choice in primary care by professional or to view the patients' medical record regardless of the source used	
		Establishment of the Free Choice Control Panel that monitors the activity arising from freedom of choice

In this paper, we analyse the impact of the health system reform carried out in the region of Madrid in 2009 on the responsiveness of its primary and specialised care services. We address this goal by using cross-section microdata obtained from the Spanish Healthcare Barometer (SHB) survey for the period 2002-2016 and the synthetic

control estimator as the main impact evaluation technique [17–19]. The Spanish health care setting is relevant to study freedom of choice reforms since its health care system is essentially universal coverage-wise, funded by taxation and provided free of charge at the point of delivery, like many other health systems which are currently implementing such reforms.

The World Health Organisation (WHO) has highlighted the desirability of measuring health system responsiveness as a valid component for evaluating health service performance [20]. This concept concerns how individuals are treated by the health system and the nature of the environment in which this interaction takes place [21]. Moreover, it is related to non-clinical health care factors, i.e. those which although not directly related to health outcomes may be relevant to the well-being of the population [21]. The WHO classified these aspects into eight domains, which can be categorised as *respect-for-persons* (dignity, autonomy, confidentiality and communication), and *client-orientation* (choice of care provider, prompt attention, quality of basic amenities and access to social support networks) [21,22]. In this paper, we study how extending the freedom of choice of health care providers in the Community of Madrid has affected patients' healthcare experiences, with particular regard to the *dignity*, *communication* and *prompt attention* domains of responsiveness.

Given the difficulty often encountered in obtaining objective indicators to measure the responsiveness of the health system concerning some of these domains [21], patients' opinions about their own experiences are usually used in research studies as a proxy of the true level of responsiveness. According to the literature, self-reported measures of responsiveness can be considered as valid predictors of more objective measures of this variable and are useful tools for evaluating the performance of health systems' secondary care [23]. In view of these considerations, the present study uses patient-reported measures to quantify the level of responsiveness of the domains addressed.

This study contributes to the literature on freedom of choice policies in the health field in several ways. Firstly, to our knowledge, this is the first study providing empirical evidence about the effects of such policies on some of the responsiveness domains proposed by the WHO as a means of evaluating healthcare systems. Although previous studies have explored the impact of competition reforms on quality from the patients' point of view, they mainly focus on broader measures of patient satisfaction, as

opposed to responsiveness [24]. Secondly, unlike much previous research, our study analyses and compares the effects of the freedom of choice reform on both primary and specialised health care [24,25]. Finally, we measure the effect of the policy on *prompt attention* by using objective and subjective indicators of waiting times and provide further support to previous literature by revealing a strong correlation between the two types of measures.

### **1.1. The Spanish National Health System**

Under the Spanish NHS, health cover is essentially universal, funded by taxation and provided free of charge at the point of delivery. To a large extent, health services are publicly provided (the public sector accounted for 70.8% of total health spending in 2019) [26].

The Spanish health system is highly decentralised, since responsibility for budget management and territorial organisation has been fully devolved to the regional governments since 2002. Health care funding is regulated by an agreement by which the central government devolves tax and funds revenues to the regions on the basis of a needs-based weighted formula. Hospitals are paid on the basis of prospective budgets based on volume and some quality indicators, while primary care health professionals are - with very few exceptions - salaried workers [27]. In some cases, when the provision is delivered by private providers –mostly in secondary care–, procedures are paid via a fee-for-service mechanism [27].

From the healthcare management stand point, the country is divided into Regions, and the territory of each Region is divided into Health Areas. Each Health Area is composed of several Basic Health Zones, the smallest units of the organisational structure. Each Basic Zone is composed of one or more health centres, staffed by primary care teams, who exercise the gatekeeper function. Each regional government is responsible for the organisation of this territorial structure within its region. Citizens are assigned the primary care team which is closest to their place of residence. Therefore, their referral Health Area is that where the assigned primary care team works. Hospital departments are responsible for the provision of specialised care, in addition to inpatient care.

## **1.2. The freedom of choice policy in the Community of Madrid**

In Spain, patients can choose among GPs/specialists in health centres/hospitals within their referral Health Area. However, the regions have the right to modify the national legislation regarding freedom of choice within their territories. In November 2009, under a regional regulation, the former eleven Health Areas in the region of Madrid were replaced by a unified Single Health Area. This reform removed the main administrative barrier preventing patients from choosing health providers within the entire region. In summary, this reform extended patients' freedom of choice by allowing them to freely choose among all the healthcare professionals working in the region, in both primary and specialised care, and not just among those in their referral Health Area. To date, the Community of Madrid is the only region in Spain which has adopted a Single Health Area.

The regional health authority of the Community of Madrid adopted several measures to facilitate patient choice. Under the new system in primary care, patients need only communicate their choice of doctor to the health centre where the GP in question delivers the service. In specialised care, after being referred by their GP, patients can make an appointment by internet, mobile application, by means of digital facilities located within the health centre or via the Appointment Management Centre (a call centre which since 2010 has been helping users make appointments with specialists and informing them of waiting lists and alternative providers). Furthermore, since 2014 the health authority has published indicators of the performance and speciality-specific waiting lists for hospitals in the region, in order to facilitate the decision making process [28]. Since the law came into effect, the number of patients who have exercised their freedom of choice has progressively increased. The most recent data show that, in 2018, the citizens in this region made 2,292 changes of specialist doctor per 100,000 consultations, 83% more than in 2011 [29] (see supplementary material 1). In parallel to the reform some new hospitals have been inaugurated in the Community of Madrid, under a Public-Private Initiative (PPI) funded on a fee-for-service basis and whose concession contracts include financial incentives to attract patients from other hospitals (see the Discussion section).

## 2. Materials and Methods

### 2.1. Dataset

This study is based on cross-sectional microdata obtained from the Spanish Healthcare Barometer (SHB) survey for the period 2002-2016, addressed to citizens aged over 18 years to determine their perceptions of health services in Spain. The survey is conducted annually by personal interview with a total sample of about 7,800 respondents, representative of the Spanish adult population [30] (see supplementary material 2). Therefore, our analysis is based on pooled data with a total sample size of 109,601 respondents.

The SHB survey asks respondents to assess the degree to which they are satisfied with a series of non-clinical factors related to the responsiveness concept proposed by the WHO. In addition, respondents are asked to provide their socioeconomic and other health-related data. In this paper, we focus exclusively on respondents who reported experience with the public health system during the last 12 months (around 95% and 82% of respondents who used the primary and specialised care services, respectively, recognised having used the public health system during this period).

The SHB survey asks respondents to rate the level of responsiveness of each health service in their region in terms of various non-clinical factors, on a scale ranging from 1 (“*totally unsatisfactory*”) to 10 (“*totally satisfactory*”). In our analysis, each non-clinical factor is merged with the corresponding WHO domains following the procedure described by Fiorentini et al. [23,31] (see supplementary material 3). Table 2 shows the degree of correspondence between the WHO responsiveness domains and the items included in the SHB questionnaire for primary and specialised care. The present study identifies three of the eight WHO responsiveness domains: *Communication*, *Dignity* and *Prompt attention*. The Pearson’s correlation coefficients reported in Table 2 reveal a strong and statistically significant association of the items in each of the domains.



Table 2

*Primary and specialised care: WHO responsiveness domains and the corresponding non-clinical factors associated in the SHB survey*

<b>Responsiveness domains</b>	<b>Items in the SHB survey:</b> Given your own experience or idea that you have, I would like you to assess the following factors:	<b>Time period</b>
<b>Primary care</b>		
<b>Communication</b> Pearson's Correlation: $r(57,752) = 0.74, p < 0.001$	- The information received about your health problem	2002-2016
	- The advice of the doctor about exercise, food, tobacco, alcohol, etc.	2003-2016
<b>Dignity</b> Pearson's Correlation: $r(9,257) = 0.68, p < 0.001$	- The respect with which you are treated by the health provider	2002-2016
	- The attention paid by the nurse	2015-2016
<b>Prompt attention</b> Pearson's Correlation: $r(40,913) = 0.63, p < 0.001$	- The waiting time from when you made the appointment until you were seen by the doctor	2004-2016
	- The waiting time until diagnostic tests were performed	2007-2016
<b>Specialised care</b>		
<b>Communication</b> Pearson's Correlation: $r(33,913) = 0.75, p < 0.001$	- The information received about your health problem	2002-2016
	- The advice of the doctor about exercise, food, tobacco, alcohol, etc.	2003-2016
<b>Dignity</b>	- The respect with which you are treated by the health provider	2002-2016
<b>Prompt attention</b> Pearson's Correlation: $r(27,615) = 0.75, p < 0.001$	- The waiting time from when you made the appointment until you were seen by the doctor	2004-2016
	- The waiting time until diagnostic tests were performed	2006-2016

Note: The time period column indicates the years when the non-clinical factor was included in the SHB survey. This means that the item is taken into account in building the corresponding domain from the first year in which it appeared in the survey. Adapted from Valentine et al. (2003) and SHB survey.

In addition to the above-mentioned factors, the respondents were asked to indicate the waiting times elapsed (in days) to be seen by the GP (primary care) and specialist (specialised care) since the appointment was made. These self-reported waiting times are related to the *Prompt attention* domain but are measured in a more objective way. Therefore, this domain is termed *Prompt attention (objective)* to distinguish it from *Prompt attention (subjective)*, which is measured according to the satisfaction-scale ranging from 1 to 10.

## 2.2. Method

Our empirical strategy is based on impact evaluation techniques, specifically, the synthetic control method (SCM). Impact evaluation methods assume that at time  $T_0$  a

group of individuals receive a certain treatment (treatment group,  $G = 1$ ), whereas the remaining ones do not (control group,  $G = 0$ ). The average treatment effect (ATE) on the variable of interest ( $Y_{G,t}(K)$ ) during the post-intervention period is defined as:

$$ATE_t = \bar{Y}_{1,t}(1) - \bar{Y}_{1,t}(0) \quad \text{with } t > T_0 \quad (1)$$

where  $ATE_t$  is the average treatment effect at time  $t$ ;  $\bar{Y}_{1,t}(1)$  is the average observed value of the variable of interest in the treatment group at time  $t$  when the treatment has really been implemented ( $K = 1$ ); and  $\bar{Y}_{1,t}(0)$  is the average value which would have been observed in the treatment group at time  $t$  if the intervention had not been implemented in that group ( $K = 0$ ). This second term is the *counterfactual*. In the absence of randomly assigned treatments, alternative methods to estimate the counterfactual value have been proposed, such as the difference-in-differences (DD) or the SCM [32].

We apply the SCM for two main reasons: 1) it overcomes the drawbacks of other methods (self-selected comparison between treatment and control group or DD) to obtain a control group with identical or very similar characteristics to that of the treatment group [32]; 2) it is a valid option when the parallel trends assumption of the DD method does not hold, as is the present case (according to supplementary material 4, only prompt attention seems to satisfy the parallel trends requirement. Application of the DD method confirms this hypothesis, results available upon request) [33].

The SCM applies an optimal weight average of the variable of interest in the control group in order to obtain a comparison unit which is as similar as possible to the treated unit [17,18]. Thus, Equation (1) can be rewritten as follows:

$$ATE_t = \bar{Y}_{1,t}(1) - \sum_{j=2}^J w_j^* Y_{j,t}(0) \quad \text{with } t > T_0 \quad (2)$$

where  $w^* = (w_2, \dots, w_J)'$  is a  $(J-1 \times 1)$  vector of weights, with  $w_j \geq 0$  for  $j = 2, \dots, J$  and  $w_2 + \dots + w_J = 1$  and each value of  $w$  represents a potential synthetic control. The vector  $w^*$  is chosen to minimise  $\|X_1 - X_0 w^*\|$  subject to the weight constraints and where  $X_1$  is a  $(k \times 1)$  vector of pre-intervention characteristics for the treated unit and  $X_0$  is a  $(k \times J-1)$  matrix which contains the same variables for the untreated units. The variables included in the  $X_0$  and  $X_1$  vectors must be predictor characteristics of the

variables of interest [18]. In our case, the characteristics of the  $X_1$  and  $X_0$  vectors were selected by following the empirical literature on responsiveness and the determinants of waiting times [11,34,35] (see supplementary material 5).

For the present case of the Community of Madrid (treatment group), a quasi-natural experiment was used to analyse the effect of the 2009 freedom of choice reform on health system responsiveness, taking the remaining Spanish regions as the control group. To perform this analysis, the level of responsiveness was aggregated by region, computing the arithmetic mean of the individual assessments –with regard to each domain– by region and year, as in previous literature [36,37].

The robustness of the results was determined by in-space placebo tests, in which the SCM was applied to each of the units in the control group as if the policy had really been implemented in these units [18,38]. In this process, we obtained the p-values and pseudo t-statistics suggested by Galiani & Quistorff [36], which were used to calculate the significance of the effects year by year. The overall significance of the effects was also tested by using the ratios of the post/pre-intervention root mean squared prediction error (RMSPE ratios) and the leave-one-out test distribution [17] (see supplementary material 6). Further, as additional robustness checks (not shown for the sake of brevity but available upon request from authors), we have also used alternative control groups. In particular, in order to build the synthetic region, we used those regions more comparable to the Community of Madrid in terms of GDP per capita (8 regions with the highest GDP growth over the period 2003-2016), and also those similarly affected by the 2008 economic crisis (8 regions with the least GDP fall over the period 2009-2013). In addition, we have introduced additional control variables, including the percentage of health expenditure in hospitals with a public-private finance agreement in each region. All of these estimations are reassuring of our main effects, despite the fact that our baseline estimates provide more robust results.

### **3. Results**

Figures 1 and 2 show the main SCM results for primary and specialised care, respectively. The pre-intervention trends of the study variables suggest that the synthetic region provides a good approximation of how the responsiveness of the Madrid health system would have evolved in the absence of the policy reform. Weights and characteristics of the synthetic region are shown in supplementary material 7-9.

For primary care, a negative effect was observed for responsiveness in the *Communication* and *Dignity* domains, while the effect was unclear for the *Prompt attention (subjective)* dimension. With regard to the *Communication* domain, the synthetic Community of Madrid presented a sharp increase in responsiveness after the policy implementation, whereas the treated region underwent a more moderate increase. This suggests that the policy was responsible for limiting the expansion of the responsiveness with the *Communication* domain. On average, however, the magnitude of the effects was quite small, since the responsiveness was about 5% lower than it would have been with no policy implementation during the period 2010-2016. In the *Dignity* domain, the effects were similar to those in the *Communication* domain, but the magnitude of the effects was even smaller.

Regarding the *Prompt attention (subjective)* domain, the effect on responsiveness was ambiguous, producing positive effects in some years of the post-intervention period and negative effects in others. As for the *objective* measure, the impact was negative in every year following the reform, although the magnitude of these effects was quite small (0.5 days) In any case, the results for *Prompt attention (objective)* domain should be taken with great caution as limited data availability meant that only a single year from the pre-intervention period could be used [18].

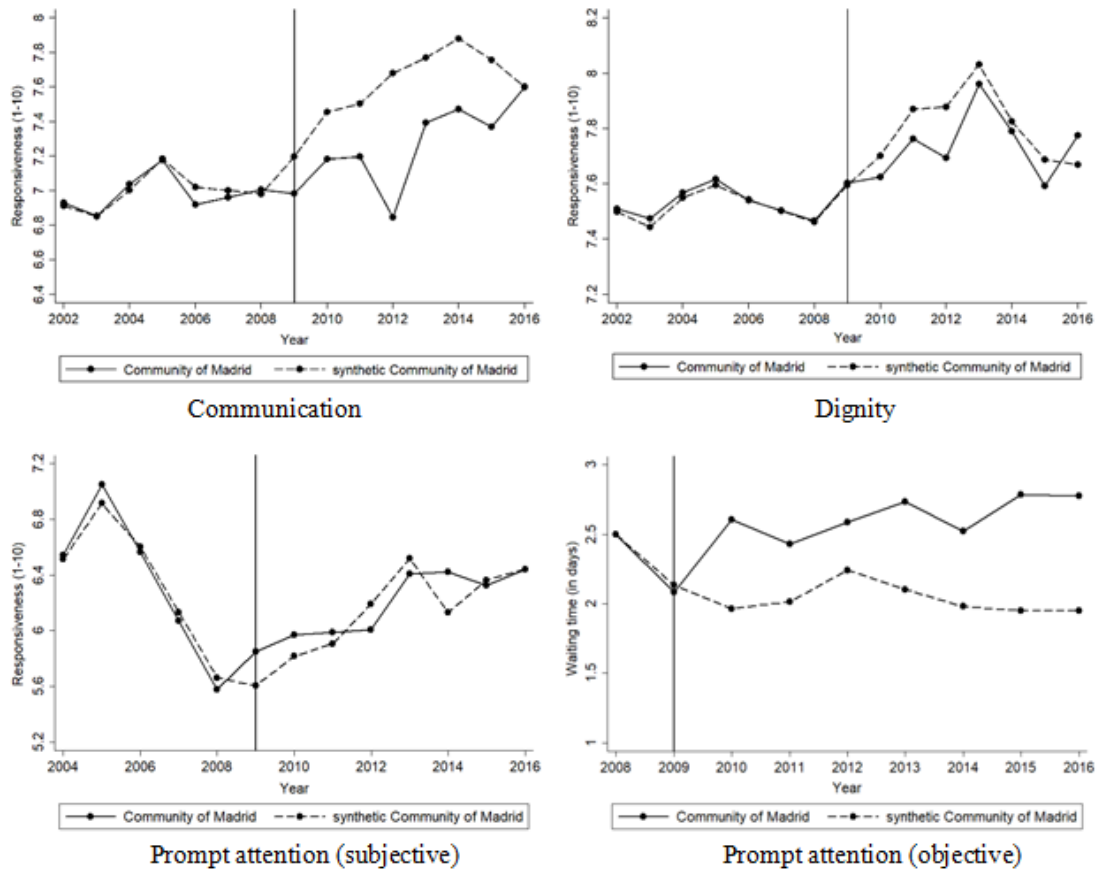


Figure 1. Trends in responsiveness domains for primary care: Community of Madrid vs. synthetic Community of Madrid

For specialised care, we observed no clear impact of the policy on responsiveness for the *Communication* and *Dignity* domains. With regard to the subjective dimension of *Prompt attention*, our results show that in 2014, the level of responsiveness was almost 0.6 higher (on a scale from 1 to 10) than it would have been in the absence of the policy. The results for “objective” *Prompt attention* are in line with those for “subjective” *Prompt attention* and reflect the largest effects of the policy. As shown in the fourth graph of Figure 2, the policy provoked a sharp reduction in waiting times for specialist health care in Madrid. Our results show that after the reform, waiting times were 22% lower than they would have been in the absence of the freedom of choice policy. The close agreement between our findings for the “subjective” and “objective” measures of *Prompt Attention* suggests that, in the absence of more objective variables, self-reported measures of responsiveness could be good proxy variables of how patients are treated by health care authorities in secondary care [23].

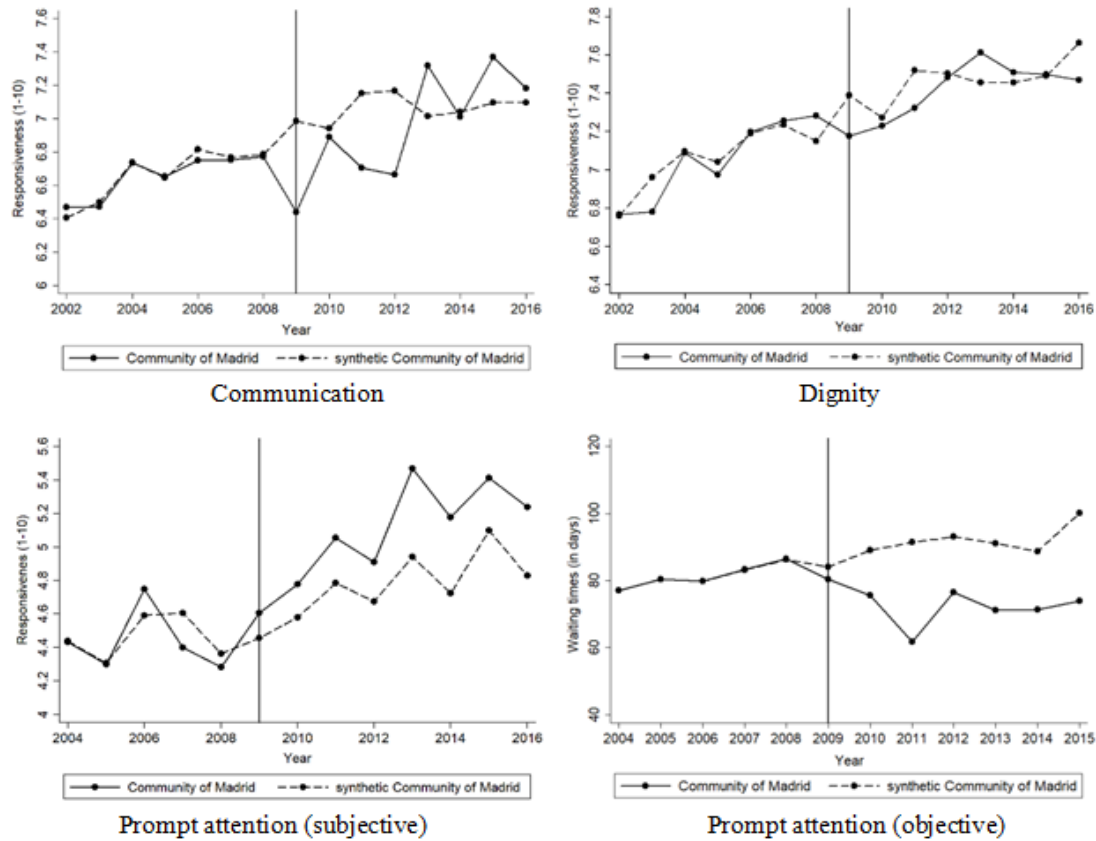


Figure 2. Trends in responsiveness domains for specialised care: Community of Madrid vs. synthetic Community of Madrid

The placebo tests show that the overall effects are significant in the *Communication*, *Dignity* and *Prompt attention (objective)* domains for primary care. According to the pseudo t-statistics, the probability of finding by chance an effect as large as that of the Community of Madrid is practically zero for any year (see supplementary material 10). For specialised care, the overall effects are significant for the *Communication*, *Prompt attention (subjective)* and *Prompt attention (objective)* domains. Therefore, the results reported by the synthetic method for these domains seem to be generally reliable. When we compute the placebo test year by year, the results of the pseudo t-statistics show that most of these effects are also significant, especially in the *Communication* and *Prompt attention* domains (see supplementary material 11). Likewise, the leave-one-out test seems to support the hypothesis that none of the control regions is driving the results (see supplementary material 12).

The result that the magnitude of the effects for the three domains of responsiveness in primary care is fairly small, while it is pretty large for *Prompt attention* - the domain in which the effect is uniform throughout the study period - is consistent with our a priori expectations. We expect individuals to be quite unlikely in general to swap to

other GPs that live in other areas, even when given the possibility to do so, since most patients prefer their primary healthcare providers to be nearby. On the other hand, they may be willing to travel further in order to receive tertiary care [39]. Our interpretation of the results is supported by the fact that after the 2009 reform, there were many more changes of providers of specialised care than of primary care (see supplementary material 1).

#### **4. Discussion**

One of the most striking findings of this study is the strong and significant reduction observed in average waiting times for specialised care following the enactment of the 2009 reform in the Community of Madrid. One of the measures implemented within the general freedom of choice policy was the introduction of economic incentives for some hospitals in Madrid to treat more patients. This complementary measure could also have played an important role in generating the positive effects observed on waiting times.

In parallel to the reform, new hospitals were inaugurated in the Community of Madrid under a PPI scheme, funded on a fee-for-service basis and also receiving part of the receipts from the reimbursement system according to the number of patients treated from other centres. Accordingly, these hospitals have strong incentives to attract patients from other hospitals by keeping waiting times short.

Under the assumption that waiting times are among the most important factors determining the choice of health care provider [40,41], it follows that after the 2009 policy reform patients originally registered at hospitals with long waiting times are likely to have switched to others with shorter waiting times. Therefore, theoretically, average waiting times in Madrid should have remained fairly stable after the introduction of the freedom of choice policy. However, the fact that certain hospitals received economic incentives to attract patients could have decreased the waiting times at the most in-demand hospitals (i.e., those where pre-reform waiting times were the shortest), despite these hospitals receiving more patients. In fact, the five Madrid hospitals which presented the largest increase in patient demand from other centres during the period 2011-2018 were also those with the shortest average waiting times in November 2018 (see supplementary material 13). These findings suggest that these five hospitals might be responsible for the observed reduction in average waiting times for specialised care after the policy implementation.

One of the main features of the above five hospitals is that they are managed by means of PPI schemes. While four of these new five PPI hospitals in Madrid opened very shortly after the reform [42], and another six began operating in 2008, it is interesting to note that the number of health staff per capita in all hospitals (PPI and others) in the region of Madrid remained constant during the study period (at a very similar level to that recorded in the rest of Spain) [43]. Therefore, it is unlikely that the dimension of the hospitals in terms of staffing was the factor driving our results with respect to waiting times.

Our results for waiting times for specialised care are in line with those of previous studies investigating competitive markets in which healthcare providers receive financial incentives to treat more patients (such as Norway or the UK) [9]. However, our findings with respect to primary care contradict those of some previous studies [24,44]. This difference could be due to the scant incentives offered to primary care providers to attract more patients in the region of Madrid, as opposed to other countries (such as the UK) where GPs operate in competitive markets.

This paper presents some limitations. From the methodological stand point, the accuracy of the SCM estimates depends on data being available for a sizable number of periods before treatment. However, for the *Prompt attention (objective)* domain for primary care the pre-treatment period is very limited, and so our results should be taken cautiously. Regarding the data, we used patient-reported measures to quantify the quality with non-clinical factors. We acknowledge that our data on responsiveness are self-reported, and so the analysis might be affected by reporting bias [45]. Unfortunately, we were unable to address the issue of reporting heterogeneity since the additional information necessary for this, such as anchoring vignettes, is not provided by the SHB survey. However, previous literature has provided evidence in favour of the use of self-reported measures of responsiveness as credible indicators of how patients are treated by the health systems [23], in particular with regard to the domain of prompt attention in secondary care. Moreover, the use of measures of responsiveness which are self-reported by patients could have some advantages, since it allows us to avoid biases due to the practice (common among many health providers) of misreporting waiting times and other quality domains due to political motivations. This study provides us with some policy implications, particularly relevant in areas that are currently involved in freedom of choice reforms. Firstly, extending the patients' freedom of choice is an



important element to improve the responsiveness of a health system. Secondly, the success of the policy could be dependent on the implementation of other parallel measures such as economic incentives for health providers to attract patients, more channels of information about the policy, or mechanisms facilitating the choice by patients. In particular, if these policies are complemented with the necessary information and offer patients real freedom of choice, for instance by exploiting the recent improvements in the digitalization of the public administration (mobile apps or telephone call centres) to ease patients make appointments while informing them of waiting lists and alternative providers, they are likely to have positive effects on health system responsiveness.

## **5. Conclusions**

In this paper we analyse the effects on health system responsiveness produced by the freedom of choice policy introduced by the Community of Madrid in 2009. We find that the reform had a positive effect on responsiveness with the *Prompt attention* domains in specialised care, whereas it impacted negatively on the *Communication* and *Dignity* domains in primary care. Therefore, our analysis indicates that increasing patients' freedom of choice of health provider could have important positive consequences on the responsiveness of the health system. However, in the absence of adequate financial incentives, the policy might not have had such positive effects. A potential means of generating incentives in directly-managed hospitals would be to increase their budgetary flexibility. This would enable hospitals to receive funds directly from the variable part of their budget, which depends on the number of patients referred from other centres. In the future, it would be helpful to investigate in more detail how financial incentives affect responsiveness, and to determine whether staff at PPI hospitals have greater workloads than elsewhere. Likewise, it could be interesting to examine whether the ability of PPI hospitals to absorb patients from other centres by keeping waiting times short is achieved at the expense of patients' health or, indeed, whether they are engaging in risk selection [46]. Finally, more research is needed on whether the enhancement of patient choice contributes to reducing inequalities in waiting times, as has been suggested by previous literature [47].

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