

# Health system's responsiveness in Spain

## Implications and policies

*La capacidad de respuesta del sistema sanitario en España:*

*Implicaciones y políticas*

**Ángel Fernández-Pérez**

PhD Program in Economics and Business

*University of Granada (Spain)*

PhD Program in Methods and Models for  
Economic Decisions

*University of Insubria (Italy)*

### **Supervisors:**

**Dolores Jiménez-Rubio**

*University of Granada (Spain)*

**Silvana M. Robone**

*University of Insubria (Italy)*



May, 2021



**UNIVERSITY OF GRANADA**

*PhD PROGRAM IN  
ECONOMICS AND BUSINESS*



**UNIVERSITY OF INSUBRIA**

*PhD PROGRAM IN  
METHODS AND MODELS FOR  
ECONOMIC DECISIONS*



---

# **HEALTH SYSTEM'S RESPONSIVENESS IN SPAIN: IMPLICATIONS AND POLICIES**

(La capacidad de respuesta del sistema sanitario en España: Implicaciones y políticas)

---

**ÁNGEL FERNÁNDEZ-PÉREZ**

May, 2021

**Supervisors:**

**DOLORES JIMÉNEZ-RUBIO**  
*University of Granada (Spain)*

**SILVANA M. ROBONE**  
*University of Insubria (Italy)*

Editor: Universidad de Granada. Tesis Doctorales  
Autor: Ángel Fernández Pérez  
ISBN: 978-84-1117-041-3  
URI: <http://hdl.handle.net/10481/70684>



# TABLE OF CONTENTS

<b>AGRADECIMIENTOS.....</b>	<b>17</b>
<b>ABSTRACT.....</b>	<b>21</b>
<b>RESUMEN .....</b>	<b>23</b>
<b>LIST OF ABBREVIATIONS .....</b>	<b>25</b>
<b>INTRODUCTION .....</b>	<b>27</b>
<b>CHAPTER 1. HEALTH SYSTEMS' RESPONSIVENESS CONCEPT IN THE HSPA FRAMEWORK ....</b>	<b>35</b>
1. INTRODUCTION.....	37
2. THE HEALTH SYSTEM PERFORMANCE ASSESSMENT FRAMEWORK .....	37
2.1. Development of a HSPA Framework.....	37
2.2. Content of the HSPA Framework .....	39
2.2.1. Definition and Boundaries of a Health System.....	40
2.2.2. Goals of a Health System.....	41
2.2.3. Functions of a Health System .....	43
2.2.4. A Measurement for a Health System's Performance .....	45
3. RESPONSIVENESS IN THE HSPA FRAMEWORK.....	45
3.1. The Concept of Health Systems' Responsiveness.....	45
3.2. Composition of Health Systems' Responsiveness. The Responsiveness Domains .....	48
3.2.1. Respect for Persons' Domains .....	51
Autonomy.....	51
Communication .....	51
Confidentiality.....	52
Dignity.....	52
3.2.2. Client Orientation Domains .....	53
Choice .....	53
Prompt Attention.....	53
Quality of Basic Amenities .....	54
Access to Social Support.....	54
3.3. Measurement of Health Systems' Responsiveness.....	55
The Key Informant Survey.....	56
The Multi-Country Survey Study on Health and Responsiveness.....	57
The World Health Survey.....	59
4. THE LITERATURE ABOUT HEALTH SYSTEMS' RESPONSIVENESS .....	60
APPENDIX 1.1. SUMMARY OF THE RESPONSIVENESS DOMAINS DEVELOPED BY THE WHO .....	67

<b>CHAPTER 2. THE SPANISH NATIONAL HEALTH SYSTEM AND ITS RESPONSIVENESS. THE SPANISH HEALTHCARE BAROMETER SURVEY .....</b>	<b>71</b>
1. INTRODUCTION.....	73
2. THE HEALTH SYSTEM: THE SPANISH NATIONAL HEALTH SYSTEM.....	73
2.1. Organisation .....	74
2.1.1. Institutional.....	74
2.1.2. Territorial.....	76
2.2. Coverage and Access .....	78
2.3. Health Services and Benefits.....	78
2.4. Financing.....	79
3. THE DATASET: THE SPANISH HEALTHCARE BAROMETER SURVEY.....	81
3.1. The Non-Clinical Factors in the SHB Survey .....	84
3.1.1. Primary Care.....	84
3.1.2. Specialised Care.....	86
3.1.3. Hospital Care .....	87
3.1.4. Emergency Care.....	88
3.1.5. Healthcare System as a Whole.....	88
3.2. The Socioeconomic Variables in the SHB Survey .....	89
4. THE LEVEL OF RESPONSIVENESS OF THE SPANISH NHS .....	96
4.1. Primary Care .....	96
4.2. Specialised Care.....	101
4.3. Hospital Care.....	106
4.4. Emergency Care .....	110
4.5. Health System as a Whole.....	112
5. CONCLUSIONS .....	115
APPENDIX 2.1. LIST OF NON-CLINICAL FACTORS IN THE SHB SURVEY. 2002-2018.....	117
1. Primary Care .....	117
2. Specialised Care .....	122
3. Hospital Care.....	126
4. Emergency Care.....	129
5. Healthcare System as a Whole.....	131
APPENDIX 2.2. SOCIOECONOMIC VARIABLES IN THE SHB SURVEY. 2002-2018.....	133
<b>CHAPTER 3. THE OVERALL SELF-REPORTED EXPERIENCE BY PEOPLE WITH THE SPANISH NHS: THE ROLE OF HEALTH SYSTEM'S RESPONSIVENESS .....</b>	<b>147</b>
1. INTRODUCTION.....	149
2. BACKGROUND.....	150
3. EMPIRICAL STRATEGY .....	151
3.1. Models.....	151
3.2. Dataset and Variables of Interest.....	153
3.2.1. Health Services Model.....	153
Dependent Variables: Self-reported Experience with the Health Services.....	153

Explanatory Variables: The Non-Clinical Factors.....	154
3.2.2. Health System Model.....	156
Dependent Variable: Self-reported Experience with the Health System as a Whole ....	156
Explanatory Variables: The Responsiveness Domains.....	156
3.2.3. Socioeconomic Variables.....	158
3.3. Method: The Probit-Adapted Ordinary Least Squares .....	159
4. RESULTS.....	161
4.1. Descriptive Statistics .....	161
4.2. Health Services Model .....	165
4.3. Health System Model.....	168
5. DISCUSSION.....	170
6. CONCLUSIONS .....	173
APPENDIX 3.1. MULTICOLLINEARITY AND OMITTED VARIABLES TESTS.....	175

**CHAPTER 4. THE EFFECT OF THE FREEDOM OF CHOICE POLICIES ON HEALTH SYSTEMS' RESPONSIVENESS: THE CASE OF THE SINGLE HEALTH AREA IN THE COMMUNITY OF**

<b>MADRID.....</b>	<b>177</b>
1. INTRODUCTION.....	179
2. BACKGROUND.....	181
2.1. The Freedom of Choice Policies in the Health Sector.....	181
2.2. The Single Healthcare Area in the Community of Madrid.....	182
3. EMPIRICAL STRATEGY.....	185
3.1. Dataset and Variables of Interest.....	185
3.2. Method.....	188
3.2.1. The Synthetic Control Method.....	188
3.2.2. Statistical Inference for the SC Method.....	191
4. RESULTS.....	193
4.1. Descriptive Statistics .....	193
4.2. The Synthetic Control Method.....	196
4.3. Placebo Tests.....	199
5. DISCUSSION.....	203
6. CONCLUSIONS .....	207
APPENDIX 4.1. PROCEDURE TO MERGE THE NON-CLINICAL FACTORS WITH THE RESPONSIVENESS DOMAINS .....	211
APPENDIX 4.2. WEIGHTS AND CHARACTERISTICS OF THE SYNTHETIC REGION .....	213
1. <i>Primary Care</i> .....	213
2. <i>Specialised Care</i> .....	216

**CHAPTER 5. THE EFFECT OF THE FREEDOM OF CHOICE POLICIES ON HEALTH SYSTEMS' RESPONSIVENESS: A METHODOLOGICAL COMPARISON.....**

<b>219</b>	
1. INTRODUCTION.....	221
2. EMPIRICAL STRATEGY.....	222
2.1. Dataset and Variable of Interest .....	222



2.2. Methods.....	222
2.2.1. BAC and SSC Methods .....	225
2.2.2. Difference-in-Differences Method.....	226
2.2.3. The Synthetic Control Method.....	227
2.2.4. The Manski and Pepper Method .....	229
3. RESULTS .....	232
4. DISCUSSION AND CONCLUSIONS .....	238
APPENDIX 5.1. WEIGHTS AND CHARACTERISTICS OF THE TREATED AND SYNTHETIC REGION .....	241
APPENDIX 5.2. PLACEBO TESTS FOR THE SYNTHETIC CONTROL METHOD .....	243
<b>CONCLUSIONS .....</b>	<b>247</b>
<b>CONCLUSIONES .....</b>	<b>253</b>
<b>REFERENCES .....</b>	<b>261</b>

# TABLES AND FIGURES

## TABLES

Table 1.1. Intrinsic goals of any health system according to the HSPA framework of the WHO.....	42
Table A1.1.1 Summary of the content of the responsiveness domains developed by the WHO.....	67
Table 2.1. Sample distribution of the SHB survey. 2002-2018.....	83
Table 2.2. Socioeconomic characteristics of the sample in the SHB survey. 2002-2018.....	90
Table 2.3. Primary care service: Level of responsiveness by non-clinical factor (1-10). 2002-2018.....	98
Table 2.4. Specialised care service: Level of responsiveness by non-clinical factor (1-10). 2002-2018 .	102
Table 2.5. Hospital care service: Level of responsiveness by non-clinical factor (1-10). 2002-2018.....	107
Table A2.1.1.1. Primary care: Non-clinical factors in the SHB survey with the rating scale 1-10. 2002-2018.....	117
Table A2.1.1.2. Primary care: Non-clinical factors in the SHB survey with the rating scale 1-2. 2002-2018.....	120
Table A2.1.1.3. Primary care: Self-reported waiting times in the SHB survey. 2002-2018.....	121
Table A2.1.2.1. Specialised care: Non-clinical factors in the SHB survey with the rating scale 1-10. 2002-2018.....	122
Table A2.1.2.2. Specialised care: Non-clinical factors in the SHB survey with the rating scale 1-2. 2002-2018.....	124
Table A2.1.2.3. Specialised care: Self-reported waiting times in the SHB survey. 2002-2018.....	125
Table A2.1.3.1. Hospital care: Non-clinical factors in the SHB survey with the rating scale 1-10. 2002-2018.....	126
Table A2.1.3.2. Hospital care: Non-clinical factors in the SHB survey with the rating scale 1-2. 2002-2018.....	128
Table A2.1.4.1. Emergency care: Non-clinical factors in the SHB survey with the rating scale 1-4. 2002-2018.....	129
Table A2.1.4.2. Emergency care: Non-clinical factors the SHB survey with the rating scale 1-2. 2002-2018.....	130
Table A2.1.5.1. Healthcare system as a whole: Non-clinical factors in the SHB survey. 2002-2018.....	131
Table A2.2.1. Socioeconomic variables in the SHB survey. 2002-2018.....	133
Table A2.2.2. Questions and rating scales for the socioeconomic variables in the SHB survey for the period 2002-2018.....	138
Table 3.1. Non-clinical factors from the SHB survey selected for the model (3.1) by health service. 2015.....	155
Table 3.2. Correspondence between the responsiveness domains and the non-clinical factors included in the SHB survey. 2015.....	157
Table 3.3. Socioeconomic variables of respondents to analyse self-reported experience with the public Spanish NHS as a whole and its main health services. 2015.....	159
Table 3.4. Descriptive statistics of the overall performance of the Spanish public health services and the Spanish public health system as a whole in 2015.....	162
Table 3.5. Descriptive statistics of non-clinical factors for each health service and the health system as a whole of the Spanish NHS in 2015.....	164

Table 3.6. Descriptive statistics of socioeconomic characteristics of respondents, 2015 .....	165
Table 3.7. Determinants of overall self-reported experience with the Spanish public health services in 2015.....	167
Table 3.8. Determinants of overall self-reported experience by citizens with the Spanish public health system as a whole in 2015 .....	169
Table 3.9. Standardised coefficients for responsiveness domains in the model of Spanish public health system as a whole .....	170
Table A3.1.1. Multicollinearity test for the regressions of the health services model by health service..	175
Table A3.1.2. Multicollinearity test for the regressions of the health system model .....	176
Table A3.1.3. Omitted variables test for the regressions of the health services and system models .....	176
Table 4.1. Primary care: WHO responsiveness domains and the corresponding non-clinical factors associated in the SHB survey .....	187
Table 4.2. Specialised care: WHO responsiveness domains and the corresponding non-clinical factors associated in the SHB survey .....	187
Table 4.3. Explanatory variables of the variables of interest by type of health service.....	191
Table A4.1.1. Example of the original dataset in “wide form” for the primary care service .....	211
Table A4.1.2 Example of the transformed dataset in “long form” for the primary care service .....	212
Table A4.2.1.1. Primary care: Region weights for the synthetic Community of Madrid by domain .....	213
Table A4.2.1.2. Primary care: Predictors average of the communication domain .....	213
Table A4.2.1.3. Primary care: Predictors average of the dignity domain.....	214
Table A4.2.1.4. Primary care: Predictors average of the prompt attention (subjective) domain.....	214
Table A4.2.1.5. Primary care: Predictors average of the prompt attention (objective) domain .....	215
Table A4.2.2.1. Specialised care: Region weights for the synthetic Community of Madrid by domain ..	216
Table A4.2.2.2. Specialised care: Predictors average of the communication domain .....	216
Table A4.2.2.3. Specialised care: Predictors average of the dignity domain.....	217
Table A4.2.2.4. Specialised care: Predictors average of the prompt attention (subjective) domain.....	217
Table A4.2.2.5. Specialised care: Predictors average of the prompt attention (objective) domain .....	218
Table 5.1. Effects of the freedom of choice policy implemented in Community of Madrid in 2009 on the waiting times for specialised care by method.....	232
Table 5.2. Difference-in-differences method: waiting times for specialised care (2004-2015).....	234
Table 5.3. Reasonable values of uncertainty parameter ( $\delta$ ) (2004-2009).....	238
Table A5.1.1. Observed characteristics during the pre-intervention period (2004-2008) .....	241
Table A5.1.2. Regional weights in the synthetic Community of Madrid .....	242

# FIGURES

Figure 0.1. Goals of the health systems according to the health system performance assessment framework .....	30
Figure 1.1. Outline of the HSPA framework developed by the WHO. ....	41
Figure 2.1. Institutional organisation of the Spanish National Health System .....	76
Figure 2.2. Health services and benefits included in the Spanish National Health System.....	79
Figure 2.3. Primary care service: Level of responsiveness by non-clinical factor (1-10). 2002-2018 .....	97
Figure 2.4. Primary care service: Level of responsiveness by non-clinical factor (1-2). 2013-2018 .....	100
Figure 2.5. Specialised care service: Level of responsiveness by non-clinical factor (1-10). 2002-2018	101
Figure 2.6. Specialised care service: Level of responsiveness by non-clinical factor (1-2). 2002-2018..	105
Figure 2.7. Hospital care service: Level of responsiveness by non-clinical factor (1-10). 2002-2018.....	106
Figure 2.8. Hospital care service: Level of responsiveness by non-clinical factor (1-2). 2002-2018.....	109
Figure 2.9. Emergency care service: Level of responsiveness by non-clinical factor (1-4). 2004-2018..	110
Figure 2.10. Emergency care service: Level of responsiveness by non-clinical factor (1-2). 2016-2018	111
Figure 2.11. Health system as a whole: Level of responsiveness by non-clinical factor (1-10). Information provided by the health authorities (2002-2014).....	112
Figure 2.12. Health system as a whole: Level of responsiveness by non-clinical factor (1-4). Information provided by the health authorities (2015-2016).....	114
Figure 3.1. Distribution of the frequencies of the self-reported experience by respondents with the health services and health system as a whole of the Spanish NHS. ....	162
Figure 4.1. Number of times that citizens exercise the freedom of choice per 100,000 consultations in primary and specialised care in the Community of Madrid (2011-2018).....	185
Figure 4.2. Primary care: Average responsiveness with the communication, dignity, prompt attention (subjective) and prompt attention (objective) domains for the Community of Madrid and the rest of Spain. ....	195
Figure 4.3. Specialised care: Average responsiveness with the communication, dignity, prompt attention (subjective) and prompt attention (objective) domains for the Community of Madrid and the rest of Spain. ....	196
Figure 4.4. Trends in responsiveness domains for primary care: Community of Madrid vs. Synthetic Community of Madrid.....	197
Figure 4.5. Trends in responsiveness domains for specialised care: Community of Madrid vs. Synthetic Community of Madrid.....	197
Figure 4.6. Placebo tests for primary care: p-value and pseudo t-stats (left-side graphs); and RMSPE ratio (right-side graphs) .....	201
Figure 4.7. Placebo tests for specialised care: p-value and pseudo t-stats (left-side graph); and RMSPE ratio (right-side graph).....	202
Figure 4.8. Leave-one-out test distribution of the synthetic Community of Madrid in the prompt attention (objective) domain for specialised care. ....	203
Figure 4.9. Number of patients that hospitals receive from other centres in the Community of Madrid under the freedom of choice policy. ....	204
Figure 4.10. Average waiting times (in days) by hospital for specialised care in November of 2018 in the Community of Madrid.....	205
Figure 5.1. Map of the potential values of the variable of interest for the treated group ( $g = 1$ ) with ( $k = 1$ ) and without ( $k = 0$ ) treatment. Blank and striped areas represent, respectively, the observed and unobserved values of the variable of interest by data .....	224

Figure 5.2. Waiting times for specialised care in the real and counterfactual Community of Madrid by impact method (2004-2015). .....	233
Figure 5.3. Annual average treatment effect calculated by using the Manski and Pepper approach for different values of the uncertainty parameters ( $\delta$ ) (2010-2015). Separate form.....	237
Figure 5.4. Annual average treatment effect calculated by each of impact methods (2010-2015).....	239
Figure A5.2.1. P-values (pseudo t-stats) obtained from the in-space placebo tests for the synthetic control method.....	243
Figure A5.2.2. RMSPE ratio obtained from the in-space placebo tests for the synthetic control method	244
Figure A5.2.3. Leave-one-out test for the synthetic control method. ....	245

*Toda obra grande es el fruto de la paciencia y la perseverancia,  
combinadas con una atención orientada tenazmente durante  
meses y aun años hacia un objeto particular*

Reglas y consejos sobre investigación científica (1899)

Santiago Ramón y Cajal



A mi madre e Irene, que me han apoyado sin descanso  
A la memoria de mi padre que, desde donde esté,  
sé que se siente orgulloso de mí





# Agradecimientos

Con la entrega de esta tesis doctoral cierro un ciclo en mi vida académica y profesional de cuatro años de intenso trabajo. Tengo que reconocer que han sido cuatro años duros, con muchos altibajos. He vivido satisfacciones y decepciones, alegrías y tristezas, y momentos de ánimo y desánimo. Sin embargo, no puedo negar que esta experiencia ha sido muy enriquecedora en muchos aspectos de mi vida.

Aventurarme en la elaboración de esta tesis doctoral me ha permitido conocer de cerca el mundo de la Ciencia y la investigación. Ese mundo tan desconocido para muchos. He podido experimentar los procedimientos, tiempos y herramientas que emplea para aportar un granito de arena en el extenso desierto que es el conocimiento. Todo este proceso me ha enseñado a ser más humilde, más respetuoso y a ver la vida desde otras perspectivas ajenas a la mía personal. Por supuesto, me ha permitido adquirir muchas competencias que, creo, han contribuido a mejorar mis capacidades. También, he tenido la suerte de conocer el funcionamiento del mundo académico en su conjunto, no sólo desde la perspectiva de la investigación, sino de la docencia y la gestión. Pero, sobre todo, he podido conocer a personas y profesionales excepcionales que, de una forma u otra, han dejado su huella en mi desarrollo profesional.

Haber podido vivir esta experiencia se la debo principalmente a mi directora de tesis en la Universidad de Granada, Dolores Jiménez Rubio. Ella apostó por mí para participar en su proyecto de investigación. Su decisión me ha permitido poder dedicarme en cuerpo y alma a mi formación como investigador y es responsable de que haya podido vivir una experiencia que ha marcado mi vida. Pero no sólo eso. Ha sido siempre comprensiva conmigo en los momentos más difíciles y ha tenido palabras de

ánimo que me han dado fuerza para no decaer. Por lo que, muchas gracias por todo. Espero que los resultados de este trabajo hayan estado a la altura de su confianza.

También me gustaría agradecer a mi directora en la Universidad de Insubria, Silvana Robone, la oportunidad que me ha dado de poder realizar esta tesis doctoral en régimen de cotutela internacional. Sus consejos y aportaciones han contribuido sustancialmente a la calidad de los resultados del trabajo. Pero, para mí, lo más importante es la confianza que ha depositado en mí desde el principio. Siempre he contado con su disponibilidad y comprensión a pesar de la dificultad que, personalmente para mí, ha supuesto realizar dos estancias de investigación fuera de mi país de origen e iniciar una colaboración internacional. Sirvan estas líneas para expresar mi agradecimiento hacia ella por todo lo que me ha enseñado durante estos años.

También me gustaría aprovechar esta sección para agradecer el apoyo y aliento que he recibido siempre de la profesora Ángeles Sánchez Domínguez. Sus inestimables consejos han sido de gran valor para mí dentro de la Universidad y sus aportaciones han sido fundamentales para que esta tesis doctoral saliera adelante. En particular, me gustaría agradecerle su confianza y cercanía hacia mí desde que fuera su alumno en el Grado y el Máster. La pasión y entusiasmo con el que transmite su trabajo ha tenido una gran influencia en mí, y me ha motivado a seguir aprendiendo y mejorando cada día.

De igual forma, me gustaría agradecer a mis compañeros de Departamento y Facultad todos sus consejos que han ayudado a que esta experiencia haya sido más fácil. En especial, dirijo estos agradecimientos a Manuel Correa Gómez, por su apoyo y asesoramiento cuando más perdido estaba dentro del Departamento; a María Victoria Navarro Hernández por todos sus consejos cuando me inicié en la investigación y que me han sido tan útiles para seguir por el buen camino; y a Juan David García Corchero con quien tantos debates académicos he tenido y que han contribuido a ser fuente de inspiración para esta tesis doctoral. Asimismo, agradezco al Departamento de Economía Aplicada de la Universidad de Granada su acogida durante los cuatro años que he pasado con ellos, así como al Departamento de Economía de la Universidad de Insubria por su disponibilidad para hacer mis estancias en Varese más acogedoras. Gracias igualmente a todos los compañeros y profesores que, de una u otra forma, han contribuido a que este trabajo haya salido adelante.

No puedo concluir esta sección sin acordarme de Alejandro Ortiz Pérez, una persona que empezó siendo un compañero excepcional y que ha acabado siendo un gran amigo.

Sirvan estas líneas como agradecimiento por todo su asesoramiento cuando un inexperto principiante quería iniciarse en el mundo de la investigación; por transmitirme todos sus conocimientos del mundo universitario, que me han permitido conocer mucho mejor el funcionamiento de la Universidad; y por todos sus consejos tanto académicos como personales. Pero, sobre todo, gracias por su disponibilidad y por ser un apoyo en los momentos más difíciles.

Finalmente, me gustaría cerrar estas líneas dándole las gracias a las dos personas más importantes de mi vida. Gracias Irene por haber aprendido a comprender mi trabajo, por ser siempre mi principal motivo para seguir adelante, y por no haberme dejado tirar la toalla en los peores momentos. Y, por supuesto, gracias Mamá por haberme apoyado siempre, por tu confianza, por escucharme y por tus cuidados. Todo este trabajo hubiera sido imposible sin vosotras.



# Abstract

In 2000, the World Health Organization proposed the concept health systems' responsiveness as a desirable tool by which the performance of health systems and services can be assessed. Health systems' responsiveness refers to the ability of the system to respond to the legitimate expectations of patients with the so-called non-clinical factors, namely, elements not directly related to health with which any patient can interact when coming into contact with a health system (waiting times; receiving a kindly and respectful treatment; having enough and reliable information about your health problems; or participating in the decision-making process about your health). Even though responsiveness is not related to health outcomes it may be equally relevant to guarantee the well-being of population.

This dissertation focuses on the health systems' responsiveness concept developed by the World Health Organization in its *Health Systems Performance Assessment* framework. Specifically, two issues are addressed. Firstly, we study the influence that responsiveness has on the overall experience that patients report with the health systems and their main health services (implications). Secondly, we analyse the effect in terms of responsiveness of relevant public policies which are aimed at improving the performance and quality of health systems (policies). In particular, we provide empirical evidence on the influence that policies enabling patients' freedom of choice of health provider have on improving health systems' responsiveness.

In order to meet these objectives, we use the cross-sectional microdata provided by the Spanish Healthcare Barometer over the 2002-2018 period, a survey launched by the Spanish Centre for Sociological Research that contains information on the assessment that citizens report with a series of non-clinical factors of the Spanish public health system and its main health services.

Regarding the first objective, the results of this doctoral thesis confirm that the response of the health system to the non-clinical factors influence the overall experience of patients with the Spanish health system as a whole and its main health services. Specifically, we observe that, for the health system as a whole, the non-clinical factors

related to the prompt attention and dignity are the most correlated with a more satisfactory overall experience. For the rest of health services (primary, specialised, and hospital care), a different association is observed depending on the service analysed.

Regarding the second objective of this thesis, we find that the freedom of choice policy implemented in the Community of Madrid in 2009 managed to strongly reduce waiting times to be seen by the specialist and improved the response of the service with communication between the doctor and patient in the long run. On the contrary, the reform slightly worsened the situation with the non-clinical factors related to communication, dignity, and prompt attention domains for primary care service.

The results of this thesis provide helpful insights for policy-makers. Our results suggest which non-clinical factors are more relevant and may deserve special attention to achieve an improvement of the overall experience of patients with the health systems. In addition, these findings provide a better understanding about the role of freedom of choice policies in improving health systems' responsiveness.

# Resumen

En el año 2000, la Organización Mundial de la Salud propuso el concepto de capacidad de respuesta de los sistemas sanitarios como una herramienta deseable por el cual el rendimiento de los sistemas y servicios de salud puede ser evaluado. La capacidad de respuesta del sistema sanitario hace referencia a la capacidad del sistema para responder a las legítimas expectativas de los pacientes con los denominados factores no clínicos, a saber, elementos que no están directamente relacionados con la salud, pero con los que cualquier paciente puede interactuar cuando entra en contacto con el sistema sanitario (tiempos de espera, recibir un trato amable; tener suficiente y fiable información sobre tus problemas de salud; o participar en el proceso de toma de decisiones sobre tu salud). Aunque la capacidad de respuesta no está relacionada directamente con los resultados de salud, puede ser igualmente relevante para garantizar el bienestar de la población.

Esta tesis doctoral se centra en el concepto de capacidad de respuesta de los sistemas sanitarios desarrollado por la Organización Mundial de la Salud en su marco *Health Systems Performance Assessment*. En concreto, se abordan dos cuestiones. En primer lugar, estudia la influencia que tiene la capacidad de respuesta sobre la experiencia global que los pacientes reportan con los sistemas sanitarios y sus principales servicios de salud (implicaciones). En segundo lugar, analiza el efecto sobre la capacidad de respuesta de importantes políticas públicas que buscan mejorar el rendimiento y calidad de los sistemas sanitarios (políticas). En concreto, aportamos evidencia empírica sobre la influencia que las políticas de libre elección de médico por parte del paciente están teniendo para mejorar de la capacidad de respuesta de los sistemas sanitarios.

Para cumplir con estos objetivos, empleamos los microdatos de corte transversal proporcionados por el Barómetro Sanitario español durante el período 2002-2018, una encuesta elaborada por el Centro de Investigaciones Sociológicas de España que contiene información a nivel nacional sobre la valoración que los ciudadanos realizan de los factores no clínicos del sistema sanitario público español y sus principales servicios de salud.



Por lo que respecta al primer objetivo, los resultados de esta tesis doctoral confirman que la respuesta del sistema sanitario a los factores no clínicos influye en la experiencia global de los pacientes con el sistema sanitario español en su conjunto y sus principales servicios de salud. En concreto, observamos que, para el sistema sanitario en su conjunto, los factores no clínicos relacionados con la atención rápida y dignidad son los más correlacionados con una experiencia global más satisfactoria. Para el resto de servicios de salud (atención primaria, especializada y hospitalaria) se aprecia una asociación diferente en función del servicio analizado.

Por lo que respecta al segundo objetivo, encontramos que la política de libre elección de médico implementada en la Comunidad de Madrid en 2009 logró reducir considerablemente los tiempos de espera para ser visto por el especialista y mejoró la respuesta del servicio con la comunicación entre el médico y el paciente a largo plazo. Por el contrario, la reforma empeoró ligeramente la situación con los factores no clínicos relacionados con la comunicación, la dignidad y la atención rápida en atención primaria.

Los resultados de esta tesis doctoral proporcionan un conocimiento útil para los *policy-makers*. Nuestros resultados identifican qué factores no clínicos son más relevantes y puede merecer especial atención para alcanzar mejoras de la experiencia global de los pacientes con los sistemas sanitarios. Además, ofrecen una mejor comprensión del papel de las políticas de libre elección de médico para mejorar la capacidad de respuesta de los sistemas sanitarios.

# List of abbreviations

ATE: Average Treatment Effect

BAC: Before-and-After Comparison

BHZ: Basic Health Zone

COVID-19: Coronavirus Disease 2019

DD: Difference-in-Differences

GDP: Gross Domestic Product

GP: General Practitioner

HCA: Healthcare Area

HOPIT: Hierarchical Ordered Probit

HSPA: Health System Performance Assessment

ICNHS: Interterritorial Council for the National Health System

KIS: Key Informant Survey

MCSS: Multi-Country Survey Study on Health and Responsiveness 2000-2001

MH: Ministry of Health

MHC: Main Household Contributor

MP: Manski and Pepper

MSPE: Mean Squared Prediction Error

MSSSI: Ministerio de Sanidad, Servicios Sociales e Igualdad – Ministry of Health-

NHS: National Health System

NSI: National Statistics Institute

OBS: Official Bulletin of the State

OL: Ordered Logit

OLS: Ordinary Least Square

OP: Ordered Probit

PA: Public Administration

PCT: Primary Care Team

POLS: Probit-Adapted Ordinary Least Square

PPP: Public Private Partnership

PFI: Private Finance Initiative

RHS: Regional Health Services

RMSPE: Root Mean Squared Prediction Error

SARS-CoV-2: Severe Acute Respiratory Syndrome CoronaVirus 2

SC: Synthetic Control

SERMAS: Servicio Madrileño de Salud (Madrid Health Service)

SHB: Spanish Healthcare Barometer

SIAE: Sistema de Información en Atención Especializada (Specialised Care Information System)

SSC: Self-Selected Comparison

WHO: World Health Organization

WHS: World Health Survey

# Introduction

Health care services are a public priority and play an essential role in modern societies. They are one of the main policy instruments to guarantee the population health, namely, to fight against diseases, and to ensure a complete state of well-being throughout an individual's life. The recent SARS-CoV-2 crisis has brought to light the need to have high-performing health systems (Legido-Quigley, Asgari, et al., 2020; Legido-Quigley, Mateos-García, et al., 2020). Up to March 2021, there have been more than 2,5 million of deaths in the world and 115 million of confirmed cases due to the COVID-19 pandemic (WHO, 2020c). In the light of this, several researchers from different institutions have urged the national governments to undertake actions allowing to identify areas where health systems need to be improved to guarantee their resilience and high performance against the current health crisis (Armocida et al., 2020; García-Basteiro et al., 2020; Gurdasani et al., 2020).

The COVID-19 pandemic has also raised concern about the progress of one of the Sustainable Development Goals whose fulfilment depends on the strength of the health systems: to ensure healthy lives and wellbeing for all. An Editorial published by The Lancet Public Health journal in August 2020 highlighted that the COVID-19 crisis could «reverse the progress of the SDG3 –*Sustainable Development Goals*–» since several countries «have halted childhood vaccination programmes, and in many places, health services for cancer screening, family planning, or non-COVID-19 infectious diseases have been interrupted or are being neglected» (The Lancet Public Health, 2020, p. e460). The third Sustainable Development Goal set by the United Nations in its 2030 agenda aims at, among others, reducing the maternal mortality ratio; ending preventable deaths of new-borns and children under 5 years of age; ending the epidemics of AIDS, tuberculosis, malaria and hepatitis; or achieving an access to quality essential health-

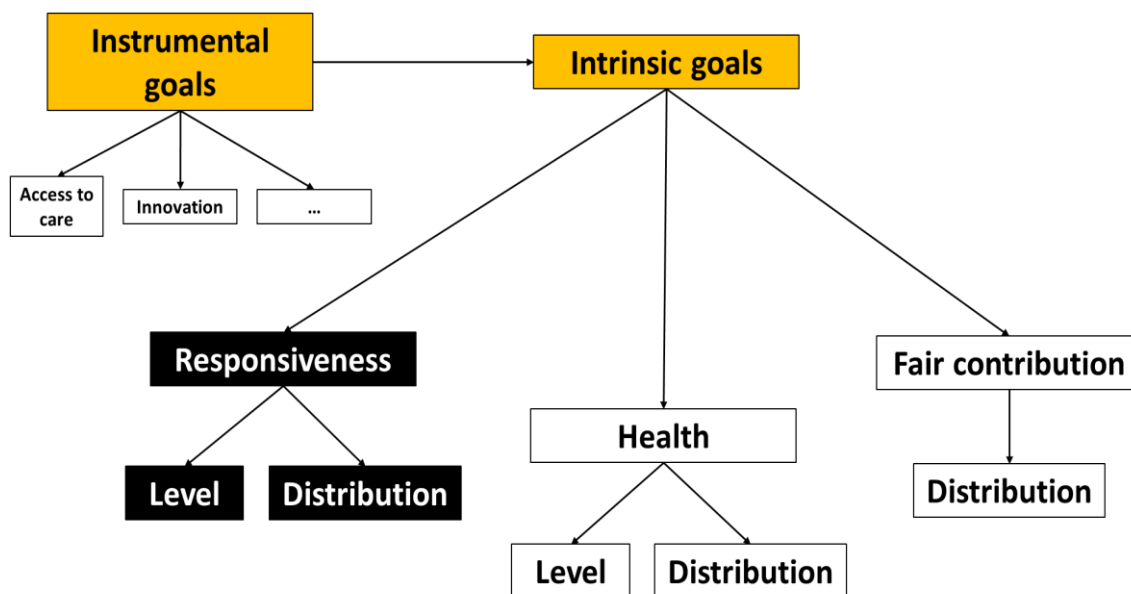
care services, and safe, effective, quality and affordable essential medicines and vaccines for all (UN, 2020).

In order to reach the above-mentioned objectives in a pandemic context as the current one, it seems mandatory to improve the quality of the health systems. Every year, most governments in the worldwide allocate large amounts of economic resources to guarantee adequate levels of health in their corresponding countries. According to the last available data provided by the Global Health Expenditure Database of the WHO, the governments of the OECD's countries allocated, on average, around 140,000 million dollars to the Government schemes and compulsory contributory health care financing schemes in 2018, a 150% more than in 2000. This makes up, on average, of the 6.5% of the GDP of the OECD's countries. Likewise, apart from government expenditure, people living in OECD's countries allocated more than 30,000 million dollars to voluntary health care and out-of-pocket payments schemes in 2018 (WHO, 2020a), suggesting that a considerable demand for health care is not covered by the public schemes.

In this context, the question about whether the current health systems are actually complying with the goals for which they were created by taking into account the large number of economic resources allocated to them is increasingly relevant. Giving an answer to this question would allow us, firstly, to know whether the health systems are actually efficient and, secondly, to identify areas where such health systems could improve to deliver a high-quality health service. In 2000, the World Health Organization developed a framework to assess the performance of the health systems in the world so-called the *Health Systems Performance Assessment* (Murray & Frenk, 2000; WHO, 2000b). With the HSPA framework, the WHO aimed at creating a common conceptual guide for every health system in the world in order to assess «the health system performance, to foster the further development of tools to measure its components, and to work with countries in applying these tools to measure and then to improve health systems performance» (Murray & Evans, 2003, p. 3). In order to evaluate health services' performance, the HSPA framework defined what a health system is, established its intrinsic and instrumental goals, indicated the potential functions of a health system to achieve its goals, and developed an indicator to measure its performance.

According to the HSPA framework, the performance of a health system should be assessed by means of the fulfilment of its intrinsic goals, namely, those essential goals that any health system should pursue. The WHO defined three intrinsic goals: 1) health; 2) responsiveness; and 3) fairness in financial contribution. Certainly, safeguarding the population health by avoiding and eradicating the illnesses is the essence of any health system (WHO, 2000b). However, there are two intrinsic goals that have received less attention. Firstly, the responsiveness goal is defined as «the way individuals are treated and the environment in which they are treated» (Valentine, De Silva, et al., 2003, p. 574) when they interact with the health system. Secondly, the fairness in financial contribution refers to ensure that households contribute to finance the health system in an equitable way, namely, that poorer households to contribute a smaller share of their incomes to the system than richer households (Murray & Frenk, 2000). Likewise, according to the HSPA framework, it is not only necessary to guarantee a high level in the fulfilment of the intrinsic goals, but also that the fulfilment to be equitable among population. Accordingly, a high performing health system is not only one that protects the population health, but one that achieves a high level of health and responsiveness for all the population sectors regardless of their age, gender, income or place of residence, among others, and that also guarantees a fair contribution to finance the health system. Any other action carried out by the health system (improving the access to care, the implementation of technological innovations, or guaranteeing the sustainability of the health system) is considered instrumental, that is, it is aimed at fulfilling the intrinsic goals (see Figure 0.1).

Figure 0.1. Goals of the health systems according to the Health System Performance Assessment framework



*Note:* The outline is based on the HSPA framework contained in Murray & Frenk (2000), and Valentine et al. (2003).

Empirical research concerning population health is wide and well-known (Allison & Foster, 2004; Azfar & Gurgur, 2008; Contoyannis & Rice, 2001; Cookson et al., 2016; Fitzpatrick, 2009; Mulyanto et al., 2019; Robone, Jones, et al., 2011; Truesdale & Jencks, 2016). On the contrary, the research on responsiveness and fairness in financial contribution is more limited (WHO, 2000b). This doctoral thesis focuses on the responsiveness concept developed by the WHO in its HSPA framework.

Health systems' responsiveness refers to how the health systems respond to the legitimate expectations of populations for the so-called non-clinical factors<sup>1</sup> (Valentine, De Silva, & Murray, 2000) which, although they are not directly related to the health, they are also important to guarantee the population well-being (De Silva, 2000; Valentine, De Silva, et al., 2003; WHO, 2000b). Being respectfully treated; being promptly attended; having enough time to pose questions and understand your illness; receiving clear, enough and reliable information about your health problems and

<sup>1</sup> In addition to non-clinical, these factors have also been so-called non-health (Darby et al., 2000; De Silva & Valentine, 2000; Murray & Frenk, 2000; Valentine et al., 2000), non-medical (De Silva, 2000), non-financial (De Silva, 2000), or non-therapeutic (Deckovic-Vukres et al., 2007; Letkovicova et al., 2005) by the literature of responsiveness. However, all of them refer to any factor different from those directly related to health care aspects with which an individual interacts when come into contact with a health system. In this doctoral thesis, for the sake of clarity, we always use the term 'non-clinical factors'.

potential treatments; participating in the decisions-making process about your own health; being sure that the confidentiality of your personal information is ensured; or having a minimum quality of the basic amenities (safe water, clean rooms, clear air...), among others, are factors with which patients can interact when they come into contact with a health system. Several researchers have pointed out that if a health system does not respond to legitimate expectations of patients with the non-clinical factors, they could decide to use less the health services, to be less cooperative with their health problems, or decide not to follow the advice of health staff or accept treatment procedures (Banerjee & Duflo, 2011; Darby, Valentine, Murray, & De Silva, 2000; Naidu, 2009; Sofaer & Firminger, 2005; Valentine, De Silva, et al., 2003). These issues could indirectly affect the population health and well-being. Although a low responsiveness may seem a problem only of developing countries (Banerjee & Duflo, 2011), many people in developed countries may also be influenced by it, and may end up undermining a country's population health. In this way, analysing the determinants, implications, and potential effects both the level and the distribution of responsiveness of a health system is particularly relevant. Likewise, it is worth studying the effectiveness of the policies and actions allowing to improve health systems' responsiveness.

The objective of this dissertation is to contribute to the literature about health systems' responsiveness by analysing two aspects where the empirical evidence is more limited: 1) the implications of the health systems' responsiveness to guarantee a better experience of people with the health system and its health services (implications), and 2) the effect on responsiveness of public policies which are aimed at improving health systems' performance (policies).

1. *Implications* objective. We aim at analysing the influence of the health systems' responsiveness on the overall experience reported by people with the health system as a whole and its main health services. Specifically, we study whether a better response of the health system or services to the legitimate expectations of people with certain non-clinical factors is associated with a more satisfactory overall experience with the health system or services as a whole. We provide empirical evidence about this potential correlation by suggesting two regressions models (one for the health services and another one for the health system as a whole) whose coefficients are estimated by means of



the Probit-Adapted Ordinary Least Square method, a technique increasingly employed by the most recent well-being studies (Bárcena-Martín, Cortés-Aguilar, & Moro-Egido, 2017; Blázquez Cuesta & Budría, 2014; Navarro & Salverda, 2019). These results would allow us to know, firstly, whether there is an association between responsiveness and the overall experience of individuals; and secondly, what are the most relevant non-clinical factors or responsiveness domains to guarantee a more satisfying overall experience of patients with both each health services and the health system as a whole. According to the hypotheses posed by the WHO when the responsiveness concept was developed, we assume that there is a positive correlation between both variables (responsiveness and overall experience). Likewise, by following the research highlighting the importance given by individuals to the responsiveness domains, we hypothesise that the non-clinical factors related to the prompt attention domain could be the most relevant for people when it comes to reporting a more satisfactory overall experience (Njeru et al., 2009; Valentine et al., 2008; Valentine & Salomon, 2003). The conclusions obtained from this analysis could help policy-makers to get a better understanding of the most cost-effective policies which may improve the overall experience of individuals regarding the health system.

2. *Policies* objective. We aim at studying the effect on health systems' responsiveness of public policies implemented in the health systems which are aimed to improve the health systems' performance. Specifically, we analyse the impact of policies enabling patients' freedom of choice of health provider (hereafter, *freedom of choice* policies). The freedom of choice policies have been recently implemented in several European countries such as England, Portugal, Norway, Finland or Sweden (Cooper et al., 2011; Longo, Siciliani, Gravelle, et al., 2017; Miani et al., 2013; Simões et al., 2017). They are aimed at extending the choice set of patients when it comes to choosing the health provider. However, its main objective is to improve the quality, efficiency and responsiveness of the health systems by means of competence mechanisms which are generated when people can choose among several health providers (Barros, Brouwer, Thomson, & Varkevisser, 2016; Cooper et al., 2011; Gaynor, Moreno-Serra, & Propper, 2013). We analyse whether the freedom of

choice policies implemented actually improve the health systems' responsiveness. In particular, we focus on the reform implemented in the Spanish region of the Community of Madrid. In November 2009 the government of the Community of Madrid enacted a regional law that extended the patients' right to freely choose among any GP, paediatrician or nurse available in the primary care service, and among any specialist at any hospital in the whole Community of Madrid, in the specialised care service, and not just among those professionals in their corresponding referral area (BOCM, 2009). The Community of Madrid was the first and only region in Spain to carry out a substantial reform about freedom of choice of health provider by patients. The aim of the reform was, in addition to increase the freedom of patients when it comes to choosing the health provider, to improve the quality of the SERMAS. Our objective is to provide empirical evidence about the actual effect of this reform on the responsiveness of the primary and specialised care services of the regional health system. We use the synthetic control method, a recent impact evaluation technique based on the difference-in-difference method by allowing us to get causal effects (Abadie et al., 2010, 2015; Abadie & Gardeazabal, 2003). This technique is usually applied when a certain treatment has not been randomly implemented to a group by allowing us to create a more proper comparison group representing the most as possible the treated group in the absence of intervention during the post-intervention period. These findings provide a better understanding about the effectiveness of the freedom of choice policies to improve the health systems' responsiveness. In addition, they could help policy-makers to understand the potential mechanisms behind the results obtained and design evidence based policies.

In order to fulfil these objectives, we use the cross-sectional microdata provided by the Spanish Healthcare Barometer survey for the period 2002-2018 which allows us to have pooled data with more than 125,000 individuals. The SHB is an annual opinion survey conducted in Spain by the Ministry of Health in coordination with the Spanish Centre of Sociological Research since 1993. The aim of this survey is to determine the level of satisfaction of citizens with the Spanish health system and its main health services (primary, specialised, hospital, and emergency care). This survey is addressed to citizens –both users and non-users – aged over 18 years which are asked, among

others, for assessing the responsiveness of the Spanish health system and its health services with a series of non-clinical factors. To the best of our knowledge, this is the only national survey in Spain reporting indicators to measure health system's responsiveness. Accordingly, we focus on analysing the responsiveness of the Spanish health system.

This dissertation is composed of five chapters. In the first chapter, we address the theoretical framework of the thesis by analysing the health systems' responsiveness concept. We focus on its definition, and in how the concept has been traditionally measured and operationalised by the literature. Likewise, we review the most recent researches analysing the health systems' responsiveness from different perspectives. In the second chapter, we present the health system which is analysed in this dissertation, the Spanish NHS, as well as the dataset that we use to address our objectives, the Spanish Healthcare Barometer Survey. Furthermore, we measure the level of responsiveness of the Spanish NHS by using the information of the SHB survey. The third, fourth and fifth chapters are all the empirical chapters. In the third chapter the implications of the health systems' responsiveness on the overall experience of patients with the Spanish NHS and its main health services are studied. In the fourth chapter, we provide empirical evidence on the effect of the freedom of choice policy implemented in the Community of Madrid in 2009 on the responsiveness domains for the primary and specialised care services. In the fifth chapter, we measure the effect of the freedom of choice policy in the Community of Madrid by using different impact evaluation methods in order to check the robustness of the results obtained in the previous chapter. Finally, a conclusion section is included.

# CHAPTER 1

*Health Systems' Responsiveness Concept  
in the HSPA Framework*



## **1. Introduction**

This dissertation is about health systems' responsiveness, a concept developed by the WHO during the period 1999-2003 within its Health Systems Performance Assessment framework. According to that framework, the performance of any health system in the world should be assessed by taking into account the population health, health systems' responsiveness and the fairness in the financial contribution. The main aim of this chapter is to introduce the concept of health systems' responsiveness on which this doctoral thesis is based. Specifically, in this chapter, we frame the responsiveness concept within the HSPA framework developed by the WHO, as well as analyse its definition and origins. Likewise, we describe why this concept is relevant when it comes to measuring the health systems' performance. Finally, we deal with its composition, define how is measured and undertake a brief literature review.

## **2. The Health System Performance Assessment Framework**

### **2.1. Development of a HSPA Framework**

One of the main reasons for which the health systems exist is to safeguard the population health. Every year, most of global governments allocate large amounts of economic resources to build strong health systems which guarantee the public health in their corresponding countries. According to the last available data provided by the Global Health Expenditure Database of the WHO, the governments of the OECD's countries allocated, on average, around 140,000 million dollars to the Government schemes and compulsory contributory health care financing schemes in 2018, a 150% more than in 2000. This makes up, on average, of the 6.5% of the GDP of the OECD's countries (WHO, 2020a).

The important role played in the society by health systems and the large number of resources which are allocated them justify the need for studying their performance. In other words, it is necessary to know whether health systems are meeting efficiently with their objectives or not. In order to measure the health systems' performance, the previous development of a framework where a clear delimitation of health system and its objectives are established is required. Although several frameworks for measuring the health systems' performance were proposed at the end of 90s (Aday et al., 1993; Hoffmeyer & McCarthy, 1994; Hsiao, 1995; Jee & Or, 1999; Knowles et al., 1997;

Meyer, 1999), they presented limitations that allowed a room for improvements (Murray & Frenk, 2000).<sup>2</sup> In July 1998, the ambition to set a common conceptual framework so that health systems assess their performance led the WHO to create the Evidence and Information for Policy Cluster, a research group aimed at formulating the Health System Performance Assessment framework, developing and refining indicators of performance, proposing and testing measurement tools, and assisting countries in their application and interpretation for policy purposes (Murray & Evans, 2003). Murray & Frenk (1999) published the first working paper where the framework for HSPA was presented, whereas it was subsequently discussed in the Executive Board and World Health Assembly (WHO, 2000a). In the period 2000-2003, the HSPA framework underwent an extensive consultation process with the research and policy communities, governments and the Governing Bodies of the WHO (Murray & Evans, 2003) which started with its peer reviewed and publication in the international scientific literature (Murray & Frenk, 2000). Later, the application and more exhaustive development of the WHO's framework was launched in the annual World Health Report in 2000 so-called *Health Systems: Improving Performance* where a ranking of countries classified by the level of performance of their health systems was deployed.

The strong reactions of the scientific community and other institutions to the 2000 WHO's report (Almeida et al., 2001; Braveman et al., 2001; Coyne & Hilsenrath, 2002; Möller et al., 2002; Mulligan, 2000; Murray & Frenk, 2001; Navarro, 2000, 2001, 2002; Smith, 2002; Van der Stuyft & Unger, 2000), as well as the number of requests for information and technical assistance by the member states of the WHO led the organization to undertake several activities that allowed to foster the development of tools to measure the components of the health systems performance framework, to work with countries in applying these tools, and to improve health systems performance. In this context, six regional consultations with representatives of governments and academic communities were organised. Furthermore, consultations about technical aspects of the health systems' performance framework were undertaken by experts and health policy-makers from several countries to ensure that methods continued to develop. The Director-General of WHO also established a scientific peer review group

---

<sup>2</sup> According to Murray & Frenk (2000, p. 717), these approaches fell into two traps: 1) they provided «inclusive lists of multiple, and often overlapping, desirable attributes of health systems», and 2) they constructed a performance assessment that «replicates the conceptual and technical inadequacies of available measures» from considering indicators which are readily available.

composed by 13 independent experts (at least two from each of the six WHO regions) to review the framework and methods proposed by the secretariat.<sup>3</sup> This process concluded with the presentation of a final framework presented by Murray & Evans (2003) in the introduction of the book *Health Systems Performance Assessment: Debates, methods and empiricism* published by the WHO in 2003.

The main reason for which the WHO developed the HSPA framework was to meet with one of the four directions in WHO's corporate strategy endorsed by the Executive Board in 2000, namely, the strengthening of the sustainable health systems that «equitably improve health outcomes, respond to people's legitimate demands, and are financially fair» (WHO, 2000a, p. 1). Specifically, the framework tried to address five traditional problems with which decision-makers in any country have struggled: 1) a lack of clarity about the nature of the intrinsic goals for health systems which causes health policies frequently focused on short-run objectives; 2) the lack of a strong empirical evidence on the best way to improve the performance of health systems which has led to a diversity of response, improvisations and ideologies into the health policy debate; 3) the need of creating an accountability framework for the whole health system in order to the health systems are judged by the outcomes; 4) to encourage a balanced view of the importance of health system platforms for delivering the right technologies to the right people; 5) to empower civil society and the general public to become active participants in the formulation of national health policies (Murray & Evans, 2003, pp. 3–5). The specific goal of the HSPA framework was to define the meaning of performance in the context of the health systems by developing effective tools that allowed policy-makers to be timely informed to develop strategic decision-making and programme management. However, the ultimate goal of the HSPA framework was to improve the health systems' performance of countries through the development of tools that allowed maximizing the potential for shared learning across countries in order to know what works and what does not (Murray & Evans, 2003, p. 5).

## **2.2. Content of the HSPA Framework**

The concept of health systems' responsiveness studied in this doctoral thesis arises from the HSPA framework proposed by WHO. In order to describe the content of such

---

<sup>3</sup> For more information about the regional consultations and the complete reports of the scientific peer review group about the framework and methods for the health systems' performance assessment, see Part II (Chapters 2-7) and III (Chapters 8-15) in WHO (2003).



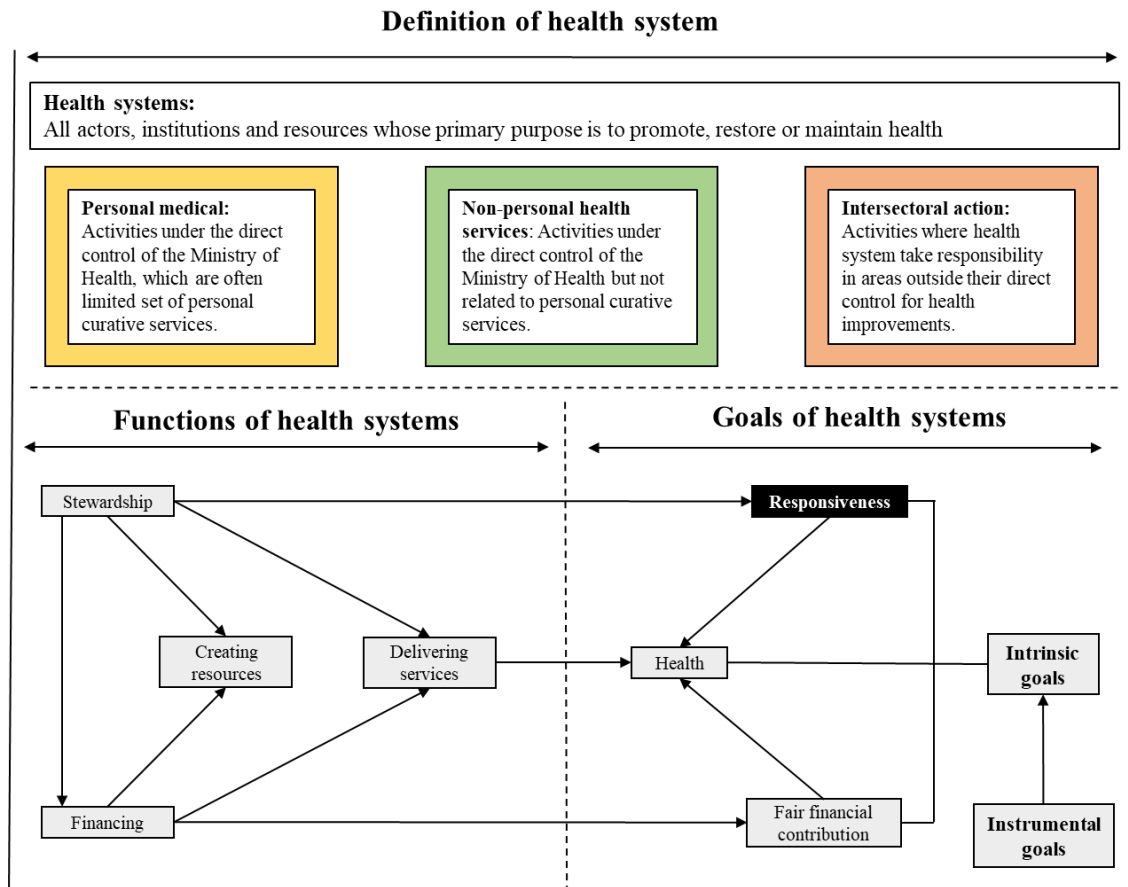
framework, we rely on Murray & Evans (2003) since they provide the most recent HSPA framework that we have found and which emerges from the consultations and the peer review process previously described. Since then, other report or paper conducting significant changes of that framework have not been found. Moreover, papers related to the concept of health systems' responsiveness have been mainly based on the framework presented in 2003 (Bleich et al., 2009; Malhotra & Do, 2017; Rahman et al., 2019; Rice et al., 2012; Röttger et al., 2017; N. Valentine et al., 2008; Valentine & Bonsel, 2016).

The HSPA framework is focused on four aspects: 1) to give a definition of health system by setting its boundaries; 2) to determine the goals of health systems; 3) to set the health systems functions that could contribute to get higher levels of performance; and 4) to define the term of health systems performance and the way to obtain it. In the next lines, we briefly address each aspect.

### **2.2.1. Definition and Boundaries of a Health System**

Figure 1.1 displays an outline of the content of the HSPA framework of the WHO. Firstly, a health system is defined as «all the activities whose primary purpose is to promote, restore or maintain health» (WHO, 2000b, p. 5). This definition takes into account all actors, institutions and resources whose primary intent is to undertake health actions improving the population health. It includes personal curative services and non-personal health services under direct control of the Ministry of Health of a country, as well as intersectoral actions designed specifically to improve health such as actions related to water, sanitation programmes or legislation to reduce fatalities from traffic accidents. However, this definition leaves out actions from other social systems such as educational, economic or political ones which could have an impact on health but whose ultimate objective is not to improve population health.

Figure 1.1. Outline of the HSPA framework developed by the WHO.



Note: Retrieved from Murray & Evans (2003).

### 2.2.2. Goals of a Health System

Secondly, a set of goals common for all health systems was defined. The framework distinguishes between intrinsic and instrumental goals. The former ones are those that are valued in themselves (Murray & Frenk, 2000) for being defining goals of health systems. This means that raising the level of attainment of an intrinsic goal is always desirable. Furthermore, they are partially independent of all other goals so it is possible to increase the level of attainment of an intrinsic goal by holding the rest of goals constant. The latter ones are those that do not fulfil the features to be an intrinsic goal but they are desirable because of its contribution to guarantee the fulfilment of the intrinsic goals. Three intrinsic goals for any health system were set: health, responsiveness and fair financial contribution. According to the HSPA framework, all health actions performed by any health system should be directly or indirectly aimed at improving population health (health), guaranteeing a good response to the legitimate expectations of individuals with the way they are treated and the environment in which

they are treated when they interact with the health system (responsiveness), as well as ensuring that households contribute to finance the health system in an equitable way (fair financial contribution), namely, that poor households to contribute a smaller share of their incomes to the system than rich households (Murray & Frenk, 2000). Likewise, there are many goals that have been classified as important for the health systems performance but they cannot be defined as intrinsic goals. Access to care, community involvement, innovation or sustainability would be examples of instrumental goals since their ultimate aim is to achieve the fulfilment of the intrinsic goals.

As far as intrinsic goals are concerned, it is not only enough guaranteeing the level of attainment of such goals, but also the level of distribution. For instance, in addition to guarantee the level of population health, it would be also accurate to reduce health inequalities between population groups. The same situation would be applied to the responsiveness goal where it would be necessary to reduce the differences related to social, economic or demographic factors. By contrast, concerning financial contribution, the level of health financing is a policy choice in any society, therefore it is not an intrinsic goal of a health system. In this case, in order to assess the performance of a health system is only necessary to take into account the distribution of the financial contribution.

Table 1.1 summarises the final five components that would have to be taken into account to measure the performance of a health system. Although the term of health systems' quality has been defined in several ways in the literature, in the HSPA framework, the quality of a health system would be determined by the level of the population health and the level of health system's responsiveness. Likewise, the equity of a health system would be measured by how the health and responsiveness is distributed among population groups and by the extent of equity in the financial contribution.

Table 1.1. Intrinsic goals of any health system according to the HSPA framework of the WHO

	<b>Level</b>	<b>Distribution</b>
Health	×	×
<b>Responsiveness</b>	×	×
Financial contribution		×
	Quality	Equity

Notes: Retrieved from Murray & Evans (2003).

### 2.2.3. Functions of a Health System

Thirdly, the WHO framework included a series of potential factors or functions that could contribute to the fulfilment of the intrinsic goals and, accordingly, to improve the health systems' performance. Although it seems that a final checklist of technical and institutional factors is given, «any list is provisional and subject to expansion or contraction as evidence accumulates» thereby each of them represents a hypothesis that should be empirically tested (Murray & Frenk, 2000, p. 723). Therefore, four basic functions are set as key factors influencing the health systems' performance, that is, the population health, responsiveness and fair financial contribution (Murray & Frenk, 2000):

**1. Health system financing.** The process for which revenues are collected, accumulated in fund pools, and allocated to specific health actions. In this section are included four items:

- a. Revenue collection.** It is referred to the mechanisms to mobilise the money from primary and secondary sources. The strategic design of revenue collection (i.e., compulsory versus voluntary payments), the governance of institutions (extent of public versus private participation) or specific collection procedures and earmarking of taxes might affect performance.
- b. Fund pooling.** It refers to the accumulation of revenues to share financial risks among contributors. In this case, the health systems' performance might be influenced by factors such as the extent to which there are separate fund pools for different population groups or for personal and non-personal health services, as well as decisions about the size and number of fund pools or the way in which organisations performing this function enter and leave the fund pooling.
- c. Purchasing.** It is the process through which revenues in fund pools are allocated to institutional or individual providers to deliver a set of interventions. It is related to decisions about what, how and from who the provision is purchased. It includes factors such as choice of providers to deliver interventions, size and number of purchasers,

mechanisms of funding purchasers from revenue, choice and competition between purchasers, or methods to control the quantity and the quality of purchased services.

**2. Service provision.** It refers to the way inputs are combined to allow the delivery of a series of interventions or health actions. In this section, the distinction between personal and non-personal health services is done:

**a. Personal health services.** It comprises services that are directly consumed by an individual such as preventive, diagnostic, therapeutic or rehabilitative services, and whether they generate externalities or not. The extent of integration between the provision and purchasing functions; the issue of decentralization and governance of provider institution; the extent to which provider organisations are separate entities or form networks at different levels of complexity; or the way in which each provider organisation articulates its tasks, control systems and relationships of authority could be factors affecting the performance.

**b. Non-personal health services.** It comprises actions that are applied either to collectivities or to the non-human components of the environment (mass health education, legislation, and provision of basic sanitation facilities). The same issues applied to personal health services are applied to non-personal health services. Other factors related to this section are the extent to which single organisations provide a wide array of non-personal health services; the extent of integration with the purchasing function; and the degree of integration of both health services.

**3. Resource generation.** It refers to the group of organisations that produce inputs to the health systems, specifically human (universities or research centres) and physical resources (technological companies). For instance, the organizational ownership of training institutions; the autonomy of the research organizations to set priorities, or the extent of concentration and competition among technological companies are very likely to influence health system performance.

**4. Stewardship.** It is one of the most important and neglected functions in many health systems. It comprises three key aspects: 1) setting, implementing and monitoring the rules for the health systems; 2) assuring a level playing field among all actors in the system (particularly purchasers, providers and patients); and 3) identifying and defining strategic directions for the health system as a whole. In order to achieve such objectives, it is necessary to develop a policy formulation at the broadest level; to assess the performance of institutions involved in the health system; to set priorities and build consensus around them; to promote policies in other social systems; to regulate the main functions of the health system; and to protect patients from the information and power asymmetries and other aspects.

#### **2.2.4. A Measurement for a Health System's Performance**

Finally, the HSPA framework proposed a way to calculate an indicator measuring the health system's performance in order to compare different health systems. That indicator would be a relative concept where the resources allocated by the health system should be allowed for. In this way, the indicator compares the actual level of performance achieved by a health system with a certain level of resources to the best and worst level of performance that could be achieved by that health system with the same level of resources. The level of performance is assessed for each of the five components of the three goals and, then a composite goal performance is obtained by taking into account the available resources. Therefore, the term 'composite goal performance' is the same as 'efficiency' since it sets how well a health system achieves the desired outcomes given available resources (Murray & Frenk, 2000).

### **3. Responsiveness in the HSPA Framework**

#### **3.1. The Concept of Health Systems' Responsiveness**

The whole of this doctoral thesis is focused on the concept of health systems' responsiveness developed by WHO in its HSPA framework. As Figure 1.1 reflects, the responsiveness is an intrinsic goal of any health system. This means that, in order to improve its overall performance, a part of the actions undertaken by a health system should be aimed at enhancing its responsiveness. The responsiveness of a health system is defined as «the way individuals are treated and the environment in which they are

treated» (Valentine, De Silva, et al., 2003, p. 574) when they interact with such health system. When people come into contact with a health system, they expect, among other things, to be respectfully and friendly treated; to be promptly attended; to have enough time to pose questions and understand their illness; to receive clear, enough and reliable information about their health problems and potential treatments; to participate in the decisions-making process about their own health; to be sure that the confidentiality of their personal information is ensured; or to make safe water or clean rooms available. All of these items are so-called non-clinical factors by the literature and, although they are not directly related to the health, they are also important to guarantee the population well-being (De Silva, 2000; Valentine, De Silva, et al., 2003). Conventionally, the main goal of a health system has been to improve the population health. However, according to the definition of health given by the WHO in 1948, ensuring the absence of disease or infirmity is not enough. It is also necessary to achieve a state of complete physical, mental and social well-being of population. In this sense, a health system with high performance is one that, apart from guaranteeing the population health, responds satisfactorily to the legitimate expectations of population with those non-clinical factors ensuring their complete well-being.

The responsiveness concept from the WHO's framework arises from the framework of health systems' quality presented by the Lebanese physician Avedis Donabedian in his seminal paper of 1966 (Donabedian, 1966) and developed in his book *Explorations in quality assessment and monitoring* (Donabedian, 1980, 1982, 1985).<sup>4</sup> The Donabedian's work defines the health systems' quality in a much broader range than the simple ability to guarantee the population health by establishing three level of quality: technical, structural and process quality. This last type of quality is that related to the management of the interpersonal process where patient satisfaction with non-clinical factors is included as an aspect to guarantee a high overall quality of health systems.

However, there are other reasons for which responsiveness has been included as an intrinsic goal of health systems within the HSPA framework. Firstly, responsiveness is related to the health systems performance through its influence on population health and, accordingly, on the intrinsic goal of health. Achieving a high level of

---

<sup>4</sup> A summary about the work and career of Avedis Donabedian can be found in Frenk (2000) and Ayanian et al. (2016).

responsiveness could increase the compliance and encouraging patients to seek care early (De Silva & Valentine, 2000; Murray & Evans, 2003). For instance, in their book *Poor Economics: A radical rethinking of the way to fight global poverty*, Abhijit V. Banerjee and Esther Duflo suggest that the lack of responsiveness could explain why people decide to attend pseudo health providers when they need medical care instead of using the public health system. In a fieldwork conducted in India, they observe that doctors and nurses of the public health system did not treat their patients particularly well, did not provide them with enough time to be attended, and limited the number of questions to be posed (Banerjee & Duflo, 2011). This fact could lead to the underutilisation of the health services observed in some countries which could cause a declining population health (Valentine, De Silva, et al., 2003). Moreover, individuals who are treated with concern and cared for in pleasant surroundings could be more cooperative with their health problems, accept treatment procedures, or follow the advice of health staff (Naidu, 2009; Sofaer & Firminger, 2005; Valentine, De Silva, et al., 2003). Other authors have pointed out that the good communication with patients may provide doctors with better information for an accurate diagnosis and effective treatment (Cleary et al., 1991) whereas guaranteeing the privacy in the medical context could be also essential in situations such as childbirth (Gilson et al., 1994) or to struggle against chronic illnesses. In this latter case, some studies have highlighted that the lack of confidentiality and trust is an issue in the treatment of the AIDS in many countries (De Silva, 2000) mainly in developing countries (Njeru et al., 2009). Likewise, the recent study of (Świątoniowska-Lonc et al., 2020) shows that patients with hypertension who report more satisfaction with the physician-patient communication tend to indicate better treatment adherence and self-care. This fact suggests the correlation between a responsiveness and cooperation of patients with their health problems.

Secondly, responsiveness is relevant for its own sake irrespective of its impact on health (Darby et al., 2000). Complying the legitimate expectations of individuals with regard to non-clinical factors of care is almost always desirable since it directly implies a higher well-being and quality of life of people (De Silva, 2000). Furthermore, it is also considered relevant because of its link with the human and patient rights (Gostin et al., 2003; Valentine, De Silva, et al., 2003). Improving health is the primary aim for any health system, however not all ways to do it are legitimate. For instance, the lack of the responsiveness concept in the HSPA framework could rate positively the performance



of a health system that guarantees the public health by the isolation and confinement of certain population with communicable diseases (Darby et al., 2000), the implementation of experimental treatments with no previous consent of population, or the application of a treatment which does not respect the privacy of patients. However, those procedures are not acceptable since they violate some basic human rights. Furthermore, the presence of the responsiveness concept in the HSPA framework also pretend to protect patients against the information asymmetries related to the healthcare field which favour health providers (Darby et al., 2000). On the contrary, the WHO has also indicated that too much responsiveness could contribute to health negatively. For example, if people would have a comprehensive autonomy to decide whether they perceive a treatment or not, it could have a negative impact on the immunization of a population against a disease which is in conflict with the objective of health in order to avoid epidemics (WHO, 2000b). This fact is a highly topical subject for the health authorities of countries which fear for the refusal of the COVID-19 vaccine for a proportion of population (Butler, 2020; Latkin et al., 2020).

Thirdly, the importance of having a health system with a high level of responsiveness has been borne out by people. By means of an online survey conducted in 2000 by the WHO, the respondents indicated that the responsiveness goal should receive around the 30% of weight within the HSPA framework when it comes to generate a composite indicator of performance (Gakidou et al., 2000). Furthermore, (Coulter & Jenkinson, 2005) showed that most respondents in eight different European countries think that they should make the decision, along with the doctor, about which treatment is best for them, and have a free choice of doctor in primary, specialised and hospital care services. Likewise, Grol et al. (1999) found that most of patients visiting the General Practitioner in eight countries prioritise the non-clinical factors over some technical aspects of care in the general practice care. This fact shows the relevance of the concept of responsiveness for people in the health area. Nevertheless, the contribution of health systems to this element seems to have been much less examined than their contribution to improving health.

### **3.2. Composition of Health Systems' Responsiveness. The Responsiveness Domains**

In an encounter with a health system, a patient can interact with numerous non-clinical factors. Therefore, when it comes to measuring health system's responsiveness, it would

be necessary to take into account all the most relevant factors influencing the population well-being. Although the term of responsiveness was used in the 2000 World Health Report of WHO for the first time (Darby et al., 2000), the study of non-clinical factors in the healthcare field is previous. The literature of patient satisfaction and quality of care has broadly analysed the role played by non-clinical factors from the different points of view (Carr-Hill, 1992; Crow et al., 2002; Linder-Pelz, 1982; Sitzia & Wood, 1997; Ware et al., 1983). For that reason, the WHO undertook an extensive review of these literature<sup>5</sup> in disciplines such as sociology, anthropology, health economics, health services and management, ethics, human rights, and patient rights in order to identify what factors were valued by people in their interactions with the health system (Valentine, De Silva, et al., 2003).

Given the wide range of non-clinical factors addressed by the literature, the WHO created a common set of domains representing the most valued non-clinical factors with which a person can interact when come into contact with a health system. From the literature review, seven domains were identified: respect for individual autonomy (*Autonomy*), choice of the institution and individual providing care (*Choice*), respect for confidentiality (*Confidentiality*), respect for dignity (*Dignity*), prompt attention to health needs (*Prompt attention*), quality of basic amenities (*Quality of basic amenities*), and access to social support networks for individuals receiving care (*Access to social support*) (De Silva, 2000; Murray & Frenk, 2000; WHO, 2000). Three of them were classified as *respect for persons'* domains (autonomy, confidentiality, and dignity) since it captures aspects of interactions that have an ethical and subjective component, whereas the remaining four domains were identified as *client orientation* domains (choice, prompt attention, quality of basic amenities, and access to social support) because of its linking with the consumer satisfaction (Murray & Frenk, 2000). Later, a general consensus was reached to include an additional item related to a clear communication with patients (*Communication*) as a separated domain from the rest of domains and which was classified as a *respect for persons'* domain (De Silva & Valentine, 2000; Valentine et al., 2008). Valentine, De Silva, et al. (2003, p. 576) indicate that domains were selected «to characterize the qualities sought in a responsive health system by the individuals it serves». Therefore, any of the responsiveness

---

<sup>5</sup> The literature used to build the responsiveness concept can be found in the appendix 2 in De Silva (2000).

domains proposed have been validated in several research field as an important and valued attribute that individuals seek in their interaction with a health system. In addition, all the domains have undergone a process of cognitive testing in several pilot surveys as well as an extensive consultation process with expert was carried out from 1999 to 2002 (Valentine, De Silva, et al., 2003). It is worth mentioning that none of the responsiveness domains include factors related to clinical aspects or medical technology directly related to the people health, since these factors are collected by the intrinsic aim of health in the HSPA framework.

Although the WHO provides a close list of domains to measure responsiveness, it does not mean that all the non-clinical factors are represented. Several authors have analysed whether the domains proposed by the WHO are applicable when it comes to evaluating the health system of other countries or certain health services (Bramsfeld, Klippel, et al., 2007; Hsu et al., 2006; Njeru et al., 2009). For instance, by means of qualitative methods, Bramsfeld, Klippel, et al. (2007) and Njeru et al. (2009) found that the *Continuity of care* could be a domain to take into account in both mental health care services and voluntary HIV counselling and testing services, respectively. The results of their studies suggest that this aspect is not correctly represented by none of the eight domains proposed by WHO. Likewise, although the eight domains are presented independently of each other, they could be overlapped. For instance, some non-clinical factors from the *Communication* domain could be related to those of the *Autonomy* and *Dignity* domains. The same happens with the *Dignity* domain which could be overlapped with *Prompt attention*, *Autonomy* and *Confidentiality* domains (De Silva & Valentine, 2000). However, Valentine, De Silva, et al. (2003) note that this should be avoided as far as possible.

De Silva (2000, pp. 6–13), Gostin et al. (2003, pp. 4–9), and Valentine, De Silva, et al. (2003, pp. 575–582) provide the most detailed explanation of the content of each responsiveness domain that we have found.<sup>6</sup> In the following lines, we include a brief description of each domain by drawing on these authors.<sup>7</sup>

---

<sup>6</sup> De Silva & Valentine (2000, p. 1), Valentine et al., 2000 (p. 2), Murray & Frenk (2000, p. 720), Darby et al. (2000, p. 19), and WHO (2000, p. 32) also provides a very brief description of each domain.

<sup>7</sup> Appendix 1.1 displays a table with a short description of the domains and a summary of their main content.

### **3.2.1. Respect for Persons' Domains**

#### **Autonomy**

This domain is related to the ability and right of patients to make own decisions about their health. Although health providers have more competence to make decisions in the medical context due to their knowledge, the non-clinical factors related to the autonomy domain protect the patient from the information asymmetry by allowing them to make the last decision about their health. This fact implies that health providers should respect and help people to make a free choice about all the aspects related to their health problems and treatments by respecting the patients' views of what is proper or not. In other words, patients should be involved in the decisions-making of their health by taking into account their opinions and perceptions. Likewise, patients should receive complete and proper medical information about their health status, as well as know all the aspects related to the treatment that they need to improve their health in order to make informed decisions. It also includes providing patients with information about alternative treatments and allowing them to refuse any treatment if they consider. In consequence, the informed consent of patients in the context of testing and treatment should be obtained by health providers before performing any health action.

A health system that adequately responds to this domain would not force patients to be autonomous. Any patient could decide if they devolve the decisions related to their health to the health provider, or their relatives and friends. In the latter case, the patients' relatives should be also informed about the health status of the patient and the risk of the treatment, as well as involved in the decisions-making. This also happens in cases where patients cannot make a suitable choice because of their mental conditions or lack of competence (children).

#### **Communication**

This domain is related to the way in which the information is conveyed to patients and received from them. A health system responds this domain if the complex information related to the illness of patients and its implications, and the treatment needed is conveyed in a simple way and not technical terms in order to allow patients to understand all the aspects related to their health problems. Providing patients with enough time to understand the information conveyed and to ask questions related to their illness or treatment are also included in this domain. Furthermore, it is also

connected with the ability of patients to be carefully listened about their symptoms and worries by health providers, and to be answered about the questions posed. It includes the way in which follow-up advice and care needs are provided.

Likewise, the communication domain does not only take into account the relation between health provider and patient, but also the relation between the patient and the overall health system. Therefore, the information conveyed to the patient by the health authorities related to the public health or services delivered should be also provided clearly and in a way that patients can understand it.

### **Confidentiality**

It is defined as the ability of the health system to keep privately the information related to the patients' illness. This domain is focused on three aspects: 1) to create an environment ensuring the privacy regarding to conversations that health providers have with patients in order to external people cannot have access to this information; 2) to foster a "privileged communication", namely, to safeguard the confidentiality of the information shared by patients both personal and medical in order to guarantee the confidence of patients with the health system; and 3) to guarantee the confidentiality of health reports and personal information. Furthermore, it is also included the ability of patients to have access to their own health information.

In order to ensure confidentiality, it is necessary to have private spaces allowing patients to share personal and health information with confidence and security, avoid that health providers share personal information of patients with other colleagues except for exceptional cases, restrict the access to platforms containing patients' information, or develop rules guaranteeing the data protection.

### **Dignity**

It refers to receive health care in an environment of respect, friendliness, caring and non-discrimination. It can contain non-clinical factors such as courtesy, kind treatment, empathy or friendliness of health providers. These factors have been broadly addressed by the literature of patient satisfaction and quality of care (Carr-Hill, 1992; Linder-Pelz, 1982; Sitzia & Wood, 1997; Ware et al., 1983). However, receiving a kind and respectful treatment is the most identifiable factor for the dignity domain. It also includes guaranteeing the body privacy of patients during the medical examination, as

well as providing them with a private space to express their emotions and share their feelings with their relatives.

### **3.2.2. Client Orientation Domains**

#### **Choice**

It refers to the ability of patients to select the health care institution or health provider where they want to be treated. It includes both the possibility to choose other health providers in cases where the patient has an unsatisfactory encounter and the possibility to visit the same health provider if the patient wants to keep the continuity of care. Health system's responsiveness with this domain is also related to the chance of patients to have a second opinion in case of need as well as to visit a specialist doctor to gain an expert opinion in order to guarantee the peace of mind of patients and their relatives. This latter fact does not mean to remove the gatekeeping function of primary care, but to establish mechanisms of access that allow patients to visit specialised care.

Although there are no reasons from the human rights point of view supporting the provision of free choice in health systems, a higher choice can cause a higher patient satisfaction and can contribute to improve the quality of care through competence mechanisms among health providers. This latter could lead to improve other domains of the concept of responsiveness. Furthermore, by allowing them to choose the health provider or institution of their preference, patients can improve their well-being with the health system and, in consequence, the access to care can be enhanced. One of the drawbacks of providing a higher level of choice is the high cost that health systems cope with especially in countries with limited resources, in addition to the problems of inequality between population groups (Cookson et al., 2016; Dixon, Robertson, Appleby, et al., 2010; García-Lacalle, 2008).

#### **Prompt Attention**

Prompt attention domain collects all non-clinical factors related to the timeliness in cares and the ability of patients to access the health services. With regard to the first aspect, health system's responsiveness with this domain would be determined by the ability of the health system to provide rapid care in emergency care, test results and diagnosis with no delay, and short waiting times for attention and treatment in primary and specialised care, as well as in non-emergency surgical interventions. A good

response of a health system to this domain could avoid the anxiety and stress of patients as well as the medical complication of patients generated by delays in receiving health care. This domain does not only refer to personal or clinical procedures, but also to administrative aspects, non-personal services and public health actions. The concept of prompt attention does not include prompt medical attention in life-threatening situations.

As far as the second aspect is concerned, it is related to the concept of accessibility. It guarantees that patients can reach a facility in an affordable distance from their homes, can make an appointment, obtain medication to alleviate the pain, have follow-up services available, and have physical access to a facility in a simple way. This latter case is especially relevant for disabled persons thereby meaning to ensure adequate access to buildings.

### **Quality of Basic Amenities**

This domain is usually known as *hotel facilities*. It refers to the extent in which physical infrastructures and facilities of a health system are provided in a pleasant way. It includes facilities of any type of health service or the health system as a whole, namely, outpatient or inpatient services, as well as facilities related to promotion, prevention or rehabilitation services such as cleaning public areas or spraying insecticide. It focuses on two main items: cleaning and comfort. The first one contains the environment cleaning, that is, waiting rooms, hospital room, equipment, toilets, beds or linen. The second one includes elements such as furniture, ventilation, clean water, roominess, proper temperature, or healthy and edible food, among others. Other items related to clinical aspects such as drugs, testing facilities or medical equipment are not included in this domain since they are captured in the objective of health in the HSPA framework.

### **Access to Social Support**

This domain is only applied in inpatient services and refers to the ability of patient to have access to social support, that is, to «the feeling of being cared for and loved, valued esteemed, and able to count on others should the need arise» (Valentine, De Silva, et al., 2003, p. 582). It encompasses actions that allow patients to have regular visits of their relatives and friends or community-based organisations, receive food from outside the hospital, carry out cultural and religious practices that do not affect the sensitivities of other patients or, even, receive alternative therapies that are not contrary

to the hospital health care regime. In essence, this domain includes all the actions that provide an environment allowing patients to have beneficial interactions with their relatives, friends or community-based organisations in order to help them reduce the stress and to cope with the illness and its consequences. It also covers the support that the family members of the patients have received and the information that health staff have provided them.

### **3.3. Measurement of Health Systems' Responsiveness**

The WHO aims for knowing the actual health systems' responsiveness instead of the people perceptions about the responsiveness (Darby et al., 2000). However, one of the main troubles when it comes to measuring the actual health systems' responsiveness is the difficulty to find objective indicators (Valentine, De Silva, et al., 2003). For instance, it is not easy to develop an indicator objectively measuring the way in which doctors communicate the health problems to their patients; whether the doctor is pleasant or friendly with the patients; whether the personal information of patients is confidentially safeguarded; or whether doctors take patients into account when it comes to making decisions about their health problems. Accordingly, the individuals' opinions and perceptions have been usually used as a means for knowing how a health system responds to non-clinical factors (Valentine, De Silva, et al., 2003).

In this context, the patient satisfaction concept has traditionally played a very relevant role. Some authors have used the patients' satisfaction to measure whether the health system responds to their legitimate expectation with the non-clinical factor (Blendon et al., 2001; Cleary et al., 1991). However, the patient's satisfaction concept has been identified as a very complex and multidimensional indicator which could be unable to provide a proper information about the actual health systems' responsiveness due to the potential bias generated by the patients' expectations (Cleary et al., 1991; Kerssens, Groenewegen, Sixma, Boerma, & Van Der Eijk, 2004; Valentine, Bonsel, & Murray, 2007; Valentine, De Silva, et al., 2003). The patients' expectations play a relevant role when patients report their satisfaction with an interaction thereby a bias could be generated (De Silva, 2000). For instance, people who are not used to receive a good healthcare attention could report higher level of satisfaction with their health system than people who are more demanding even if the former ones actually received a worse response from their health system than the latter ones. This fact could be caused by the low expectations. Unlike the patient's satisfaction concept, which measures the



person's perceptions of what is happening, the responsiveness concept aims for measuring what is actually happening when a health system and the people it serves. In consequence, the responsiveness measurement «moves away from finding out whether a person is satisfied with their care toward more reporting the experience of the person with the health system» (Darby et al., 2000, p. 6). Therefore, rather than reporting their satisfaction with the encounter, the responsiveness concept catches the people experience with such encounter. Although the self-reported indicators are not completely objective, recent studies have shown that the people opinions and experiences about responsiveness could be strongly related to more objective measures (Fernández-Pérez et al., 2019; Fiorentini et al., 2018).

Given the lack of surveys that collected information about responsiveness from this new approach (De Silva & Valentine, 2000; Üstün, Chatterji, Villanueva, Bendib, et al., 2003; N. Valentine et al., 2009; Valentine, De Silva, et al., 2003), the WHO carried out several attempts to measure health systems' responsiveness.<sup>8</sup> Since the responsiveness concept arose, the WHO has conducted three surveys to measure it: The Key Informant Survey; the Multi-Country Survey Study on Health and Responsiveness 2000-2001; and the World Health Survey.<sup>9</sup>

### **The Key Informant Survey**

The first attempt to measure health systems' responsiveness was through three pilot surveys launched at household level in Tanzania, Colombia and Philippines. By around 150 interviews were conducted in each country (De Silva & Valentine, 2000). However, the need to obtain information from a large number of countries in a short period of time in order to launch the World Health Report in 2000 caused that, in parallel, the WHO conducted a new questionnaire so-called the Key Informant Survey.

The KIS was implemented in 35 countries (from low-, middle- and high-income areas) in 1999. Unlike the household pilot survey, the KIS questionnaire was focused on key informant, namely, people who knew well the health system of their country such

---

<sup>8</sup> Darby et al. (2000) and Valentine, De Silva, et al. (2003) provide the most popular questionnaires at the end of 20<sup>th</sup> century which measured the health systems' responsiveness with the non-clinical factors of care. Apart from measuring the patient's satisfaction, they found that none of the questionnaires included information about all the responsiveness domains proposed by WHO.

<sup>9</sup> All WHO surveys related to the responsiveness concept can be found in the section "Responsiveness surveys and questionnaires" in the WHO web page: <https://www.who.int/responsiveness/surveys/en/>

as government and non-government employees, researchers, university lectures, social workers, or the staff in the Ministries of finance and planning (De Silva & Valentine, 2000). A total of 1,791 respondents answered the questions about seven out of eight elements of responsiveness proposed by WHO.<sup>10</sup>

The aim of the survey was to find out the opinion of the key informants about how the health system as a whole of their country responds to the non-clinical factors including any aspect of health-related activity in public and private, organised and traditional sectors involving the entire population. For each domain, respondents were asked for assessing a series of non-clinical factors (between three and seven) by using four-point Likert-type scales that ranged from “never” to “always” in those questions where respondents were asked about “*how often...*”, as well as from “very poor” to “very good” in those questions where respondents were asked about “*how would you rate...*”. Likewise, respondents were provided a question to rate the overall domain considering all the non-clinical factors included in the corresponding domain on a scale from 0 to 10 where 0 being the poorest score and 10 being the best one (De Silva & Valentine, 2000). Finally, the KIS also included a question to assess the overall responsiveness of the health system considering the seven domains by using the rating scale from 1 to 10.

### **The Multi-Country Survey Study on Health and Responsiveness**

The KIS instrument presented several limitations strongly criticised by the academic world. For example, Navarro (2000) and Almeida et al. (2001) pointed out as a potential bias in the results of responsiveness obtained by the KIS, among others, the fact that key informants instead of households were interviewed. In addition, the information obtained with the KIS did not allow to perform international comparisons among countries inasmuch as «response of individuals vary by country or by population subgroups due not only to real differences in the quantity of interest, but also to differences in norms and expectations, or cognitive processing of survey questions» Üstün, Chatterji, Villanueva, et al. (2003, p. 762). This implies the need to control for possible *differential item functioning* which involves a shift in the response category cut-points between populations or subgroups as well as to conduct classical psychometric tests about comparability, validity and reliability. For those reasons, the

---

<sup>10</sup> At that time, the *Communication* domain was not considered a separate item from the rest of domains.

WHO developed the Multi-Country Survey Study on Health and Responsiveness 2000-2001 (Üstün, Chatterji, Villanueva, Bendib, et al., 2003; Üstün, Chatterji, Villanueva, Benib, et al., 2003). This nationally representative general population-based survey was launched in 61 countries in order to «develop instruments that would allow the measurement of health, responsiveness and other health-related parameters in a comparable manner and would provide useful information to refine this methodology» (Üstün, Chatterji, Villanueva, Bendib, et al., 2003, p. 763).

The questionnaire was conducted by using different modes: in-person household 90-minutes interviews (14 countries); brief face-to-face interviews (27 countries); computerised telephone interviews (2 countries); and postal surveys (28 countries). It contained modules about a wide range of issues related to the health systems' performance such as health state descriptions, chronic health conditions, mental health use, or health systems' responsiveness. For this last module, unlike the KIS questionnaire, the MCSS asked respondents for rating health systems' responsiveness separately for both outpatient (ambulatory and home care) and inpatient (hospital) services.

Once again, each of the eight responsiveness domains was composed of a series of questions about non-clinical factors related to the corresponding domain. The eight domains and their corresponding number of questions per domain were: «prompt attention (four outpatient, one inpatient), dignity (four outpatient, one inpatient), communication (four outpatient, one inpatient), autonomy (four outpatient, one inpatient), confidentiality (two outpatient, one inpatient), choice of institution and care provider (three outpatient, one inpatient), and basic amenities of acceptable quality (three outpatient, one inpatient)» (Üstün, Chatterji, Villanueva, Bendib, et al., 2003, p. 769). Additionally, respondents were asked for rating their overall experience with the domain as a whole by means of a rating scale with five categories, namely, Very good, Good, Moderate, Bad, and Very bad.

Finally, in order to achieve a cross-population comparability of health systems' responsiveness, the MCSS questionnaire included one section with the so-called vignettes, namely, short descriptions of hypothetical scenarios about people's experiences with the health system which are related to the different domains of responsiveness. Respondents were asked to rate using the same rating scale employed in the responsiveness description questions from “Very good” to “Very bad” (Letkovicova

et al., 2005). By including the vignettes, the MCSS aimed at solving the problem of comparability related to the self-reported measures for responsiveness. The response categories used by respondents to assess a domain can be interpreted in a different way because of cultural, socio-economic, beliefs or expectations differences among population. These differences imply that cut-points vary between population. The vignette pretends to fix a given level in the domain of interest such that variation in the response categories is attributable to variation in the response category cut-points. It was the first time that vignettes were included in a responsiveness household survey.

### **The World Health Survey**

Finally, the last attempt to collect information about responsiveness by WHO is the World Health Survey (Deckovic-Vukres et al., 2007; Üstün, Chatterji, Villanueva, Bendib, et al., 2003; WHO, 2020b). According to Rice et al. (2010b), the WHS is «the most ambitious attempt to date to measure and compare health systems responsiveness». The WHS was developed to address the need for reliable information and to cater to the increased attention to the role of health in economic and human development that has led to greater resources being committed to improving health in all settings (Deckovic-Vukres et al., 2007, p. 6). It was implemented in 71 countries in 2002 with a sample size varied from 1,000 and 10,000 randomly selected adults older than 18 years of age.

Health systems' responsiveness is one of the five modules composing the survey. In the same way as the MCSS, this module was included in both the short and long questionnaire. The long survey was composed of 143 questions (or items), whereas the short one covered 78 questions, since only the half the number of questions to evaluate the eight core domains were considered. The responsiveness module was structured in six sections: 1) needing health care and general evaluation of health systems; 2) importance; 3) seeing health care providers; 4) outpatient and care at home; 5) inpatient hospital; and 6) vignettes for health system responsiveness.

Questions about non-clinical factors related to the responsiveness domains were included into the fourth and fifth sections. In this case, each domain was related to two items except for the *Choice* domain (1 item). Moreover, the *Access to social support* was only asked for the inpatient's services. Respondents rated their last experience with

each non-clinical factor by using a five-point rating scale from 1 to 5 being 1 “Very good”, 2 “Good”, 3 “Moderate”, 4 “Bad, and 5 “Very bad”.

Once again, vignettes about hypothetical situations with each domain were added in the sixth section. The vignettes were divided into four sets (A, B, C, and D). In the set A, respondents were asked for assessing ten vignettes related to the *Dignity* and *Prompt attention* domains by using the same rating scale from 1 to 5. Questions in the set B were related to the *Communication* and *Quality of basic amenities* domains. In the set C, vignettes related to the *Confidentiality*, *Choice* and *Autonomy* domains were included, whereas the set D was composed of questions related to the *Autonomy* and *Access to social support* domains.

These surveys have been used in several papers related to the responsiveness concept since they were launched (Malhotra & Do, 2017; Ortiz et al., 2003; Peltzer, 2009; Rice et al., 2010b; Robone, Rice, et al., 2011; Ugurluoglu & Celik, 2006; Valentine & Bonsel, 2016). However, although the WHO also developed more recent surveys including some questions related to the responsiveness concept (for instance, the Study on Global Ageing and Adult Health), the lack of updating or expansion of this kind of surveys to other countries and regions has caused that some authors have used other surveys different from those conducted by WHO but related to the responsiveness concept (Farahbakhsh et al., 2019; Murante et al., 2017; Peltzer & Phaswana-Mafuya, 2012; Puentes-Rosas et al., 2005; Rossouw & Smith, 2017; Yakob & Ncama, 2017). For instance, some of them have used surveys including the term of patient satisfaction as a proxy of the responsiveness concept (Fiorentini et al., 2018) because of the lack of information about responsiveness in certain regions. Likewise, other studies have based on the questionnaires developed by WHO to collect information related to responsiveness in certain regions (Chao et al., 2017; Luo et al., 2013; Mohammed et al., 2013; Vandan et al., 2020).

#### **4. The literature about health systems' responsiveness**

Several studies related to health systems' responsiveness have emerged since the WHO developed the concept during the period 1999-2003. Among these studies, we can distinguish several research lines. One of them aims at measuring the level of responsiveness of the health systems or its health services. Apart from the *World Health*

*Report 2000. Health systems: Improving performance* where health systems' responsiveness of 191 countries was measured (Valentine et al., 2000; WHO, 2000b), there exist more recent studies analysing how health systems and its health services respond to the non-clinical factors (Askari et al., 2017; Baharvand, 2019; Coulter & Jenkinson, 2005; Hamid & Begum, 2018; Kapologwe et al., 2020; Kerssens et al., 2004; Kowal, 2011; Mohammed et al., 2013; Njeru et al., 2009; Peltzer, 2009; Ristea et al., 2009; Ugurluoglu & Celik, 2006; van der Kooy et al., 2017; Yakob & Ncama, 2017). For instance, Kerssens et al. (2004) measure and compare the level of responsiveness of the primary care services of 12 European countries with several non-clinical factors. Peltzer (2009) evaluate the degree in which the both public and private inpatient and outpatient services in South Africa respond to the legitimate expectations of patients with non-clinical factors such as the waiting times, the respect for intimacy during physical examination, or clarity of explanation. Similar studies are recently provided by van der Kooy et al. (2017) and Kapologwe et al. (2020) for the antenatal and delivery phases of perinatal care in The Netherlands, and primary care in Tanzania, respectively. One of the main features of these studies is the way in which the level of responsiveness is measured. Whereas authors such as Fiorentini et al. (2018), Rice et al. (2010) or Njeru et al. (2009) measure health systems' responsiveness by using the proportion of respondents choosing each category in the rating-scale with each responsiveness domain, other studies build composite indicators to measure the overall level of responsiveness of a domain or of the health system or services as a whole (Kapologwe et al., 2020; Kowal, 2011; Yakob & Ncama, 2017). Likewise, there are authors who calculate an arithmetic mean of responsiveness from the categories of response (Askari et al., 2017; Ugurluoglu & Celik, 2006).

One of the most relevant strands of research in health systems' responsiveness literature is one analysing the determinants of the level of responsiveness. Given that the level of responsiveness is mainly obtained from self-reported indicators, these studies try to identify the individual or socioeconomic characteristics (demand side), as well as the institutional factors (supply side) determining the ratings that people report with regard to the non-clinical factors (Blendon et al., 2001; Bramesfeld et al., 2007; Coulter & Jenkinson, 2005; De Silva & Valentine, 2000; Fiorentini et al., 2015, 2018; Malhotra & Do, 2017; Murante et al., 2017; Peltzer, 2009; Puentes-Rosas et al., 2005; Rice et al., 2011; Robone et al., 2011; Sirven et al., 2012; Valentine et al., 2009;

Valentine, Ortiz, et al., 2003; Valentine et al., 2000; Wang et al., 2017). The results of this research allow us to know the most relevant institutional drivers so that people report a high experience with a certain non-clinical factor or responsiveness domain, as well as whether there are differences in responsiveness between individuals on the basis of gender, age, level of education, or income. For instance, on the supply side, Robone et al. (2011), Valentine, Ortiz, et al. (2003), Blendon et al. (2001), or Anderson & Hussey (2001) show that those countries with a higher health expenditure per capita are more responsive with the non-clinical factors. Likewise, Puentes-Rosas et al. (2005) or Peltzer (2009) observe that the type of institution where the health care is delivered matters. They show that the private services in Mexico and South Africa, respectively, provide a higher level of responsiveness with the non-clinical factors than the public services. On their part, Fiorentini et al. (2015) observe for the Italian region of Emilia-Romagna that the type of hospital where people attend determine the level of responsiveness that they receive with the non-clinical factors by suggesting that the institutional factors are relevant.

On the demand side, the individual characteristics such as age, gender, level of education, self-reported health or place of residence seem to influence the assessment that people report about their experience with the non-clinical factors. For instance, Puentes-Rosas et al. (2005), Coulter & Jenkinson (2005), Wang et al. (2017), or Murante et al. (2017) observe that older people tend to report higher level of responsiveness than younger people. Other studies indicate that the relation between age and responsiveness seem to be weak (Rice et al., 2012; Sirven et al., 2012). In fact, Bramesfeld et al. (2007) do not find significant differences in responsiveness ratings by age in the inpatient and outpatient care services in Germany. As far as the gender is regard, Sirven et al. (2012), Rice et al. (2012), Fiorentini et al. (2015), or Coulter & Jenkinson (2005) find that the gender is not a very influential variable when it comes to reporting the level of responsiveness. However, the type of influence seems to be different among studies. For instance, Puentes-Rosas et al. (2005) for the Mexican health system or Sirven et al. (2012) for the health system of 11 European countries find that men are likely to rate certain domains with lower responsiveness than women. On the contrary, Ugurluoglu & Celik (2006) and Fiorentini et al. (2015) for Turkish and Italian health system, respectively, observe that women tend to report lower level of responsiveness with certain domains. The educational level, the place of residence, size

of municipality where people reside, working status, income, type of work, self-reported health, pain, frequency of use of the health services or the type of illness, among others, have been also studied as potential determinants of the level of responsiveness reported by people (Bramfeld, Wedegärtner, et al., 2007; Fiorentini et al., 2018; Karami-Tanha et al., 2014; Malhotra & Do, 2017; Murante et al., 2017; Puentes Rosas et al., 2006; Rice et al., 2012; Sirven et al., 2012; Valentine et al., 2000; Valentine, Ortiz, et al., 2003; Yakob & Ncama, 2017).

In this regard, given that responsiveness is measured by using the people assessments, when differences in level of responsiveness between population groups are found, it is not possible to know whether they actually received a different response of the health system by their socioeconomic condition or whether the socioeconomic condition lead them to interpret the response received by the health system in a different way. In this sense, for instance, it is not possible to know if older people report a higher level of responsiveness because they actually receive a better response than younger people or, however it is because they tend to interpret a same situation in a more positive way than younger people. The latter issue is so-called *reporting heterogeneity* and it assumes that individuals of different populations or subgroups could «systematically differ in their interpretation of the available response categories, such as 'poor' or 'good' performance» when they face with survey questions about the assessment of responsiveness (Rice et al., 2012, p. 338). Accordingly, a series of studies correcting by the reporting heterogeneity has arisen (Fiorentini et al., 2015, 2018; Puentes-Rosas et al., 2005; Puentes Rosas et al., 2006; Rice et al., 2008, 2010b, 2010a, 2011, 2012; Robone et al., 2011; Sirven et al., 2008, 2012; Valentine, Ortiz, et al., 2003). These papers tend to use the method of anchoring vignettes in order to control for systematic differences between population groups due to potential differences in preferences or social norms. Namely, they use vignettes representing hypothetical situations which are common for all the respondents. Therefore, if respondents assess a same vignette (same situation) in a different way, we could assure that there is *reporting heterogeneity*. For instance, Rice et al. (2012) found that the educational level seems to generate reporting heterogeneity. By analysing the Mexican population, they observed that people with higher educational level are more likely to report higher level of responsiveness for a same situation with the communication domain than people with lower education level.



Other strands of research in the literature about responsiveness is that studying the distribution of the responsiveness among population and its determinants. As we stated above, the HSPA framework establishes that the health systems should guarantee a high level of responsiveness for all the population on equal terms. For that reason, there are a number of papers analysing the distribution of responsiveness in several countries, as well as the factors influencing in that distribution. It is worth to mentioning that this kind of literature is more limited than that studying the level of responsiveness of the health systems and its determinants. The 2000 WHO report was the first attempt to measure the distribution of responsiveness in several countries (De Silva & Valentine, 2000; Valentine et al., 2000; WHO, 2000b). Later, Ortiz et al. (2003) was the first work where different types of inequality measures were proposed to measure the distribution of responsiveness in 16 OECD countries. However, the coefficient of variation was finally used to measure the distribution of responsiveness by following the preferences of a set of key informants. Likewise, Valentine et al. (2009) measured the inequalities in responsiveness by income quintiles for ambulatory and inpatient services for the 69 countries included in the World Health Survey. They observed that in high income countries the responsiveness inequalities were lower both in ambulatory and inpatient services than in poorer countries. Furthermore, they observe that countries with a low inequality in responsiveness tend to have a high level of responsiveness. Jones et al. (2011) also measured the inequality and polarisation in the responsiveness with the dignity, prompt attention, confidentiality, and clarity of communication domains in 25 European countries by using the Abul Naga-Yalcin inequality index. They find that Southern European countries present lower inequalities in responsiveness than countries of Northern Europe.

Other papers in the responsiveness literature have studied the weight or importance that people attached to the non-clinical factors or the responsiveness domains developed by the WHO (Bramesfeld, Klippel, et al., 2007; Letkovicova et al., 2005; Njeru et al., 2009; N. Valentine et al., 2008; Valentine et al., 2000; Valentine & Salomon, 2003). This research is mainly based on the information obtained by the surveys where respondents are asked for ranking the responsiveness domains according to their preference or importance for them. It aimed at identifying the weight that each domain should have in case that a hypothetical composite index about responsiveness was developed. Likewise, other studies analyse the variables determining the extent of

importance that respondents attach to each domain. For instance, Valentine et al. (2008) find that variables such as country of residence, human development index, or health system expenditure seem to modify the likelihood to select a certain domain as the most important.

Other studies are aimed at testing whether the responsiveness domains developed by WHO are suitable for assessing the responsiveness in different contexts or services (Bramesfeld, Klippel, et al., 2007; Forouzan et al., 2011; Hsu et al., 2006; Njeru et al., 2009; Olding et al., 2018; Röttger et al., 2014; van der Kooy et al., 2017; Van Der Kooy et al., 2014). Although the WHO provided eight responsiveness domains where the most non-clinical factors could be represented, there could be other non-clinical factors that should be taken into account. These studies tend to use focal groups to check whether the eight domains proposed by the WHO are suitable to measure the responsiveness of a certain health service or, on the contrary, other aspects should be taken into account. By applying a focus group with 40 participants in chronic disease services in Germany, Röttger et al. (2014) observed that two new non-clinical factors which were not represented by the eight responsiveness domains arisen: the *coordination* and *trust*. Likewise, Forouzan et al. (2011) found that a domain so-called *effective care* should be considered to measure the responsiveness of the mental healthcare services in Iran, whereas Bramesfeld, Klippel, et al. (2007) observed that it would be proper to add a domain so-called *continuity* in order to assess the responsiveness of the mental healthcare service in Germany.

Finally, other research line that can be identified in health system's responsiveness literature is that empirically studying the implications of the responsiveness. As we said above, one of the main reasons for which the responsiveness concept was included in the HSPA framework was because of its influence on the population health. It was assumed that a health system with a high level of responsiveness would achieve that patients were more cooperative with their health problems. Furthermore, they would accept and follow the treatment procedures and advice suggested by the health staff. Some authors have pointed out that guaranteeing an overall satisfactory experience of the patients with the health services or systems contributes they to be more involved in their health problems (Bleich et al., 2009; Naidu, 2009; Sofaer & Firminger, 2005; N. B. Valentine et al., 2007). In this way, the population health could be improved. Accordingly, empirical evidence showing the real implications that the responsiveness

has on the overall experience of patients with a health system or its services, as well as on the health outcomes is especially relevant. To the best of our knowledge, the literature providing this kind of evidence seems quite limited. Bleich et al. (2009) analysed the influence of seven responsiveness domains on the overall patients' satisfaction with the health system in 21 European Union countries. They observed that, except for confidentiality, when people report a better experience with the responsiveness domains, on average, they tend to report more satisfaction with the health system as a whole. Likewise, more recent studies have analysed the implications of the responsiveness on the health outcomes. For instance, by analysing the health systems of 57 countries, Valentine & Bonsel (2016) found that those health systems having more problems with the responsiveness underwent higher rates of maternal, child, and Tuberculosis mortality. In the same line, the preliminary results of Kibret (2020) suggest that reporting more satisfaction with the waiting times and non-clinical factors related to the communication domain is strongly associated with reporting better self-assessed health both in the primary and hospital care services of the Spanish NHS.

In its HSPA framework, the WHO provided a series of actions that health systems could carry out to improve the fulfilment of their intrinsic goals, among them, their responsiveness. Those actions are aimed at implementing policy reforms in several key aspects of the health systems such as the financing system, the service provision, the resources generation, or the stewardship in order to improve their performance. It is worth to mentioning that, as far as we know, there exist an absence of empirical studies analysing the effect of the reform suggested by the WHO in its HSPA framework on health systems' responsiveness.

## Appendix 1.1. Summary of the Responsiveness Domains Developed by the WHO

Table A1.1.1 Summary of the content of the responsiveness domains developed by the WHO

Domain	Short description	Content
Autonomy	Respect for patients' views of what is appropriate and allowing patients to make informed choices	<p>Receive medical information</p> <p>Make informed choices</p> <p>Refuse medical treatment<sup>a</sup></p> <p>Respect the patient's views of what is appropriate</p> <p>Provide information to individuals and their families about alternative treatment options</p> <p>Involve the individuals and their families in the decision-making</p> <p>Obtain informed consent in the context of testing and treatment</p>
Choice	An individual's right or opportunity to choose and healthcare institution and health provider and to request a second opinion and access specialist services when required	<p>Power or opportunity to select both health care institutions and providers</p> <p>Ability of an individual to gain a second opinion</p> <p>Access to specialist care when needed<sup>b</sup></p> <p>Consult the same provider if desired as well as consult a different provider with previous encounters</p>
Communication	The offering of a clear explanation to patients and family regarding the nature of the illness, together with details of treatment and of any available options	<p>Explain clearly (in simple and non-technical terms) to the patient and family the details of the required treatment</p> <p>Provide time for patients to understand their symptoms and to ask questions</p> <p>Have the provider listen to their problems and answer their questions</p> <p>Provider listen carefully to the concerns of the patient and explain the illness, its treatment and implications</p> <p>Permits the time and opportunity for the patient to ask questions</p> <p>Provide information about health system in general</p>

Table A1.1.1 Summary of the content of the responsiveness domains developed by the WHO (*Continued*)

<b>Domain</b>	<b>Short description</b>	<b>Content</b>
Confidentiality	Privacy in the environment in which consultations are conducted, and the concept of the privileged communication and confidentiality of medical records	<p>Privacy of the environment in which consultations are conducted</p> <p>Privileged communication: individuals divulge information and the conviction that this information will be kept confidential</p> <p>Confidentiality of medical records and information about individuals</p>
Dignity	The opportunity for patients to receive care in a respectful, caring, non-discriminatory setting	<p>Receive care in a respectful, caring, and non-discriminatory setting</p> <p>Privacy during medical examinations, privacy of the body</p> <p>Privacy to the space provided for patients to express emotions</p> <p>Members</p> <p>Health education and information dissemination in the area of</p> <p>Safeguarding of human rights (liberty to free movement of tuberculosis or HIV)</p>
Prompt attention	The opportunity to receive care rapidly in emergencies, or readily with short waiting times in the case of non-emergencies	<p>People's knowledge that they can have access to rapid care in</p> <p>Short waiting periods for treatment and surgery even in the case</p> <p>Convenient times and modes for accessing curative and public</p> <p>Services within easy travelling distance</p> <p>Follow-up services</p> <p>Be treated in a timely manner</p> <p>Ability to reach a facility, make an appointment, be attended</p> <p>alleviate pain, receive test results and diagnosis with no delay</p> <p>Prompt attention in terms of the administrative process, public</p> <p>messages (non-personal services)</p> <p>Not face long waiting times for consultations and treatment</p> <p>It is not related to receive prompt medical attention in a life-threatening</p> <p>Accessibility: non-discrimination, physical accessibility. It underlying determinants of health are within safe physical buildings for persons with disabilities<sup>c</sup></p>

Table A1.1.1 Summary of the content of the responsiveness domains developed by WHO (*Continued*)

<b>Domain</b>	<b>Short description</b>	<b>Content</b>
Quality of basic amenities	The physical environment and services often referred to as “hotel facilities,” including clean surroundings, regular maintenance, adequate furniture, sufficient ventilation, and adequate space in waiting rooms	Extent to which the physical infrastructure of a health facility includes clean surroundings, regular maintenance, adequate furniture, sufficient rooms, clean water, toilets and linen at the institutional level  Drugs, testing facilities and medical equipment are not included  Cleanliness (clean waiting rooms, wards, equipment, toilet facilities, sufficient ventilation, heating in cold climates, roominess, and good quality of food)  Prevention measures, involving non-personal prevention activities such as spraying insecticide, preventing mosquito breeding in wastelands
Access to social support <sup>d</sup>	The extent to which patients have access to their family and friends when receiving care, and the maintenance of regular activities (e.g., the opportunity to carry out religious and cultural practices)	Have regular visits by relatives and friends  Ability of family and friends to provide food and other necessities for inpatients  Opportunity to carry out religious and cultural practices that are important to other patients or health care providers  Practice alternative therapies (such as traditional medicine) as part of the health care regime  Family members of someone who is ill received support and visitation

Notes: Retrieved from Fiorentini et al. (2018), De Silva (2000), Gostin et al. (2003), and Valentine, De Silva, et al. (2003).

<sup>a</sup> The right of refusal is not absolute and must be considered alongside other factors such as public well-being and the competence of the health care provider. <sup>b</sup> The right of refusal is not absolute and must be considered alongside other factors such as public well-being and the competence of the health care provider. <sup>c</sup> Non-discrimination means that goods and services must be accessible to all, especially the most vulnerable population. Physical accessibility means that goods and services must be within safe physical reach for all sections of the population. <sup>d</sup> It is only operationalized in the context of inpatient care (Valentine, De Silva, et al., 2003, p. 582).



# CHAPTER 2

*The Spanish National  
Health System and its Responsiveness. The  
Spanish Healthcare Barometer Survey*





## **1. Introduction**

As we explained in the introduction of this doctoral thesis, our main objectives are to study the implications of health systems' responsiveness on the overall patients' experience, as well as to analyse the effectiveness of the freedom of choice policies to improve the level of health systems' responsiveness. In order to meet with both objectives, we use the cross-sectional microdata obtained from the Spanish Healthcare Barometer survey. This SHB is an opinion survey annually conducted by the Spanish Ministry of Health in coordination with the Spanish Centre of Sociological Research since 1993. Its aim is to know the citizens' opinions about several topics related to the Spanish public health system, among them, its responsiveness with a series of non-clinical factors. To the best of our knowledge, this is the only official survey at national level reporting indicators to measure health system's responsiveness in Spain. The SHB survey is analysed in section 3 of this chapter, specifically the non-clinical factors included in the SHB survey which are related to the responsiveness concept developed by the WHO.

Given that the SHB survey contains information about the Spanish health system, the institutional framework of this dissertation is based on the Spanish National Health System. The Spanish NHS is a system based on the traditional Beveridge Model and similar to the health systems from the UK, Portugal, Italy, Sweden or Denmark. It is a universal coverage system, free of charge at the point of delivery, financed mainly with taxes, and where management is highly decentralised to the regional governments. The public sector is the main healthcare provider in Spain by undertaking around 70% of total healthcare expenditure. A general description of the main features of the Spanish health system is provided in section 2 of this chapter.

Finally, in section 4, we measure the level of responsiveness of the Spanish NHS as a whole and its main health services –primary, specialised, hospital, and emergency care– with a series of non-clinical factors by using the information provided by the SHB survey.

## **2. The Health System: The Spanish National Health System**

The institutional framework of this dissertation is based on the Spanish National Health System –*Sistema Nacional de Salud*–. The 1978 Spanish Constitution establishes the

health protection as a fundamental right of citizens, and grants the public authorities the power to organize and provide the necessary services to make it effective. The General Healthcare Act 14/1986, 25 April created the NHS which is integrated by all the health structures, services, and functions under the responsibility of the public authorities to guarantee the right to the protection of the citizens' health.

The General Healthcare Act regulates the main features of the Spanish NHS such as its institutional and territorial organization, its financing, coverage or access to the system, among others, to form the current personality of the Spanish health system. The Spanish NHS is formed as a universal coverage system, with provision predominantly by the public sector, free of charges at the point of delivery, mainly financed with taxes, and where the management is highly decentralised to the regional governments.

## **2.1. Organisation**

### **2.1.1. Institutional**

One of the main features of the public healthcare in Spain is its high degree of decentralisation. The 1978 Constitution devolved the health policy to the different Spanish regions,<sup>11</sup> whereas the central administration was only responsible for drawing up the basic and common legislation that guaranteed a minimum level of equality throughout the territory.<sup>12</sup>

The organisation of the NHS is subjected to this decentralisation of the health policy. The General Healthcare Act ordered the creation of a Regional Health Service in each of the 17 Spanish regions, which would integrate the health centres, services and establishments of their own region. In this way, the regions would autonomously regulate and manage the organization, functions, and allocation of personal and material resources of their corresponding health service. Accordingly, in practice, the Spanish

---

<sup>11</sup> The Spanish territory is divided into 17 regions called Autonomous Communities and 2 Autonomous Cities (Ceuta and Melilla). The Spanish Constitution recognises its autonomy and self-government and devolves them numerous powers in different issues, including health. The health policy was not directly devolved to all the regions in 1986, but there was a transition period until 2002. From that year on, all the Spanish regions was responsible for health policy within their territory (For more details on the historical background of the Spanish NHS, see García-Armesto et al. (2010, pp. 38–49).

<sup>12</sup> In Spain there are 4 fundamental laws on health issues enacted by the central government that are basic and common to all regions: 1) Organic Law 3/1986, of April 14, on Special Measures in Public Health; 2) General Healthcare Act 14/1986, 25 April; 3) Law 16/2003, 18 May, on the cohesion and quality of the National Health System; and 4) General Law 33/2011, 4 October, Public Health (BOE, 1986a, 1986b, 2003, 2011).

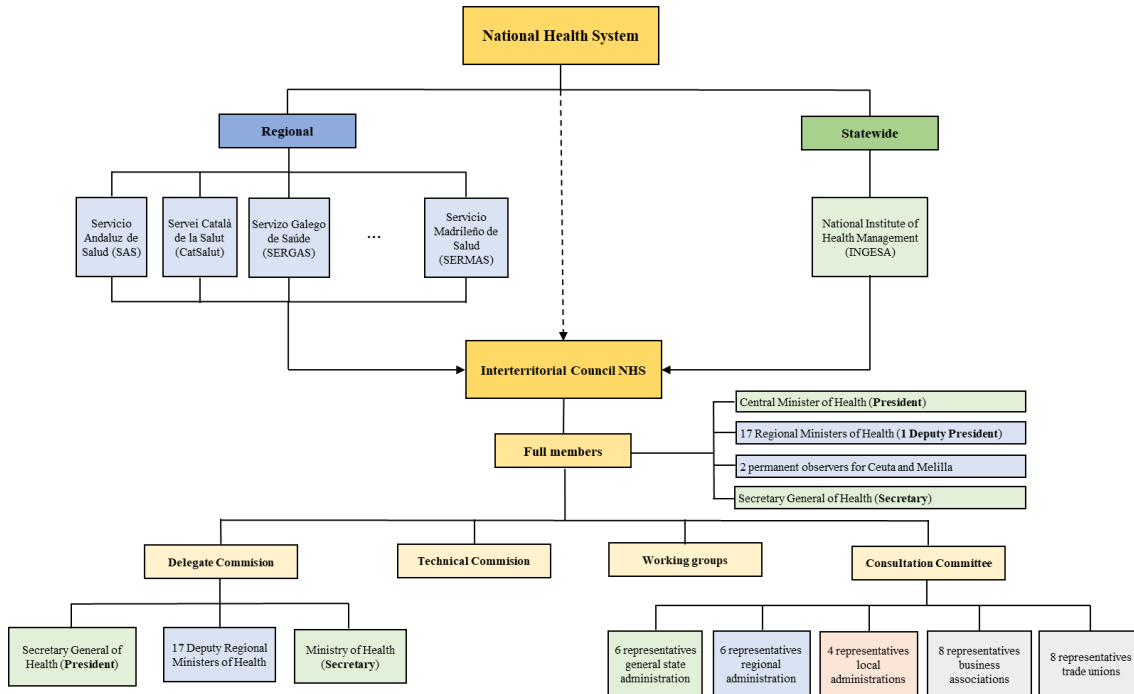
NHS is configured as a health system made up of 17 RHS with high autonomy, which practically generates the presence of 17 almost independent health systems (Martín Martín & López del Amo González, 2011).

In order to guarantee the coordination and to avoid a high level of territorial inequity both in health services delivery and in healthcare quality, the NHS created the Interterritorial Council, a permanent body for coordination, cooperation, communication and information of the health services, among themselves and with the State. Its purpose is to promote the cohesion of the NHS through the effective guarantee of the citizens' rights throughout the territory of the State. The Plenary of the ICNHS is composed by the 17 regional ministers responsible for health issues at regional level, as well as by the Minister of Health on behalf of the central administration. Coordinated measures are debated, planned and adopted in the ICNHS. They are recommendations that may or may not be applied by the regions represented. In addition, the ICNHS is composed of a series of commissions, working groups, and an advisory committee that support the preparation of the sessions and the preparation of measures (see Figure 2.1).

Although the regional governments are subjected to the general framework established by the central government, they are responsible for planning and organising their own health service. For this reason, we currently find a diversity of forms of management and organisation of the public healthcare in Spain. However, in most cases the main structure is homogeneous. There is a Department or Ministry of Health in the region that has responsibilities in health policy, and in health regulation and planning. The RHS is integrated to this Department by acting as a provider. It is responsible for «operational planning, management of service networks and coordination of health provision» within its region (García-Armesto et al., 2010, p. 111). The way in which each RHS is integrated into the Department of Health varies by region, adopting a variety of legal statutes. According to García-Armesto et al. (2010), there were 11 RHSs that took the form of *administrative autonomous body*, 5 were created as *public entities*, whereas 1 RHS was a *regional public corporation* in 2010. Traditionally, the main health functions (authority, planning, purchasing and provision) have been integrated in the own RHS, however, since the 90s, there has been an attempt to divide these functions in order to introduce flexibility and autonomy for the improvement of

efficiency, which generated in Spain various forms of integration of the RHS with the Health Department of the region.

Figure 2.1. Institutional organisation of the Spanish National Health System



Note: Information retrieved from Ministry of Health and García-Armesto et al. (2010).

In addition to this general system, the Spanish NHS also includes other smaller parallel systems such as *Mutual Funds* aimed at civil servants (MUFACE), armed forces (ISFAS) and the judiciary (MUGEJU), as well as mutual funds aimed at assistance for Accidents or Occupational Diseases so-called *Collaborating Mutualities with the Social Security*. Both types of systems only represent around 6% of the total public health expenditure, while the rest is addressed to finance the general system (Bernal-Delgado et al., 2018, pp. 18–19).

### 2.1.2. Territorial

The organization of the RHS within each region is closely linked to the administrative division of the territory from the health point of view. The General Healthcare Act divided the territory of each Spanish region into the so-called Healthcare Areas, which constitute the fundamental structures of the health system. These HCA are responsible for the management of the RHS centres, establishments, benefits and health programs, both for primary and specialised care, within their territorial demarcation. The delimitation of each HCA can be carried out taking into account geographical,

socioeconomic, demographic, labour, epidemiological or cultural factors, among others. However, as a general rule, a Healthcare Area covers a population of between 200,000 and 250,000 inhabitants.

The Healthcare Area has a series of participation (Health Council) and management (Management Council) bodies in which various sectors of the population are represented (regional administration, local corporations, unions, or health administration), as well as a leadership body directed by an Area Manager, who is in charge of executing the guidelines established by the Management Council.

Likewise, each HCA can be divided according to two criteria: 1) at the primary level; and 2) at the specialised or hospital level. From the point of view of primary care, each Healthcare Area is composed of a series of Basic Health Zones, the smallest organizational unit. Each BHZ is delimited taking into account the distances to the main services, the degree of concentration and dispersion of the population, the epidemiological characteristics of the area, and the health facilities and resources. Each BHZ is made up of one or more Health Centres, which are the physical and functional structure where the Primary Care Team (general practitioner, nursing staff, paediatrics, as well as non-health staff working for the BHZ) develops its activity and functions. From the point of view of specialised or hospital care, each Healthcare Area is composed of one or more general hospitals and specialised centres that are responsible for providing admission and specialised services to the population groups assigned to a group of BHZs. In some regions, Hospital Areas have been established as a mechanism to organise a group of hospitals within an HCA.

The General Healthcare Act established the basic and common legislation for all the Spanish regions regarding to the organisation of the RHSs. However, the regional governments were granted the responsibility to carry out the administrative division of their own territory based on their needs. For this reason, we find in Spain a diversity of forms of territorial organisation, with the creation of intermediate levels of organisation between the HCAs and BHZs, as in the case of Andalusia, or the removal of the HCAs, as in the case of the Community of Madrid in 2009, an issue that we will address in chapter 4.

## **2.2. Coverage and Access**

Coverage in the Spanish NHS has traditionally been universal and free of charge at the point of delivery, with the exception of some pharmaceutical products. All the citizens are covered by the health system regardless of their employment status and personal wealth.

In 2012, the austerity measures implemented by the central government modified such universal coverage by linking the right to healthcare to the employment and legal status of citizens. In this way, undocumented immigrants were excluded from the public healthcare in Spain, while people from other countries outside the European Union or without specific bilateral agreements with Spain only had access to emergency care for serious illnesses or accidents until discharge, as well as for child or obstetric care. This situation was reversed in 2018 by returning to the traditional universal coverage of the NHS (BOE, 2018).

Despite the existence of 17 RHS with high autonomy, the NHS access system is quite homogeneous throughout the country. The primary care is the first point of contact with the health system. All patients with the right to healthcare have a health card issued by the health authorities that identify them as users of the corresponding RHS. Furthermore, they are assigned to the closest PCT to their place of residence. The GPs act as gatekeeper by referring patients to specialised care if necessary. It is the specialist doctors who determine the need for surgery or hospital admission. Another way to access the NHS is through the emergency services.

## **2.3. Health Services and Benefits**

The health services and benefits offered by the Spanish NHS are defined by Law 16/2003, 18 May, on the cohesion and quality of the National Health System. This Law establishes two main benefit packages: 1) common package; and 2) complementary package.

The first package, which is common to all the Spanish regions, includes three categories. Firstly, a core package with no cost-sharing that includes all the health services for prevention, diagnosis, treatment, rehabilitation and emergency medical transport. This package is consistent with the services provided by primary and specialised care services. Secondly, a supplementary package subject to cost-sharing for patients, which includes all the benefits that are provided through outpatient dispensing,

such as pharmaceuticals, orthotics and dietary products. Finally, the accessory services include all activities, services or techniques that are not considered essential. They are also subjected to cost-sharing for patients.

The complementary package is composed of any other technique, technology or procedure that is not included in the common package. Its content is regulated by each of the Spanish regions and only incorporated into their RHS (see Figure 2.2).

Figure 2.2. Health services and benefits included in the Spanish National Health System

<b>Common package</b> Common for all the Spanish regions	<b>Core package</b>	All health care prevention, diagnosis, treatment, and rehabilitation services, as well as emergency medical transportation. Primary and specialised health care benefits are included. These benefits are not subject to any patients' cost-sharing.
	<b>Supplementary package</b>	Benefits of ambulatory dispensing (pharmaceutical prescriptions, orthoprothetic devices and dietary products). They are subject to users' cost-sharing.
	<b>Accessory services</b>	All activities, services or techniques, without character of benefit, that are not considered essential and/or are used as aid-devices for chronic care improvement. This package has not yet been regulated.
<b>Complementary package</b> Regulated by each region within its territory		Any other technique, technology or procedure not covered by the common package of the NHS, if they provide the resources needed for their financing.

*Note:* Information retrieved from Law 16/2003, 18 May, on the cohesion and quality of the NHS, and Bernal-Delgado et al. (2018).

## 2.4. Financing

In Spain, health is publicly funded and mainly provided by the Public Sector. According to Bernal-Delgado et al. (2018), over 70% of total healthcare expenditure is spent by Public Administrations. As we saw in the previous section, the health policy in Spain has been devolved to the regions, thereby the regional governments are in charge of financing their own RHS through their annual budgets. In fact, the 92% of the total public health expenditure is assumed by the regions (Bernal-Delgado et al., 2018).

The financing of this health expenditure is carried out through the resources obtained by the regions through the Autonomic Financing System. This financing system provides the regional governments with financial resources mainly from three sources: 1) own funds (collection of taxes and fees completely devolved to the regions); 2) shared funds (taxes whose collection is shared between the State and the regions); and 3) state-wide transfers (complementary funds that the State transfers annually to the regions). In addition to these resources, the regions have a series of funds to complete their financing needs, such as the Fund for Basic Public Services, the Fund for Global Sufficiency, the Health Care Guarantee Fund, the Convergence Funds, the Liquidity Fund or the Fund for the Financing of Provider Payment (Bernal-Delgado et al., 2018).



These funds cover all the public expenditures borne by the regions. The regional governments decide annually the funds that they allocate to its Department of Health to finance health policy in their region. Likewise, the Department of Health annually contracts and budgets the health services with its RHS. The financial link between the Department of Health and the RHS of a region is usually based on so-called *contratos-programa*. These contracts, negotiated annually, establish the objectives, the budget and the evaluation system to be carried out between the both organisations. In addition, in some cases, they incorporate incentives to promote certain strategic lines (rational prescription of drugs, use of generics, or reduction of waiting times). However, as García-Armesto et al. (2010) and Bernal-Delgado et al. (2018) highlight, in some cases, there are no penalties for non-compliance with objectives, no transfer of risks to suppliers and there exist monitoring and incentive problems.

Likewise, the financial relationship between the RHSs with the management teams of the Healthcare Areas, and with the PCTs and hospital managers in their domain may depend on the health management model. In the traditional direct management model (the public sector finances and provides the health services), the *contratos-programa* are often the main financing and targeting tool between the RHS and its direct providers. In the hospital context, RHSs make annual contracts with public hospitals, which are prospectively financed according to their volume and quality. In primary care, the dominant practice entails «a contract of acute, chronic and preventive care services, funded according to block grants normally nuanced by population demographics» (Bernal-Delgado et al., 2018, p. 64). However, when the management model is indirect (public sector finances the health services and the private sector provides them), the financial relationship is different. The RHS, acting as purchaser, contracts a series of clinical services (specific surgical or diagnostic services) or non-clinical services (provision of complementary diagnostic tests, outpatient procedures, complete hospital management...) with private providers through agreements. These providers receive a basic fee-for-service payment and the RHS is responsible for monitoring and inspecting the provision of the service. Some examples of this type of management are the so-called *Entidades de Base Asociativa* in primary care, and administrative concessions or public works contracts in hospital care (Martín-Martín et al., 2016; Sánchez-Martínez et al., 2014). In this case, the diversity of management models in Spain causes a significant variety of types of financing.

### 3. The Dataset: The Spanish Healthcare Barometer Survey

In this doctoral thesis, we use the cross-sectional microdata retrieved from the Spanish Healthcare Barometer survey. The SHB is an annual opinion survey conducted in Spain by the Ministry of Health in coordination with the Spanish Centre of Sociological Research since 1993. The aim of this survey is to determine the level of satisfaction of citizens with the Spanish health system and its main health services. Additionally, it allows to know the opinion of population about the health policies implemented, as well as to get information about the level of knowledge of citizens with several aspects of the Spanish health system (MSSSI, 2018). The SHB is included in the National Statistic Plan 2017-2020 (BOE, 2016), and the Quality Plan 2010 of the Spanish NHS considers it as a necessary informative tool to guarantee both the high quality of the system and the informed participation of citizens (NHS, 2016).

This survey is addressed to citizens –both users and non-users<sup>13</sup>– aged over 18 years by means of a questionnaire administered by personal interview in the respondents' household. This survey is annually administered with an annual sample size of 7,800 interviews distributed in three waves (February/March; June/July; October/November) of 2,600 interviews each of them. The sampling procedure is multistage and stratified by cluster. The primary (municipality) and secondary (sections) units are randomly selected, and the tertiary (individuals) unit is selected by using random routes, and quotas by gender and age. Each stratum is based on the municipality size. The assignment procedure is non-proportional, namely, 250 interviews are assigned to each Spanish region and the rest ones, up to 7,800 interviews, are proportionally distributed according to the population size in each of the regions. Accordingly, given that the sample is different among regions, regional weights must be applied to get the national representativeness. The sample set is representative of the Spanish adult population with a sample error of  $\pm 1.14\%$  for a level of confidence of the 95%. The sample in each region involves different sampling errors depending on the number of interviews carried out in each of them. For instance, in regions with 200 interviews, the sample error is of  $\pm 7.0\%$ , whereas in regions with 800 interviews is of  $\pm 3.5\%$  (MSSSI, 2018).

---

<sup>13</sup> In this doctoral thesis, we define *Users* as those respondents who have indicated having used at least one time a certain health service in last 12 months, whereas the *Non-users* are those respondents who have reported not to use the health services in last 12 months.

The survey asks respondents for their opinion about several topics related to the health system such as the functioning of the health system; the use of the health services; complaints and mistakes in the healthcare delivery; use of drugs; waiting lists; gender and regional equity in the service delivery; health management; or health policies such as the tobacco and alcohol laws. Although most of topics are kept since the survey was launched, some of them are incorporated or removed according to their relevance or interest in a certain period. One of the main features of the survey is the provision of information about the Spanish health system's responsiveness. The SHB survey asks respondents for assessing, according to their own experiences or perceptions, a series of non-clinical factors for each of the main public health services (primary, specialised, hospital and emergency care), as well as the public health system as a whole. Some of these non-clinical factors are related to the responsiveness domains developed by WHO. To the best of our knowledge, this is the only national survey reporting indicators to measure health system's responsiveness.

The Ministry of Health provides the cross-sectional microdata in an open access format from 1996 to 2018.<sup>14</sup> However, we focus on the microdata from 2002 to 2018. The main reason is the change of rating scales included in the SHB as of 2002 to assess the non-clinical factors. For the period 1996-2000, the rating scale for assessing the non-clinical factors is from 1 to 7, whereas for the period 2002-2018, the scale is changed into one from 1 to 10. We decided using the information of that last period in order to avoid a transformation of the original rating scale distorting the results. In total, we have a pooled data with 125,023 individuals. Table 2.1 displays the sample distribution of the SHB survey by year and region.

---

<sup>14</sup> The microdata can be freely downloaded from <https://www.mscbs.gob.es/estadisticas/microdatos.do>. The Ministry of Health does not provide the 2001 microdata.

Table 2.1. Sample distribution of the SHB survey. 2002-2018

Region	Year												
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Andalusia	868	869	869	872	873	853	866	776	771	777	774	783	777
Aragon	284	284	284	283	278	282	279	339	342	339	338	336	333
Asturias	276	275	264	276	276	276	272	327	326	324	323	324	322
Balearic Islands	229	230	231	228	230	230	227	315	316	320	314	321	320
Canary Islands	310	311	309	309	308	308	309	384	381	385	384	381	377
Cantabria	208	208	208	177	207	207	207	288	287	288	288	288	288
Castilla-La Mancha	329	332	331	332	331	333	331	380	381	384	381	383	383
Castile and León	435	435	430	437	432	428	429	423	432	420	420	422	418
Catalonia	818	820	823	821	805	813	807	736	726	736	734	734	729
Valencian Community	557	560	559	561	585	580	584	577	579	582	582	579	583
Extremadura	265	265	265	265	255	255	255	324	324	321	321	321	320
Galicia	460	463	458	458	434	435	430	444	440	441	441	438	433
Community of Madrid	663	682	681	656	701	708	687	647	653	641	648	654	648
Region of Murcia	259	259	258	260	268	268	268	342	341	342	338	340	340
Community of Navarre	208	207	204	207	207	208	208	285	289	289	282	288	288
Basque Country	378	387	386	387	366	365	366	399	397	395	396	396	399
La Rioja	199	198	199	199	200	196	198	255	255	263	261	252	260
Ceuta	-	-	-	-	-	-	201	255	255	255	253	255	255
Melilla	-	-	-	-	-	-	201	256	255	255	251	255	255
<b>Total</b>	6,746	6,785	6,759	6,728	6,756	6,745	7,125	7,752	7,750	7,757	7,729	7,750	7,750

### 3.1. The Non-Clinical Factors in the SHB Survey

The questionnaires of the SHB survey for the period 2002-2018 ask respondents for reporting the responsiveness of each of the main Spanish public health services – primary, specialised, hospital and emergency care– as well as the health system as a whole with a series of non-clinical factors. Most of non-clinical factors included in the SHB survey are related to the responsiveness domains developed by the WHO. However, as Valentine, De Silva, et al. (2003) and De Silva (2000) found in other international surveys, the non-clinical factors included in the SHB survey do not cover all the responsiveness domains. One of the advantages of this survey is that it asks respondents about their experiences with each non-clinical factor instead of asking for their satisfaction, which could reduce the potential bias between real and perceived responsiveness.

In this section, we analyse the non-clinical factors included in the SHB survey during the period 2002-2018 which are related to the responsiveness concept developed by WHO. Given that, with regard to the non-clinical factors, the survey is divided by health services, we follow the same structure to address this section.

#### 3.1.1. Primary Care

For primary care, the questions related to the non-clinical factors in the SHB survey can be divided into three groups according to the scale used to measure them.

In the first group, we find questions which are answered by using a rating scale from 1 to 10. The SHB survey poses the following question: “*According to your personal experience or the idea that you have, I would like you to assess the following factors of the public health system referred to the care attention delivered by the general practitioner*”. The survey provides a series of aspects to be assessed, namely, *the time devoted by the doctor to each patient, the ease to get an appointment, the waiting time to be seen by the GP, or the closeness of the health centres*, among others (see Table A2.1.1.1 in Appendix 2.1). Respondents rate these factors by using a scale from 1 to 10 where 1 means *totally unsatisfactory* and 10 *totally satisfactory*. We find that 19 different factors have been included to be rated in primary care throughout the period 2002-2018. However, we observe that most of them are not asked during the whole period. Only four items (*time devoted by the doctor to each patient; confidence and safety transmitting the medical staff; information received about your health problems;*

and *knowledge of the medical record and follow-up of the health problems of each user*) appear from 2002 to 2018,<sup>15</sup> whereas the remaining factors (*treatment that patients receive by the health staff; ease to get an appointment; opening hours; home care delivered by the medical and nursing staff; closeness of the health centres; waiting time to enter to the doctor office; procedures to access to the specialist doctor; advice provided by the doctor about diet, exercise, tobacco, alcohol...; the referral from your general practitioner to a specialist doctor when it is necessary; waiting time to be seen by the General Practitioner since you make an appointment; waiting time to make the diagnostic tests; attention paid by the nurse; care and attention received from the medical staff; care and attention received from the nurse staff; and confidence and safety transmitting the nurse staff*) are incorporated later 2002 or removed before 2018. All the respondents in the survey are asked for answering these questions, irrespective of whether they have recently used or not the public service of primary care in last 12 months, except for 2018 when only respondents who have at least used the public service one time in last 12 months are asked for their opinion. This change of type of users who are asked can hinder the comparison of the information obtained in 2018 with the rest of years.

In the second group, we find those questions with a rating scale from 1 to 2. As of 2013, the users of the public primary care are asked whether they have taken part in the decisions about their health problems or their treatment; have had the opportunity to make questions or to raise concerns; have waited more than one hour in the waiting room to enter in the office; or the doctor paid them less attention because of being with the computer (see Table A2.1.1.2 in Appendix 2.1). The respondents are provided with a rating scale of 1–2 where 1 means *Yes*, and 2 *No*. The questions have been gradually added in the SHB survey since 2013, thereby all together only appear in the 2016 and 2018 surveys. It is worth mentioning that these questions are not included in the 2017 survey.

Finally, in the third group of questions, we find that users are asked for reporting the waiting time to be seen by the GP, a factor related to the *Prompt attention* domain. Respondents who usually do not get an appointment for the same day indicate the

---

<sup>15</sup> The factor *The knowledge of the medical record and follow-up of the health problems of each user* is not included in 2014.

number of days elapsed since they made the appointment until they were seen by the GP the last time that they attended their health centre. This question is posed from 2008 to 2018 (see Table A2.1.1.3 in Appendix 2.1).

### **3.1.2. Specialised Care**

For specialised care, we find the same structure as in primary care. For the first group of questions related to the non-clinical factors, the following question is included in the SHB survey: *“Regardless whether you use or not the offices of the specialist doctors in the public health system, I would like you to assess the following aspects referred to the specialised care”*. Again, a series of items are provided to be assessed in a scale from 1 to 10 where 1 means *totally unsatisfactory* and 10 *totally satisfactory* (see Table A2.1.2.1 in Appendix 2.1). In this case, we find that the SHB survey has included 11 different aspects throughout the period 2002-2018. However, only four of them (*treatment that patients receive by the health staff; time devoted by the doctor to each patient; confidence and safety transmitting the medical staff; and information received about your health problem*) cover the whole period. The remaining factors (*ease to get an appointment; knowledge of the medical record and follow-up of the health problems of each user; number of specialities where you can access; waiting time to enter to the doctor office; advice provided by the doctor about diet, exercise, tobacco, alcohol...; waiting time to be seen by the General Practitioner since you make an appointment; and waiting time to make the diagnostic tests*) are removed before 2018 or added after 2002, thereby we do not have information for the whole period. Most of items are the same as in primary care but referred to specialised care. Again, these factors are assessed both for users and non-users of the public specialised care service, except for 2018 when only users are asked.

With regard to the group of questions measured with a scale from 1 to 2, we find the same four items identified in primary care, which are also included as of 2013. Additionally, two items related to the coordination and communication between the GP and the specialist doctors are included. The respondents who have at least used one time the public specialised care service in last 12 months are asked for whether they felt a correct coordination (from 2006 to 2009) or communication (from 2010 to 2013) between specialist doctor and GP when one of their health problems needed to be treated for both health professionals. Table A2.1.2.2 in Appendix 2.1 displays these factors for specialised care, as well as the surveys in which these factors are included.

Finally, in the third group of questions, during the period 2004-2018,<sup>16</sup> the respondents who have used the public specialised care service are asked for indicating the waiting time to access the first visit to the specialist doctor. The SHB survey poses the following question: “*how long elapsed since the GP gave you the appointment for the specialised care until you were seen by the specialist doctor?*” The respondents report the number of months and days that they were waiting the last time that they were treated by a specialised doctor (see Table A2.1.2.3 in Appendix 2.1).

### 3.1.3. Hospital Care

For the hospital service, the SHB survey provides a division between questions with a scale of response from 1 to 10, and questions which are answered by using a rating scale from 1 to 2.

In the first group of questions, both users and non-users are asked the following question: “*For your personal experience or the idea that you have, I would like you to assess the following aspects of the care attention in public hospitals*”. The respondents are provided with the same scale from 1 to 10 where 1 means *totally unsatisfactory* and 10 *totally satisfactory* to assess a series of factors (see Table A2.1.3.1 in Appendix 2.1). We find nine different items related to the responsiveness domains. For this service, the factors assessed are slightly different from those included for the primary and specialised care services. 4 out of 9 factors (*number of people sharing a room; care and attention paid by medical staff; care and attention paid by nurse staff; and information received about the development of your health problem*) are included during the whole period 2002-2018, whereas the remaining factors (*waiting time for a non-emergency admission; accommodation aspects (diet, toilets and general comforts); paperwork for the admission; treatment received from the non-health staff; and advice provided by the doctor about diet, exercise, tobacco, alcohol...*) are removed before 2018 or included after 2002. In the 2018 survey, only users of the public hospital care are asked these questions related to the non-clinical factors.

Regarding the non-clinical factors measured with the rating scale 1-2, where 1 is *Yes*, and 2 is *No*, we find seven items. However, most of them are only included in the SHB

---

<sup>16</sup> Although this question is asked during the whole period analysed, it is comparable only for the period 2004-2015 and 2017 since the type of respondents who answer this question is different in the 2016 and 2018 SHB surveys.



survey of 2016 and 2018. Once again, respondents who have at least used one time the public hospital service in last 12 months are asked for reporting whether they have experienced or not these aspects in public hospitals. The survey asks users about whether they have been explored or washed in the presence of other people without their consent; the doctor or nurse have talked them about their medical diagnosis or treatment in the presence of other people; they were assigned a doctor when they were admitted; or they had to use the toilet or bedpan in the presence of other people, among others. The full list of factors assessed for the public hospital care is shown in Table A2.1.3.2. in Appendix 2.1.

### **3.1.4. Emergency Care**

For the case of emergency care, we find two groups of responsiveness questions: one question which is answered by using a rating scale from 1 to 4, and a series of questions with a rating scale from 1 to 2. With regard to the former, only one question related to the responsiveness domains is asked in the SHB survey. Respondents who have at least used one time the public emergency care service of either a hospital or a health centre in the primary care in last 12 months are asked for assessing the speed with which they were served in their last emergency. They are provided a rating scale from 1 to 4 where 1 is *Very much promptness*; 2 *Much promptness*; 3 *Little promptness*; and 4 *None of promptness*. This question is only included in the SHB survey for the period 2004-2015 (see Table A2.1.4.1 in Appendix 2.1).

Likewise, in the same line as the hospital care, users are asked about whether they have been, among others, explored or washed, talked about their medical diagnosis or treatment, as well as whether they have used toilet or bed pan in the presence of other people without their consent when they used the emergency care last time. In total, five non-clinical factors measured with the rating scale 1-2 are included for this health service in the 2016 and 2018 SHB surveys (see Table A2.1.4.2 in Appendix 2.1).

### **3.1.5. Healthcare System as a Whole**

Finally, the SHB survey asks respondents to assess the responsiveness of the healthcare system as a whole with a series of non-clinical factors related to the *Communication* domain. All the respondents, irrespective of whether they are users or not, are asked about whether they think that the health authorities provide enough information about certain aspects such as the healthcare services that they deliver; the patient rights and

complaint procedures; the healthcare laws approved by the health authorities; campaign aimed at population on the main health problems; procedures to perform in order to visit the specialist or to be admitted to the hospital; the healthy lifestyle; or the functioning costs and proper utilization of health services, among others. Unlike the rest of factors, these items are asked for the healthcare system as a whole and not for a certain health service. From 2002 to 2014, these items were assessed by using a rating scale from 1 to 10 where 1 means *none information is provided* and 10 *much information is provided*. However, for the period 2015-2016, the rating scale changes from 1-10 to 1-4 where now 1 means *Always*; 2 *Usually*; 3 *Rarely*; and 4 *Never* (see Table A2.1.5.1 in Appendix 2.1).

### **3.2. The Socioeconomic Variables in the SHB Survey**

In addition to ask respondents for assessing the responsiveness of the Spanish health system and its main health services, the SHB also provides information about respondents who answer the questionnaire. Throughout the period 2002-2018, the survey includes a series of questions collecting the socioeconomic characteristics of respondents such as age, gender, marital status, educational level, occupational status, use of health services, political ideology or nationality, among others. Tables A2.2.1 and A2.2.2 in Appendix 2.2 provide a full list of all the socioeconomic variables included in the SHB survey during the period 2002-2018, as well as the rating scale used to answer each of them.

By analysing both tables, we find that the survey encompasses more than 60 socioeconomic variables throughout the period analysed, however most of them are not present every year. For instance, information about gender, age, educational level, occupational status, number of times respondents use the main health services –primary, specialised, hospital, and emergency care– and the size of the municipality where they live is the only one provided during the whole period 2002-2018. The remaining variables are included after 2002 or removed before 2018. Furthermore, some questions are interrupted for some years such as marital status, household income, or type of occupation of respondents.

Table 2.2. Socioeconomic characteristics of the sample in the SHB survey. 2002-2018

	2002		2003		2004		2005		2006		2007	
	N	%	N	%	N	%	N	%	N	%	N	%
<i>Age</i>												
18-24	858	12.7	871	12.8	853	12.6	835	12.4	740	11.0	689	10.2
25-34	1,383	20.5	1,368	20.2	1,389	20.6	1,378	20.5	1,403	20.8	1,400	20.8
35-44	1,227	18.2	1,258	18.5	1,244	18.4	1,247	18.5	1,323	19.6	1,326	19.7
45-54	1,015	15.1	1,020	15.0	1,009	14.9	1,032	15.3	1,030	15.3	1,063	15.8
55-64	835	12.4	831	12.3	827	12.2	829	12.3	828	12.3	868	12.9
More than 64	1,428	21.2	1,437	21.2	1,437	21.3	1,407	20.9	1,432	21.2	1,399	20.7
<i>Gender</i>												
Men	3,262	48.0	3,279	48.3	3,277	48.5	3,270	48.6	3,349	49.6	3,300	48.9
Women	3,484	52.0	3,506	51.7	3,482	51.5	3,458	51.4	3,407	50.4	3,445	51.1
<i>Marital status</i>												
Married	3,986	59.2	-	-	-	-	-	-	-	-	-	-
Single	2,029	30.1	-	-	-	-	-	-	-	-	-	-
Widowed	508	7.5	-	-	-	-	-	-	-	-	-	-
Separated	144	2.1	-	-	-	-	-	-	-	-	-	-
Divorced	71	1.1	-	-	-	-	-	-	-	-	-	-
<i>Educational level</i>												
With no studies	836	12.4	787	11.7	680	10.2	733	11.0	674	10.0	573	8.5
Primary education	1,650	24.6	1,480	22.0	1,670	25.0	1,598	23.9	1,607	23.9	1,668	24.9
Secondary education	2,333	34.7	2,581	38.3	2,280	34.2	2,343	35.1	2,432	36.2	2,348	35.0
Professional education	814	12.1	855	12.7	904	13.6	872	13.1	926	13.8	952	14.2
Tertiary education	1,067	15.9	1,024	15.2	1,139	17.1	1,135	17.0	1,088	16.2	1,170	17.4
Others	19	0.3	4	0.1	0	0.0	0	0.0	0	0.0	0	0.0
<i>Self-reported health status</i>												
Very good	-	-	-	-	-	-	-	-	-	-	-	-
Good	-	-	-	-	-	-	-	-	-	-	-	-
Normal	-	-	-	-	-	-	-	-	-	-	-	-
Bad	-	-	-	-	-	-	-	-	-	-	-	-
Very bad	-	-	-	-	-	-	-	-	-	-	-	-

Table 2.2. Socioeconomic characteristics of the sample in the SHB survey. 2002-2018 (*Continued*)

	2011		2012		2013		2014		2015		2016	
	N	%	N	%	N	%	N	%	N	%	N	%
<i>Age</i>												
18-24	755	9.7	676	8.8	709	9.2	652	8.4	633	8.2	647	8.4
25-34	1,520	19.6	1,515	19.6	1,445	18.7	1,357	17.6	1,354	17.5	1,213	15.7
35-44	1,589	20.5	1,578	20.4	1,574	20.3	1,621	21.0	1,592	20.6	1,589	20.5
45-54	1,311	16.9	1,365	17.7	1,379	17.8	1,354	17.5	1,421	18.3	1,458	18.8
55-64	1,008	13.0	1,000	12.9	1,018	13.1	1,086	14.1	1,080	13.9	1,122	14.5
More than 64	1,574	20.3	1,595	20.6	1,625	21.0	1,651	21.4	1,666	21.5	1,723	22.2
<i>Gender</i>												
Men	3,817	49.2	3,797	49.1	3,811	49.2	3,780	49.0	3,796	49.0	3,781	48.8
Women	3,940	50.8	3,932	50.9	3,939	50.8	3,941	51.0	3,950	51.0	3,971	51.2
<i>Marital status</i>												
Married	-	-	-	-	-	-	4,286	55.6	4,269	55.4	4,243	55.0
Single	-	-	-	-	-	-	2,355	30.6	2,386	31.0	2,435	31.6
Widowed	-	-	-	-	-	-	614	8.0	567	7.4	585	7.6
Separated	-	-	-	-	-	-	177	2.3	177	2.3	153	2.0
Divorced	-	-	-	-	-	-	273	3.5	305	4.0	297	3.9
<i>Educational level</i>												
With no studies	550	7.1	482	6.3	504	6.5	444	5.8	452	5.9	381	4.9
Primary education	1,721	22.3	1,571	20.4	1,596	20.7	1,586	20.6	1,417	18.3	1,525	19.7
Secondary education	2,977	38.5	2,956	38.4	2,881	37.3	2,887	37.5	3,042	39.4	2,992	38.6
Professional education	1,128	14.6	1,288	16.7	1,400	18.1	1,338	17.4	1,300	16.8	1,326	17.1
Tertiary education	1,359	17.6	1,411	18.3	1,340	17.4	1,449	18.8	1,512	19.6	1,520	19.6
Others	0	0.0	0	0.0	1	0.0	2	0.0	3	0.0	0	0.0
<i>Self-reported health status</i>												
Very good	1,304	16.9	1,370	17.8	1,467	19.0	1,399	18.2	1,483	19.2	1,517	19.6
Good	4,360	56.4	4,248	55.1	4,200	54.4	4,227	54.9	4,322	55.9	4,327	55.8
Normal	1,736	22.5	1,732	22.5	1,701	22.0	1,746	22.7	1,633	21.1	1,607	20.7
Bad	288	3.7	300	3.9	297	3.8	283	3.7	256	3.3	235	3.0
Very bad	46	0.6	65	0.8	63	0.8	39	0.5	44	0.6	63	0.8

Table 2.2. Socioeconomic characteristics of the sample in the SHB survey. 2002-2018 (Continued)

	2002		2003		2004		2005		2006		2007	
	N	%	N	%	N	%	N	%	N	%	N	%
<i>Chronic illness</i>												
Yes	-	-	-	-	-	-	-	-	-	-	-	-
No	-	-	-	-	-	-	-	-	-	-	-	-
<i>Occupational status</i>												
Working	3,063	45.5	3,091	45.7	3,190	47.4	3,275	48.8	3,354	49.7	3,506	52.0
Retiree or pensioner	1,479	22.0	1,505	22.2	1,491	22.1	1,477	22.0	1,518	22.5	1,530	22.7
Unemployed	595	8.8	496	7.3	471	7.0	446	6.6	470	7.0	473	7.0
Studying	416	6.2	419	6.2	426	6.3	389	5.8	336	5.0	295	4.4
Domestic work with no remuneration	1,166	17.3	1,185	17.5	1,106	16.4	1,041	15.5	991	14.7	894	13.3
Other situation	19	0.3	72	1.1	52	0.8	84	1.3	82	1.2	40	0.6
<i>Nationality</i>												
Spanish	-	-	-	-	-	-	-	-	-	-	-	-
Spanish and other nationality	-	-	-	-	-	-	-	-	-	-	-	-
Only other nationality	-	-	-	-	-	-	-	-	-	-	-	-
<i>Municipality size</i>												
Less than or equal to 2,000 inhabitants	636	9.4	603	8.9	602	8.9	639	9.5	676	10.0	535	7.9
From 2,001 to 10,000 inhabitants	1,215	18.0	1,209	17.8	1,204	17.8	1,168	17.4	1,218	18.0	1,109	16.4
From 10,001 to 50,000 inhabitants	1,537	22.8	1,577	23.2	1,572	23.3	1,539	22.9	1,748	25.9	1,681	24.9
From 50,001 to 100,000 inhabitants	561	8.3	628	9.3	623	9.2	622	9.2	537	8.0	726	10.8
From 100,001 to 400,000 inhabitants	1,743	25.8	1,734	25.6	1,721	25.5	1,719	25.6	1,568	23.2	1,620	24.0
From 400,001 to 1,000,000 inhabitants	397	5.9	412	6.1	412	6.1	391	5.8	401	5.9	474	7.0
More than 1,000,000 inhabitants	657	9.7	622	9.2	625	9.3	650	9.7	608	9.0	600	8.9
<i>Use of health services</i>												
Primary care	5,517	84.2	5,366	79.5	4,704	70.0	4,898	73.2	4,792	71.3	4,878	72.6
Specialised care	3,993	59.7	3,684	54.6	3,002	44.5	3,079	45.9	2,934	43.5	3,038	45.2
Hospital care	1,688	25.1	1,492	22.0	668	9.9	661	9.8	636	9.4	718	10.7
Emergency care	2,378	35.6	2,830	41.9	1,976	29.3	1,944	28.9	1,935	28.7	2,101	31.2

Table 2.2. Socioeconomic characteristics of the sample in the SHB survey. 2002-2018 (*Continued*)

	2011		2012		2013		2014		2015		N
	N	%	N	%	N	%	N	%	N	%	
<i>Chronic illness</i>											
Yes	2,126	27.8	2,237	29.1	2,270	29.3	2,337	30.3	2,334	30.2	2,359
No	5,536	72.3	5,456	70.9	5,469	70.7	5,370	69.7	5,394	69.8	5,374
<i>Occupational status</i>											
Working	3,312	42.8	3,076	39.8	3,122	40.3	3,146	40.8	3,325	43.0	3,400
Retiree or pensioner	1,738	22.4	1,794	23.2	1,837	23.7	1,862	24.1	1,827	23.6	1,987
Unemployed	1,458	18.8	1,729	22.4	1,750	22.6	1,666	21.6	1,527	19.7	1,300
Studying	365	4.7	320	4.1	365	4.7	337	4.4	366	4.7	370
Domestic work with no remuneration	837	10.8	776	10.1	654	8.5	688	8.9	670	8.7	650
Other situation	36	0.5	26	0.3	12	0.2	15	0.2	21	0.3	10
<i>Nationality</i>											
Spanish	7,061	91.1	6,994	90.7	7,092	91.5	7,056	91.4	7,032	90.8	7,060
Spanish and other nationality	175	2.3	190	2.5	203	2.6	244	3.2	252	3.3	260
Only other nationality	516	6.7	530	6.9	455	5.9	419	5.4	460	5.9	410
<i>Municipality size</i>											
Less than or equal to 2,000 inhabitants	572	7.4	564	7.3	579	7.5	559	7.2	559	7.2	590
From 2,001 to 10,000 inhabitants	1,173	15.1	1,183	15.3	1,209	15.6	1,186	15.4	1,173	15.1	1,150
From 10,001 to 50,000 inhabitants	1,850	23.9	1,838	23.8	1,849	23.9	1,858	24.1	1,878	24.2	1,930
From 50,001 to 100,000 inhabitants	1,361	17.6	1,338	17.3	1,293	16.7	1,330	17.2	1,333	17.2	1,340
From 100,001 to 400,000 inhabitants	1,815	23.4	1,679	21.7	1,671	21.6	1,740	22.5	1,800	23.2	1,710
From 400,001 to 1,000,000 inhabitants	486	6.3	621	8.0	626	8.1	527	6.8	477	6.2	510
More than 1,000,000 inhabitants	500	6.5	506	6.6	523	6.8	521	6.8	526	6.8	490
<i>Use of health services<sup>a</sup></i>											
Primary care	5,565	71.9	5,448	70.8	5,466	70.8	5,504	71.7	5,535	71.7	5,620
Specialised care	3,551	46.0	3,482	45.3	3,542	45.8	3,569	46.4	3,475	45.0	3,600
Hospital care	775	10.0	740	9.6	724	9.3	667	8.6	705	9.1	750
Emergency care	2,397	30.9	2,220	28.7	2,183	28.2	2,301	29.8	2,375	30.7	2,450

Note: Information retrieved from the Spanish Healthcare Barometer survey. <sup>a</sup> Percentage of respondents who have at least used the

Table 2.2 displays the distribution of the sample in the SHB survey by using the 10 main socioeconomic characteristics used throughout this dissertation (age, gender, marital status, educational level, self-reported health status, chronic illness, occupational status, nationality, municipality size, and use of health services). As we will describe in the corresponding chapter, these variables have been selected by taking into account their linking with the responsiveness concept highlighted in the literature. We find that the information about marital status (2002; 2014-2018), self-reported health status (2010-2018), chronic illness (2011-2018), and nationality (2008-2018) is not for the whole period 2002-2018. As we explained in chapter 1, health systems' responsiveness is usually measured by using subjective indicators. In this context, having socioeconomic information about patients or citizens is relevant to check whether there are differences between among them by socioeconomic reasons.

Regarding the age, data show that population has underwent a gradual ageing. In 2002 a 33% of the sample was over 55 years, whereas this percentage was of 39% in 2018. Furthermore, the most represented group of age in last six years has been always that of the more than 64 years. In fact, the average age has changed from 46 years in 2002 to 50 years in 2018.

With regard to the gender, the ratio between men and women is very similar during the whole period. Women are more represented than men with a share of 51-49% respectively. Likewise, most of the sample stated to be married. However, the share of married people has slightly decreased during the period 2014-2018 (from 55.6% to 54.2%) at the expense of the group of divorced people (from 3.5% to 4.8%). As far as educational level is regard, the number of respondents with tertiary education (university and PhD studies) has significantly increased during the period analysed (15.9% in 2002 against 20.9% in 2018). However, most of the sample continue to having secondary education. Additionally, the share of people with no studies or with primary education has gradually halved.

Regarding the health status, increasingly people report to have a very good health status. In 2010, a 15.7% of respondents stated to have a very good health against the 18.8% in 2018. More than 70% of people feel to have a good or very good health status during the whole period 2010-2018. This situation is opposed to the information showing an increase of respondents reporting to have a chronic illness (27.8% in 2011 and 30.8% in 2018).

With regard to occupational status, most of the sample report to be working (47% in 2018). Despite the strong growth of retirees, pensioners and unemployed people, this ratio has progressively increased since 2002, which may be caused by the strong drop of people performing domestic works with no remuneration (17.3% in 2002 against 8% in 2018). The effect of the economic crisis on the employment is represented in the sample of the SHB survey. In 2007, one year before the crisis, the ratio of unemployed respondents was 7%, whereas it reached the 22.6% in 2013. As of 2013, this ratio has gradually decreased until reaching the 14% in 2018.

The share of people with Spanish nationality has not undergone a strong modification. Around 90% of the sample in the SHB survey only have the Spanish nationality, a percentage almost constant throughout the whole period 2002-2018. In turn, we observe a slight increase of the ratio of respondents with dual nationality (Spanish and another) which has changed from 1.4% in 2002 to 3.2% in 2018. This growth seems to have been caused by the drop of people with only other nationality. Regarding the size of the municipality where respondents live, we see that most people live in municipalities with between 10,000 and 50,000 inhabitants. However, the percentage of people living in municipalities with between 50,000 and 100,000 inhabitants has strongly increased. It has changed from 8.3 in 2002 into 17.3 in 2018.

Finally, data show that the public primary care is always the health service treating the majority of people in Spain. For instance, in 2018, a 70% of respondents stated to have at least visited one time their GP in last 12 months against the 42.3% for specialised care service, the 30.3% for emergency care, and the 9% for hospital care. The gatekeeper role played by the GP in Spanish NHS may justify this high percentage in primary care. It is worth mentioning that the number of respondents stating to have at least attended one time any of the 4 main public health services in Spain has significantly decreased since 2002. For instance, this percentage has changed from 25% in 2002 to 9% in 2018 for hospital care, from 84% to 70% for primary care, from 36% to 30% for emergency care, and from 60% to 42% for specialised care (the highest drop).



## 4. The Level of Responsiveness of the Spanish NHS

In this section, we measure the level of responsiveness of the Spanish public health system with the non-clinical factors provided by the SHB survey. Given that the non-clinical factors in the survey are referred to each of the health services and the health system as a whole, we apply the same structure to measure the responsiveness.

In this doctoral thesis, the level of responsiveness of a health service with each non-clinical factor is calculated by using the arithmetic average in those factors measured with the rating scale 1-10, whereas we use the percentage of respondents selecting each of categories in those factors measured with the rating scale 1-2 and 1-4.

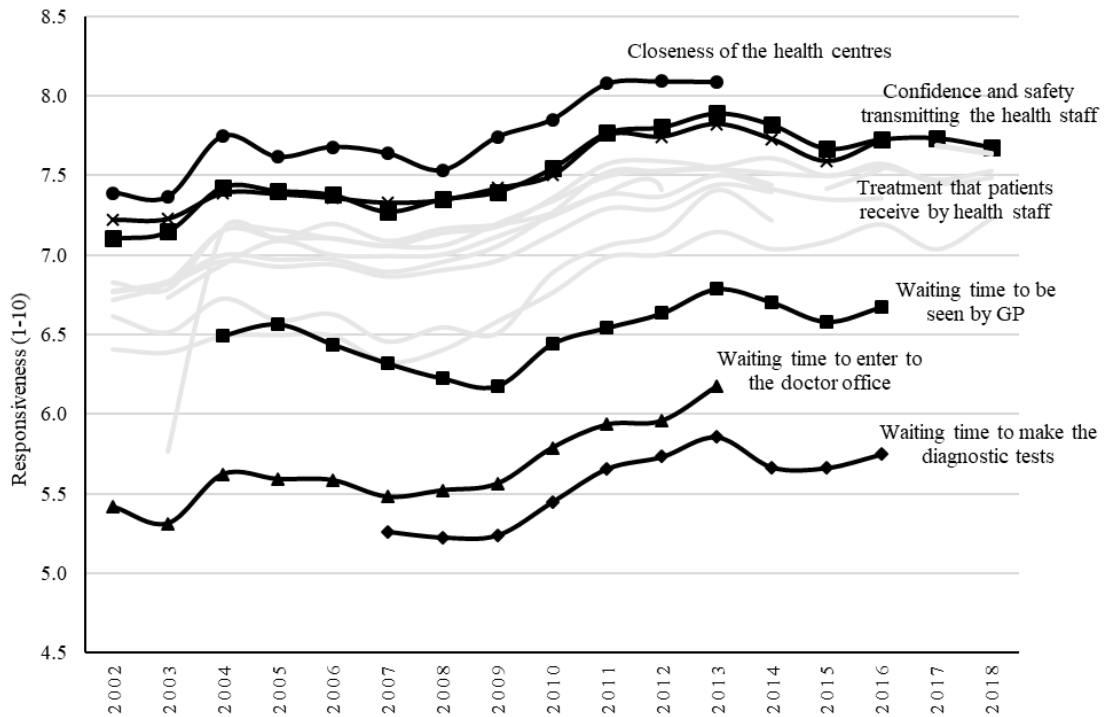
### 4.1. Primary Care

Figure 2.3 and Table 2.3 display the level of responsiveness of the Spanish public primary care service with the 18 non-clinical factors measured with the rating scale 1-10 in the SHB survey during the period 2002-2018.<sup>17</sup> Firstly, we observe that most of non-clinical factors in primary care has an average by around 7 and 7.5 over 10 throughout the period analysed. However, it seems clear that, although they have progressively improved over time, those factors related to the *Prompt attention* domain (*waiting time to be seen by GP; waiting time to enter to the doctor office; and waiting time to make the diagnostic tests*) have traditionally obtained the worst average ratings. On the contrary, the *closeness of the health centres, confidence and safety transmitting the health staff, and the treatment that patients receive by the health staff* have the highest level of responsiveness. For instance, from 2011 to 2013, the *closeness of the health centres* was the best rated non-clinical factors with an average by around 8 over 10. Secondly, we find a growing trend in the averages of all the non-clinical factors which seems to indicate that the level of responsiveness of the primary care service with these factors has progressively improved over time.

---

<sup>17</sup> The non-clinical factor *procedures to access to the specialist doctor* is left out of the Figure 2.3 since it is only included in the 2002 SHB survey.

Figure 2.3. Primary care service: Level of responsiveness by non-clinical factor (1-10), 2002-2018



Note: Information retrieved from the cross-sectional microdata of the SHB survey. The question in the SHB survey is: *According to your personal experience or the idea that you have, I would like you to assess the following factors of the public health system referred to the care attention delivered by the general practitioner...* Rating scale from 1 to 10: 1 = totally unsatisfactory; and 10 = totally satisfactory. The averages are weighted by the weights provided by the SHB survey. From 2002 to 2017, all the respondents answer the question. In 2018, only respondents who have used the public service in last 12 months answer the question. The black lines represent the non-clinical factors with the highest and lowest level of responsiveness.

Table 2.3. Primary care service: Level of responsiveness by non-clinical factor (1-10). 2002-2018

	2002		2003		2004		2005		2006		N
	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	
Time devoted by the doctor to each patient	6,413	6.4	6,412	6.4	6,460	6.5	6,458	6.5	6,492	6.5	6,480
Confidence and safety transmitting the health staff	6,440	7.1	6,429	7.1	6,461	7.4	6,475	7.4	6,539	7.4	6,505
Information received about your health problem	6,392	6.7	6,375	6.8	6,410	7.2	6,424	7.2	6,490	7.1	6,450
Knowledge of the medical record and follow-up of the health problems of each user	6,207	6.8	6,043	6.8	6,167	7.0	6,171	7.0	6,196	7.0	6,211
Treatment that patients receive by the health staff	6,512	7.2	6,494	7.2	6,486	7.4	6,479	7.4	6,527	7.4	6,515
Ease to get an appointment	6,476	6.6	6,436	6.5	6,431	6.7	6,468	6.6	6,535	6.6	6,497
Opening hours	6,440	6.8	6,398	6.8	6,387	7.2	6,422	7.1	6,489	7.1	6,429
Home care delivered by the health and nursing staff	4,368	6.8	3,908	6.8	4,024	7.0	3,921	6.9	3,987	6.9	4,096
Closeness of the health centres	6,599	7.4	6,582	7.4	6,602	7.7	6,613	7.6	6,625	7.7	6,611
Waiting time to enter to the doctor office	6,453	5.4	6,451	5.3	6,464	5.6	6,441	5.6	6,516	5.6	6,518
Procedures to access to the specialist doctor	6,091	5.6	-	-	-	-	-	-	-	-	-
Advice provided by the doctor about diet, exercise, tobacco, alcohol...	-	-	5,942	6.7	5,933	6.9	5,952	7.1	6,138	7.0	6,097
Referral from your general practitioner to a specialist doctor when it is necessary	-	-	5,843	5.8	6,000	7.2	6,069	7.1	6,098	7.2	6,135
Waiting time to be seen by GP since you make an appointment	-	-	-	-	6,353	6.5	6,392	6.6	6,462	6.4	6,463
Waiting time to make the diagnostic tests	-	-	-	-	-	-	-	-	-	-	6,099
Attention paid by the nurse	-	-	-	-	-	-	-	-	-	-	-
Care and attention received from the health staff	-	-	-	-	-	-	-	-	-	-	-
Care and attention received from the nurse staff	-	-	-	-	-	-	-	-	-	-	-
Confidence and safety transmitting the nurse staff	-	-	-	-	-	-	-	-	-	-	-

Table 2.3. Primary care service: Level of responsiveness by non-clinical factor (1-10). 2002-2018 (Continued)

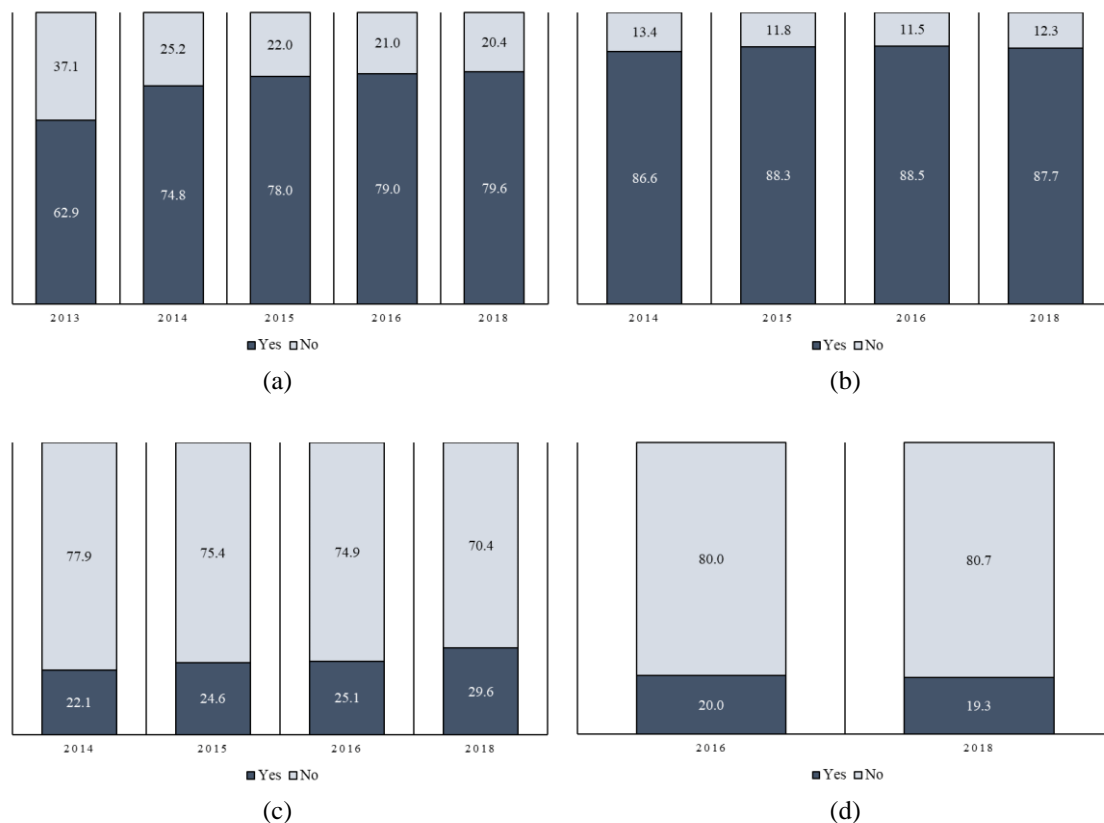
	2011		2012		2013		2014		2015	
	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Time devoted by the doctor to each patient	7,477	7.0	7,417	7.0	7,483	7.1	7,441	7.0	7,496	7.1
Confidence and safety transmitting the health staff	7,532	7.8	7,481	7.8	7,537	7.9	7,521	7.8	7,531	7.7
Information received about your health problem	7,476	7.5	7,437	7.5	7,491	7.6	7,442	7.6	7,439	7.5
Knowledge of the medical record and follow-up of the health problems of each user	7,211	7.5	7,144	7.5	7,254	7.5	-	-	7,222	7.5
Treatment that patients receive by the health staff	7,555	7.8	7,471	7.7	7,523	7.8	7,501	7.7	7,500	7.6
Ease to get an appointment	7,511	7.1	7,475	7.1	7,553	7.4	7,457	7.2	-	-
Opening hours	7,500	7.6	7,412	7.6	7,461	7.5	7,426	7.4	-	-
Home care delivered by the health and nursing staff	4,161	7.3	4,058	7.3	4,012	7.4	4,020	7.4	-	-
Closeness of the health centres	7,680	8.1	7,629	8.1	7,657	8.1	-	-	-	-
Waiting time to enter to the doctor office	7,504	5.9	7,453	6.0	7,499	6.2	-	-	-	-
Procedures to access to the specialist doctor	-	-	-	-	-	-	-	-	-	-
Advice provided by the doctor about diet, exercise, tobacco, alcohol...	7,197	7.4	7,094	7.4	7,192	7.5	7,008	7.4	7,072	7.4
Referral from your general practitioner to a specialist doctor when it is necessary	7,081	7.4	7,010	7.4	-	-	-	-	-	-
Waiting time to be seen by GP since you make an appointment	7,466	6.5	7,423	6.6	7,542	6.8	7,420	6.7	7,484	6.6
Waiting time to make the diagnostic tests	7,134	5.7	7,139	5.7	7,217	5.9	7,134	5.7	7,171	5.7
Attention paid by the nurse	-	-	-	-	-	-	-	-	7,254	7.4
Care and attention received from the health staff	-	-	-	-	-	-	-	-	-	-
Care and attention received from the nurse staff	-	-	-	-	-	-	-	-	-	-
Confidence and safety transmitting the nurse staff	-	-	-	-	-	-	-	-	-	-

Note: Information retrieved from the cross-sectional microdata of the SHB survey. The question in the SHB survey is: *According to you, I would like you to assess the following factors of the public health system referred to the care attention delivered by the general practitioners: 1 = totally unsatisfactory; and 10 = totally satisfactory.* The averages are weighted by the weights provided by the SHB survey. The data are for users and non-users.

<sup>a</sup> In 2018, only respondents who have used the public service in last 12 months answer the question.

With regard to non-clinical factors measured with the rating scale 1-2, we find that in 2018 by around 80% of respondents who have at least used one time the public primary care service in last 12 months –users– claimed to have taken part in decisions about their health problem and treatment. This percentage has significantly increased by around 17 percent points since 2013. Likewise, by around 90% of users of the public primary care service stated to have had the opportunity to make questions or to raise concerns to their GP during the whole period analysed. As far as the waiting times is regard, by around 30% of users waited more than one hour in the waiting room to enter in the doctor's office in their last visit to a health centre in 2018. It is worth mentioning that this percentage has gradually increased over time. Lastly, the 20% of users manifested that the doctor paid them less attention because of keeping an eye on the computer (see Figure 2.4).

Figure 2.4. Primary care service: Level of responsiveness by non-clinical factor (1-2). 2013-2018



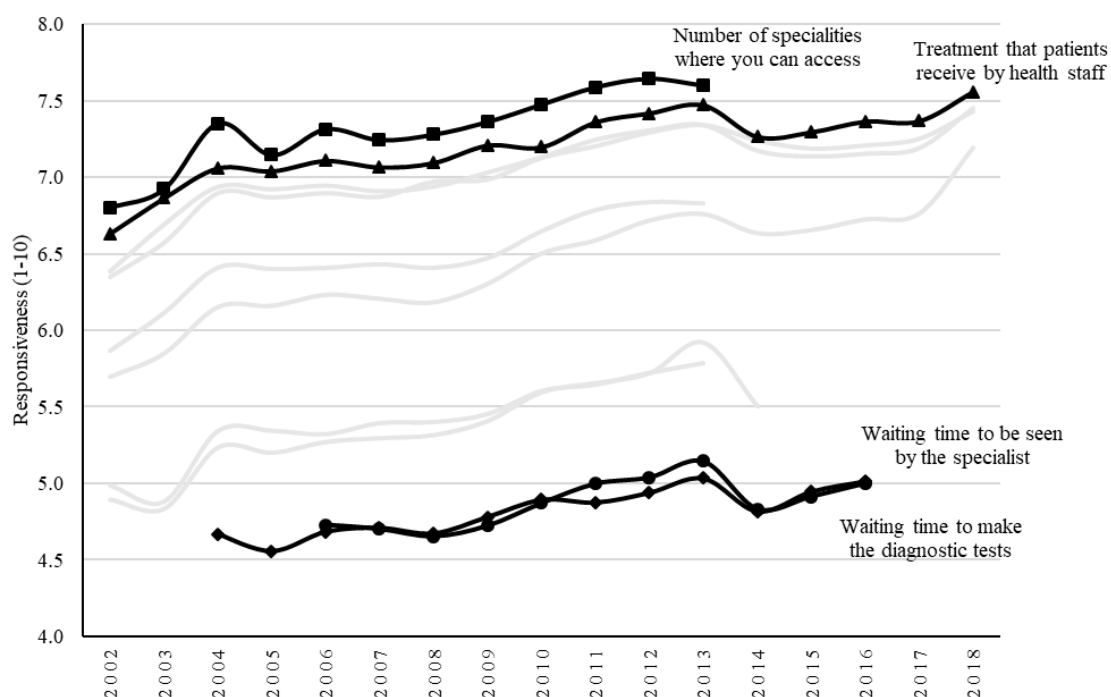
*Note:* Information retrieved from the cross-sectional microdata of the SHB survey. Weights provided by the SHB survey are used to guarantee the national representativeness. These questions are only asked respondents who have at least used one time the public primary care service in last 12 months. The question is not included in 2017 SHB survey. Percentage over total.

Respondents are asked for answering whether they have experienced some of the following aspects: (a) to take part in decisions about your health problem and its treatment; (b) opportunity to make questions or to raise concerns; (c) to wait more than one hour in the waiting room to enter in the doctor's office; and (d) the doctor paid you less attention because of being with the computer.

## 4.2. Specialised Care

For specialised care, it seems that there is a higher dispersion in the average level of responsiveness among the 11 non-clinical factors measured with the rating scale 1-10 than for primary care (see Figure 2.5 and Table 2.4). In this case, the best rated factors are the *number of specialities where the patient can access* with an average of between 7 and 7.5 during the period 2002-2013, and the *treatment that patient receives by the health staff* which has undergone a significant improvement of the level of responsiveness during the period 2002-2018 (from 6.6 in 2002 to 7.6 in 2018 over 10). Once again, the non-clinical factors related to the *Prompt attention* domain are the worst rated by respondents. The *waiting time to be seen by the specialist*, and the *waiting time to make the diagnostic tests* present an average below 5 during the whole period analysed. These averages are even lower than those for primary care. In the same line as for primary care, the level of responsiveness of most of non-clinical factors included in the SHB survey for specialised care seems to have gradually improved over time.

Figure 2.5. Specialised care service: Level of responsiveness by non-clinical factor (1-10). 2002-2018



*Note:* Information retrieved from the cross-sectional microdata of the SHB survey. The question in the SHB survey is: *Regardless whether you use or not the offices of the specialist doctors in the public health system, I would like you to assess the following aspects referred to the specialised care...* Rating scale from 1 to 10: 1 = *totally unsatisfactory*; and 10 = *totally satisfactory*. The averages are weighted by the weights provided by the SHB survey. From 2002 to 2017, all the respondents answer the question. In 2018, only respondents who have used the public service in last 12 months answer the question. The black lines represent the non-clinical factors with the best and worst level of responsiveness.

Table 2.4. Specialised care service: Level of responsiveness by non-clinical factor (1-10). 2002-2018

	2002		2003		2004		2005		2006		2007	
	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Treatment that patients receive by health staff	6,055	6.6	5,957	6.9	5,993	7.1	5,994	7.0	6,129	7.1	6,117	6.9
Time devoted by the doctor to each patient	6,009	5.7	5,927	5.8	5,924	6.2	5,899	6.2	6,027	6.2	6,016	6.1
Confidence and safety transmitting health staff	6,018	6.4	5,922	6.6	5,951	6.9	5,973	6.9	6,097	6.9	6,082	6.8
Information received about your health problem	6,006	6.4	5,904	6.7	5,920	6.9	5,932	6.9	6,052	6.9	6,032	6.8
Ease to get an appointment	6,080	4.9	6,007	4.8	6,041	5.2	6,016	5.2	6,123	5.3	6,092	5.2
Knowledge of the medical record and follow-up of the health problems of each user	5,814	5.9	5,592	6.1	5,666	6.4	5,672	6.4	5,705	6.4	5,785	6.3
Number of specialities where you can access	5,596	6.8	5,322	6.9	5,392	7.4	5,406	7.1	5,547	7.3	5,594	7.2
Waiting time to enter to the doctor office	6,023	5.0	5,904	4.9	5,942	5.3	5,889	5.3	6,044	5.3	6,052	5.2
Advice provided by the doctor about diet, exercise, tobacco, alcohol...	-	-	5,420	6.5	5,347	6.6	5,371	6.7	5,598	6.8	5,587	6.7
Waiting time to be seen by the specialist since you make an appointment	-	-	-	-	5,985	4.7	5,944	4.6	6,082	4.7	6,119	4.6
Waiting time to make the diagnostic tests	-	-	-	-	-	-	-	-	5,836	4.7	5,947	4.6

Table 2.4. Specialised care service: Level of responsiveness by non-clinical factor (1-10). 2002-2018 (*Continued*)

	2011		2012		2013		2014		2015	
	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Treatment that patients receive by health staff	7,028	7.4	6,984	7.4	7,097	7.5	7,122	7.3	7,082	7.3
Time devoted by the doctor to each patient	6,918	6.6	6,865	6.7	7,025	6.8	6,977	6.6	7,009	6.7
Confidence and safety transmitting health staff	7,022	7.2	6,969	7.3	7,084	7.3	7,092	7.2	7,062	7.2
Information received about your health problem	6,945	7.2	6,925	7.3	7,017	7.3	7,048	7.2	6,983	7.1
Ease to get an appointment	7,046	5.7	7,018	5.7	7,132	5.9	7,084	5.5	-	-
Knowledge of the medical record and follow-up of the health problems of each user	6,602	6.8	6,568	6.8	6,768	6.8	-	-	-	-
Number of specialities where you can access	6,475	7.6	6,459	7.6	6,558	7.6	-	-	-	-
Waiting time to enter to the doctor office	6,961	5.6	6,902	5.7	7,037	5.8	-	-	-	-
Advice provided by the doctor about diet, exercise, tobacco, alcohol...	6,526	7.1	6,430	7.1	6,594	7.2	6,526	7.0	6,446	6.9
Waiting time to be seen by the specialist since you make an appointment	7,087	4.9	7,059	4.9	7,195	5.0	7,164	4.8	7,145	4.9
Waiting time to make the diagnostic tests	6,915	5.0	6,874	5.0	7,014	5.1	6,935	4.8	6,966	4.9

*Note:* Information retrieved from the cross-sectional microdata of the SHB survey. The question in the SHB survey is: *Regarding specialist doctors in the public health system, I would like you to assess the following aspects referred to the specialised care as unsatisfactory*; and 10 = *totally satisfactory*. The averages are weighted by the weights provided by the SHB survey. These questions are answered by users and non-users.

<sup>a</sup> In 2018, only respondents who have used the public service in last 12 months answer the question.

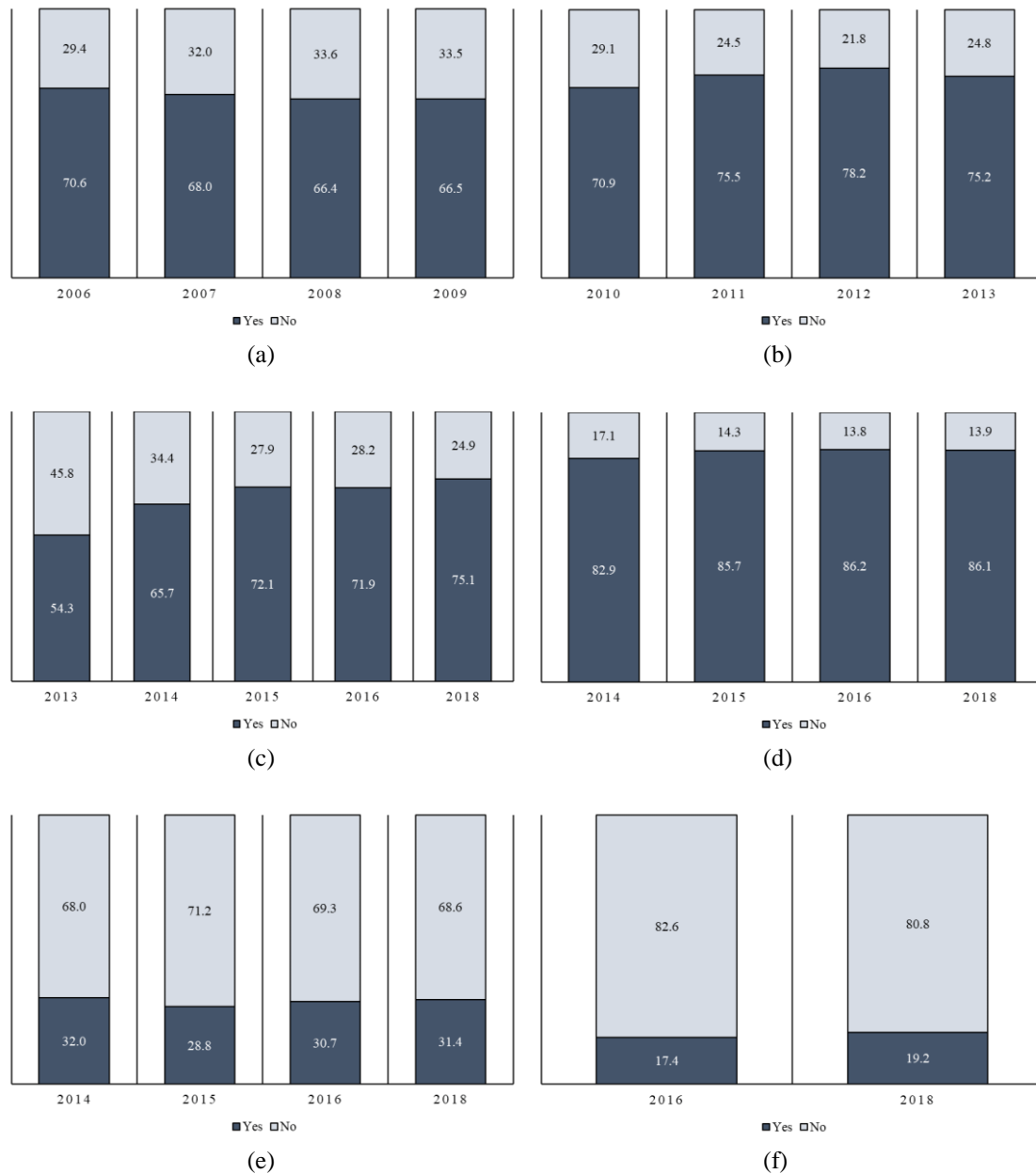


Regarding the level of responsiveness with the non-clinical factors rated by applying the rating scale 1-2 (see Figure 2.6), we find that, between 2006 and 2009, the percentage of users of the public specialised care service who experienced a correct coordination between the GP and the specialist doctor in their last visit slightly dropped from 70.6% to 66.5%. On the contrary, the communication between both health professionals seems to have improved during the period 2010-2013.

In the same vein as for primary care, most users of specialised care indicate to have taken part of the making-decisions process about their health problem and its treatment. In 2018, the 75% of users stated to have made decisions in their last visit to the specialised care service. This implies 21 percent points more than in 2013. Even then, a 25% of users did not take part in the decisions about their health problems as much as they had desired in 2018. This means a 5% of users more than in primary care. That difference could be indicating the greater difficulty when it comes to making decisions related to more complex health problems in this health service.

Likewise, between the 83% and 86% of users in specialised care asserted to have had the opportunity to pose questions or to raise concerns to the specialist doctor during the period 2014-2018, whereas the 30% of users waited more than one hour in the waiting room to enter the office for the same period. This latter percentage has slightly increased since 2015 and it is upper than that in primary care during the whole period analysed. Finally, almost the 19.2% of users felt that the doctor paid them less attention because of being with the computer in their last visit in 2018, a 2% more than in 2016.

Figure 2.6. Specialised care service: Level of responsiveness by non-clinical factor (1-2). 2002-2018



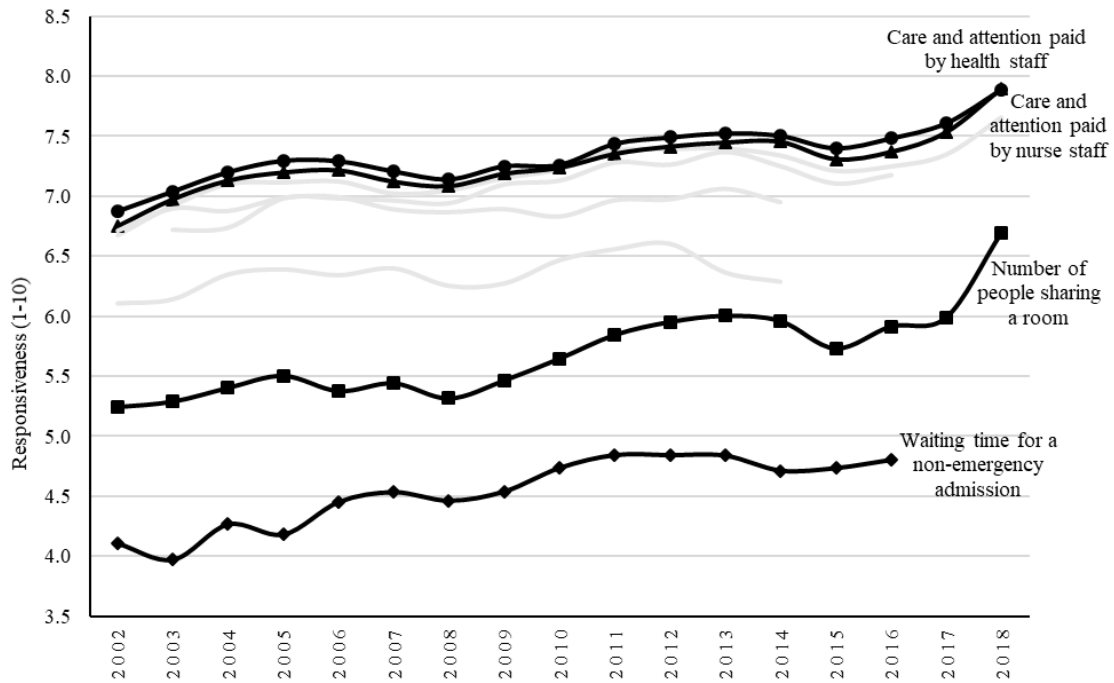
*Note:* Information retrieved from the cross-sectional microdata of the SHB survey. Weights provided by the SHB survey are used to guarantee the national representativeness. These questions are only asked respondents who have at least used one time the public specialised care service in last 12 months. The question is not included in 2017 SHB survey. Percentages over total.

Respondents are asked for answering whether they have experienced some of the following aspects: (a) correct coordination between specialist and General Practitioner; (b) correct communication between specialist and General Practitioner; (c) to take part in decisions about your health problem and its treatment; (d) opportunity to make questions or to raise concerns; (e) to wait more than one hour in the waiting room to enter in the office; and (f) the doctor paid you less attention because of being with the computer.

### 4.3. Hospital Care

In the case of the hospital care (see Figure 2.7 and Table 2.5), we see that the non-clinical factors related to the *Dignity* domain are the best rated. The *care and attention paid by the health and nurse staff* have a level of responsiveness by around 8 over 10 in 2018, which implies an increase of the 17% in both factors regarding 2002. Again, in the hospital care service, the *waiting time for a non-emergency admission* is clearly the worst rated non-clinical factor with an average annual assessment below 5 during the whole period 2002-2016. Likewise, the *number of people sharing a room* has been other of the worst rated factors for hospital during all the period analysed. However, since 2016, the average in this factor has undergone a strong improvement.

Figure 2.7. Hospital care service: Level of responsiveness by non-clinical factor (1-10). 2002-2018



*Note:* Information retrieved from the cross-sectional microdata of the SHB survey. The question in the SHB survey is: *With regard to the care attention delivered by the public hospitals, I would like you to assess, according to your experience or the idea that you have, the following aspects...* Rating scale from 1 to 10: 1 = totally unsatisfactory; and 10 = totally satisfactory. The averages are weighted by the weights provided by the SHB survey. From 2002 to 2017, all the respondents answer the question. In 2018, only respondents who have used the public hospital service in last 12 months answer the question. The black lines represent the non-clinical factors with the best and worst level of responsiveness.

Table 2.5. Hospital care service: Level of responsiveness by non-clinical factor (1-10). 2002-2018

	2002		2003		2004		2005		2006		N
	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	
Number of people sharing a room	6,263	5.2	6,215	5.3	6,091	5.4	6,066	5.5	6,121	5.4	6,146
Care and attention paid by health staff	6,187	6.8	6,049	7.0	6,038	7.1	5,993	7.2	6,123	7.2	6,157
Care and attention paid by nurse staff	6,193	6.9	6,057	7.0	6,036	7.2	5,995	7.3	6,122	7.3	6,152
Information received about health problems	6,010	6.7	5,747	6.9	5,737	7.1	5,677	7.1	5,803	7.1	5,853
Waiting time for a non-emergency admission	5,735	4.1	5,425	4.0	5,379	4.3	5,120	4.2	5,225	4.5	5,112
Accommodation aspects (diet, toilets, comforts)	6,118	6.1	6,002	6.1	5,891	6.3	5,864	6.4	5,970	6.3	5,977
Paperwork for the admission	5,517	5.7	5,155	5.8	4,912	6.0	4,640	6.1	4,870	6.1	4,799
Treatment that patients receive by the non-health staff	5,947	6.7	5,830	6.9	5,681	6.9	5,668	7.0	5,827	7.0	5,840
Advice provided by the doctor about diet, exercise, tobacco, alcohol...	-	-	5,289	6.7	5,109	6.7	5,097	7.0	5,397	7.0	5,472

Table 2.5. Hospital care service: Level of responsiveness by non-clinical factor (1-10). 2002-2018 (Continued)

	2011		2012		2013		2014		N
	N	Mean	N	Mean	N	Mean	N	Mean	
Number of people sharing a room	7,157	5.8	7,114	6.0	7,122	6.0	7,058	6.0	7,038
Care and attention paid by health staff	7,088	7.4	7,051	7.4	7,118	7.4	7,081	7.5	7,082
Care and attention paid by nurse staff	7,079	7.4	7,053	7.5	7,124	7.5	7,073	7.5	7,082
Information received about health problems	6,751	7.4	6,661	7.4	6,691	7.4	6,654	7.3	6,636
Waiting time for a non-emergency admission	5,596	4.8	5,395	4.8	5,370	4.8	5,392	4.7	5,640
Accommodation aspects (diet, toilets, comforts)	6,943	6.6	6,872	6.6	6,911	6.4	6,855	6.3	-
Paperwork for the admission	5,308	6.5	5,117	6.5	5,018	6.4	4,959	6.3	-
Treatment that patients receive by the non-health staff	6,663	7.0	6,580	7.0	6,686	7.1	6,535	6.9	-
Advice provided by the doctor about diet, exercise, tobacco, alcohol...	6,373	7.3	6,155	7.3	6,270	7.4	6,127	7.2	6,127

Note: Information retrieved from the cross-sectional microdata of the SHB survey. The averages are weighted by the weights provided by respondents both users and non-users. Rating scale from 1 to 10: 1 = *totally unsatisfactory*; and 10 = *totally satisfactory*.

<sup>a</sup> In 2018, only respondents who have used the public service in last 12 months –users– answer the question.

With regard to the non-clinical factors measured by using the rating scale 1-2 (see Figure 2.8), we find that by around the 80% of users who were admitted in a hospital in 2018 had a doctor assigned for anything related to their health problem. The data provided by the SHB survey do not seem to show a clear tendency in the level of responsiveness with that factor during the period 2002-2018. Regarding the participation of patients in the making decision process about their health problems and treatment, we observe a strong enhancement in the same line as for primary and specialised care. In 2018, a 73% of users made decisions about their health problems last time that they were admitted. This means 18 percent points more than in 2013.

No more than the 10% of users who were admitted in a hospital in 2018 stated *to have been explored or washed, to have watched other patients to be explored o washed, or to have used the toilet or bedpan* in the presence of other people without their consent. This percentage has decreased regarding 2015. Likewise, even though the non-clinical factors related to the *Confidentiality* domain have improved over time, they show a worse rating. For instance, in 2018, a 15.6% of users claimed that the doctor or nurse had spoken to them about their health diagnosis or treatment in the presence of other people without their consent, whereas by around 21% pointed out to have listened conversations about health diagnosis of other people.

Figure 2.8. Hospital care service: Level of responsiveness by non-clinical factor (1-2). 2002-2018



*Note:* Information retrieved from the cross-sectional microdata of the SHB survey. Weights provided by the SHB survey are applied to guarantee the national representativeness. These questions are only asked respondents who have at least used one time the public hospital care service in last 12 months. The question is not included in 2017. Percentage over total.

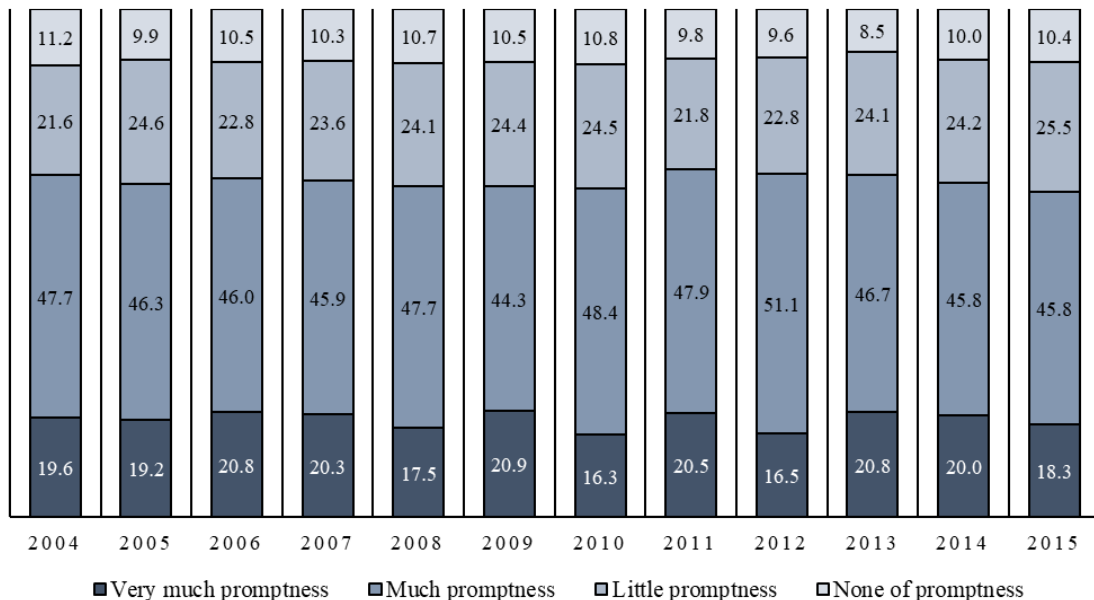
Respondents are asked for answering whether they have experienced some of the following aspects: (a) to have a doctor assigned for anything related to your health problem; (b) to take part in the decisions about your health problem and its treatment; (c) to be explored or washed in the presence of other people without your consent; (d) the doctor or nurse have spoken to you about your medical diagnosis or treatment in the presence of other people without your consent; (e) to watch other patients being explored

or washed; (f) to listen conversations between the health staff about medical diagnosis which are not yours; and (g) to use the toilet or bedpan in the presence of other people without your consent.

#### 4.4. Emergency Care

In emergency care, Figure 2.9 displays that by around 65% of users stated to be served with much or very much promptness in their last emergency in a public emergency care service during the period 2004-2015, whereas the remaining 35% of users claimed little or none of promptness. Although the data do not show a clear tendency in this non-clinical factor during the period analysed, it seems that the percentage of users feeling to be served with a much or very much dropped from the 68.4% to the 64.1% between 2011 and 2015, last year for which we have information.

Figure 2.9. Emergency care service: Level of responsiveness by non-clinical factor (1-4). 2004-2018



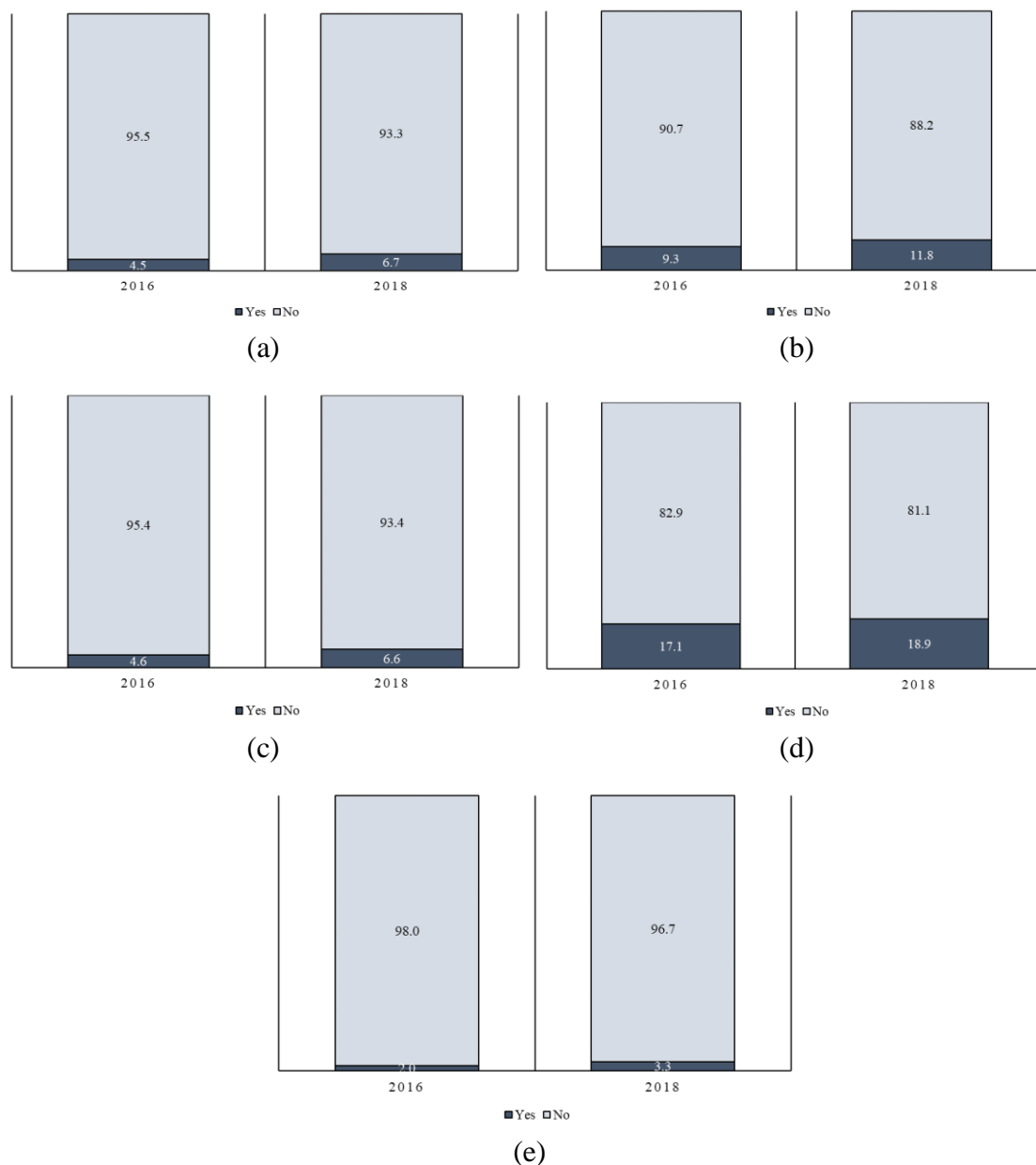
*Note:* Information retrieved from the cross-sectional microdata of the SHB survey. Weights provided by the SHB survey are applied to guarantee the national representativeness. These factors are only answered by respondents who have at least used one time the public emergency care service either of the hospital or of the health centre in the primary care in last 12 months. Percentages over total.

Respondents are asked for answering the following question: *With regard to the care attention that you received in your last emergency, do you think that you were served with very much promptness, much promptness, little promptness, or none of promptness?*

Likewise, no more than 10% of users claimed to have been *explored or washed, to have watched other patients to be explored or washed, or to have used the toilet or bedpan* in the presence of other people without their consent both in 2016 and 2018. However, a 11.8% of the users *spoke to the doctor or nurse about their health diagnosis or treatment* in the presence of other people without their consent in 2018, whereas a 18.9% *listened conversations between the health staff about the health diagnosis of*

*other people* in the same year. Although the percentage of users indicating a low level of responsiveness with these non-clinical factors is not very high, it has slightly worsened between 2016 and 2018 (see Figure 2.10).

Figure 2.10. Emergency care service: Level of responsiveness by non-clinical factor (1-2). 2016-2018



*Note:* Information retrieved from the cross-sectional microdata of the SHB survey. Weights provided by the SHB survey are applied to guarantee the national representativeness. These questions are asked respondents who have at least used one time the public primary care service in last 12 months. The question is not included in 2017. Percentages over total.

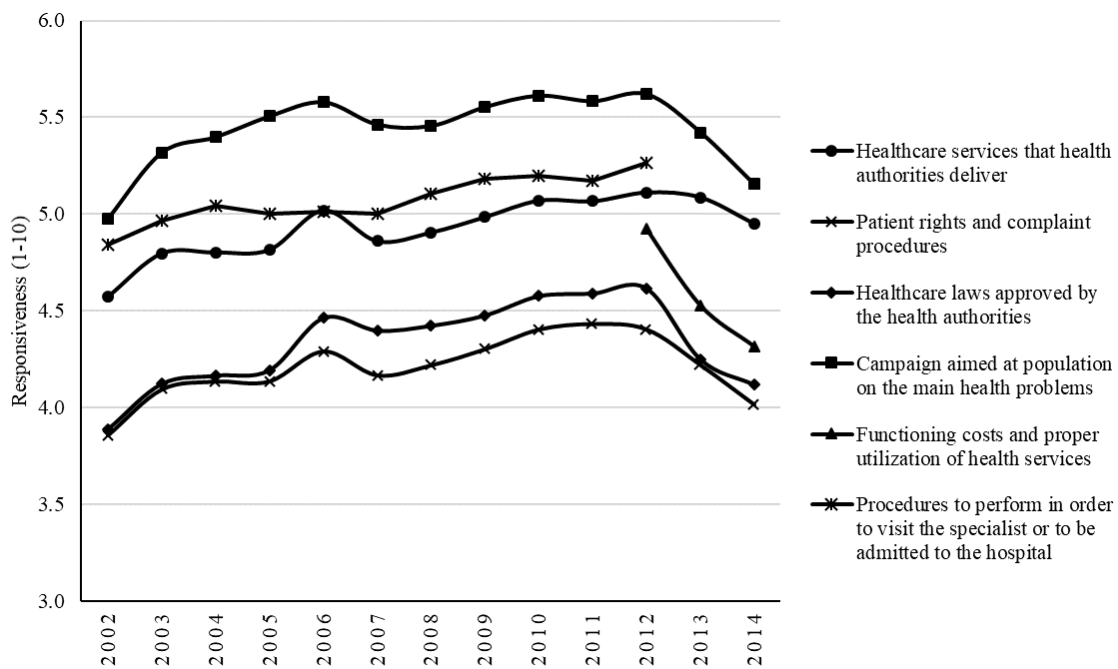
Respondents are asked for answering whether they have experienced some of the following aspects: (a) to be explored or washed in the presence of other people without your consent; (b) the doctor or nurse have spoken to you about your medical diagnosis or treatment in the presence of other people without your consent; (c) to watch other patients being explored or washed; (d) to listen conversations between the health staff about medical diagnosis which are not yours; and (e) to use the toilet or bedpan in the presence of other people without your consent.



### 4.5. Health System as a Whole

Finally, regarding the responsiveness of the health system as a whole with the information provided by the health authorities, Figure 2.11 shows that most of items analysed has an average under 5 during the whole period 2002-2014. The information about *campaigns aimed at population on the main health problems* is the best rated item, even though it has an average of 5.5. On the contrary, the information received about *patient rights and complaint procedures*, and *healthcare laws approved by the health authorities* present the lowest average assessment. It is worth mentioning that, between 2002 and 2012, the level of responsiveness gradually improved in all the items. However, as of 2012, this trend dramatically changed. Most of factors underwent a drop in the average responsiveness by around 10% in the period 2012-2014.

Figure 2.11. Health system as a whole: Level of responsiveness by non-clinical factor (1-10). Information provided by the health authorities (2002-2014)



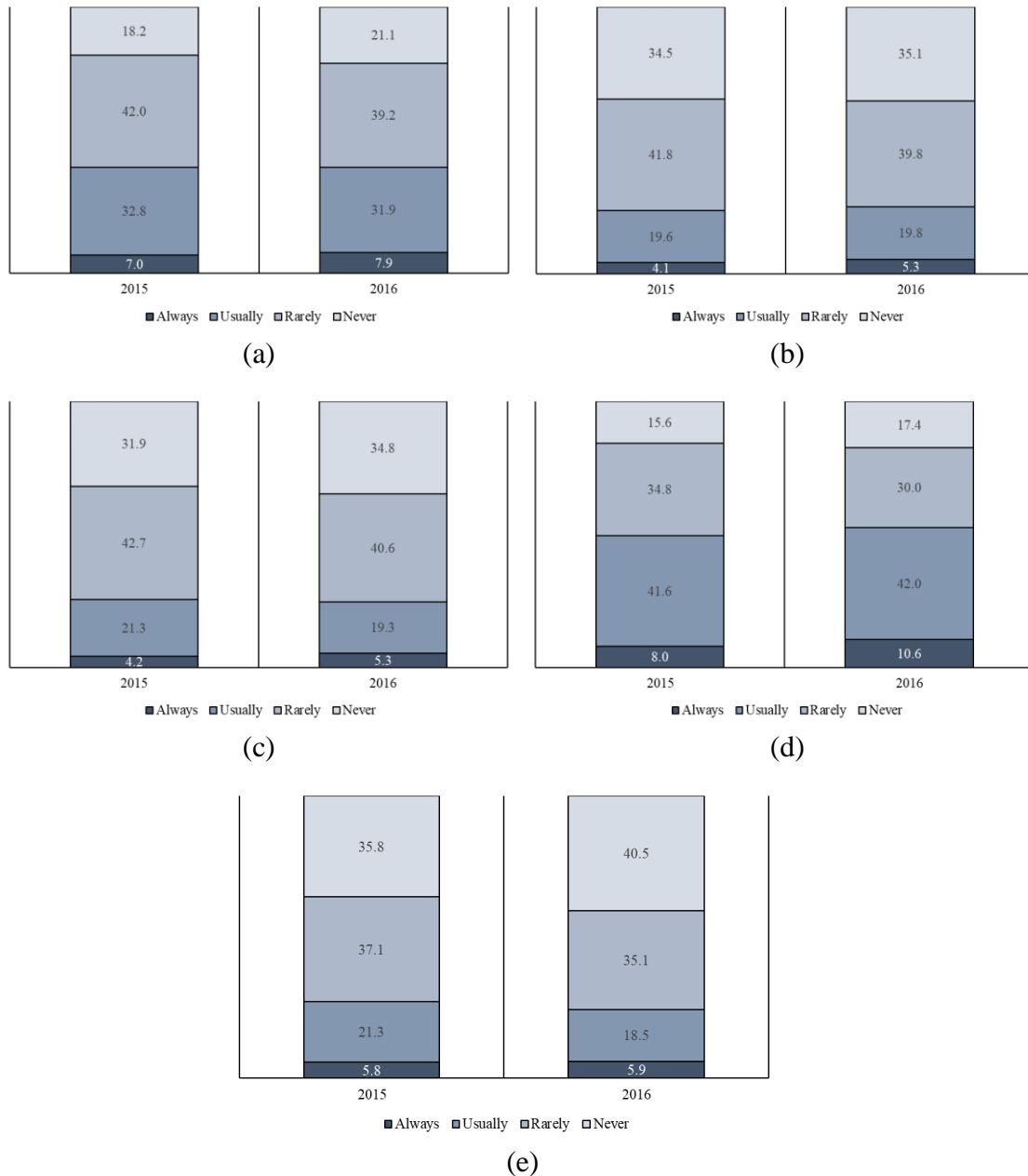
Note: Information retrieved from the cross-sectional microdata of the SHB survey. The averages are weighted by the weights provided by the SHB survey. All the respondents are asked for assessing each of the factors of the overall healthcare system irrespective of whether they have used it or not.

The question in the SHB survey in the period 2003-2014 is: *I am going to read some kinds of information that the public health services deliver. Could you assess each of them?* In 2002, the rating scale from 1 to 10: 1 = totally unsatisfactory; and 10 = totally satisfactory. For the period 2003-2014, the categories of the rating scale from 1 to 10 change: 1 = none information is delivered; and 10 = much information is delivered.

As of 2015, the SHB survey changed the way of posing these questions. However, the results show a similar situation (see Figure 2.12). On the one hand, more than half of respondents thinks that health authorities always or usually provide enough *information*

*about the illness prevention*, which would be the item with the most level of responsiveness. On the other hand, three quarters of respondents feel that health authorities never or rarely provide enough *information about the patient rights, and complaint procedures, the healthcare laws approved, or functioning costs and proper utilisation of health services*. These percentages seem to have significantly improved in the case of *the information about illnesses prevention* (from 49.6% to 52.6% of respondents who choose the categories always or usually) and *patient rights and complaint procedures* (from 23.7% to 25.1% of respondents selecting the categories always or usually) during the period 2015-2016.

Figure 2.12. Health system as a whole: Level of responsiveness by non-clinical factor (1-4). Information provided by the health authorities (2015-2016)



*Note:* Information retrieved from the cross-sectional microdata of the SHB survey. Weights provided by the SHB survey are applied to guarantee the national representativeness. All the respondents are asked for assessing each of the factors of the overall healthcare system irrespective of whether they have used it or not. Percentages over total.

The question in the SHB survey in the period 2015-2016 is: *Do you think that the healthcare authorities from your region provide enough information about...?* (a) healthcare services that health authorities deliver; (b) patient rights and complaint procedures; (c) laws approved by the health authorities; (d) illnesses prevention; and (e) functioning costs and proper utilization of health services.

## 5. Conclusions

In this chapter, we have described the main features of the health system on which we focus in this doctoral thesis: The Spanish NHS. Additionally, we have analysed the dataset that we will use to meet with the goals of this doctoral thesis: The Spanish Healthcare Barometer survey. Specifically, we have mainly examined those factors related to the responsiveness concept developed by the WHO and the socioeconomic variables. Lastly, we have reported the level of responsiveness of the main health services (primary, specialised, hospital, and emergency care) of the Spanish NHS with the non-clinical factors included in the SHB survey.

Firstly, we have seen that the Spanish NHS has three main features: 1) the coverage is essentially universal, funded out from taxes; 2) the care is mainly provided within the public sector with the provision free of charge at the point of delivery; and 3) the health policy is highly devolved to the Spanish regional governments which are responsible for managing their own health resources, and providing the health services.

Secondly, we have seen that the SHB, launched by the Spanish Ministry of Health, is the main national survey collecting information about the responsiveness of the health system as a whole and its main health services with a series of non-clinical related to the concept developed by the WHO. Although the content of the survey tends to change year by year, a certain time homogeneity of the questions related to the non-clinical factors allows us to take a long period to analyse the responsiveness of the health system (2002-2018).

Finally, we have found that the Spanish NHS present the lowest levels of responsiveness in those non-clinical factors related to the *Prompt attention* domain (*waiting time to be seen by GP since you make an appointment; waiting time to make diagnostic tests; and waiting time for a non-emergency care*) in all the health services. Likewise, it seems that the best rated non-clinical factors are those related to the *Dignity* and *Confidentiality* domains. In fact, among the best rated factors in all the health services are the *treatment that patients receive by the health and nursing staff*. Furthermore, most of respondents (by around 90%) has not been explored or washed in the presence of other people, as well as has not used the toilet or bedpan in the presence of other people without their consent.

In this chapter, we have analysed the level of responsiveness of the Spanish NHS for all the country. However, given the high degree of decentralisation of the Spanish NHS, it could be interesting to undertake a regional analysis in order to check whether there are differences in the level of responsiveness among regions. Furthermore, it could be interesting to check whether people report a different level of responsiveness due to socioeconomic reasons.

## Appendix 2.1. List of Non-Clinical Factors in the SHB Survey. 2002-2018

### 1. Primary Care

Table A2.1.1.1. Primary care: Non-clinical factors in the SHB survey with the rating scale 1-10. 2002-2018

Factor <sup>a</sup>	Rating scale <sup>b</sup>	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Time devoted by the doctor to each patient <i>El tiempo dedicado por el médico a cada enfermo</i>	1-10	Q11.06	Q10.06	Q9.05	Q11.05	Q12.05	Q13.05	Q16.05	Q19.05	Q17.05	Q21.05	Q15.05
Confidence and safety transmitting the health staff <i>La confianza y seguridad que transmite el personal médico</i>	1-10	Q11.08	Q10.08	Q9.08	Q11.08	Q12.08	Q13.08	Q16.08	Q19.08	Q17.08	Q21.08	Q15.08
Information received about your health problem <i>La información recibida sobre su problema de salud</i>	1-10	Q11.11	Q10.12	Q9.12	Q11.12	Q12.12	Q13.12	Q16.12	Q19.12	Q17.12	Q21.12	Q15.12
Knowledge of the medical record and follow-up of the health problems of each user <i>El conocimiento del historial y seguimiento de los problemas de salud de cada usuario</i>	1-10	Q11.07	Q10.07	Q9.06	Q11.06	Q12.06	Q13.06	Q16.06	Q19.06	Q17.06	Q21.06	Q15.06
Treatment that patients receive by the health staff <i>El trato recibido del personal sanitario</i>	1-10	Q11.04	Q10.04	Q9.03	Q11.03	Q12.03	Q13.03	Q16.03	Q19.03	Q17.03	Q21.03	Q15.03
Ease to get an appointment <i>La facilidad para conseguir cita</i>	1-10	Q11.02	Q10.02	Q9.07	Q11.07	Q12.07	Q13.07	Q16.07	Q19.07	Q17.07	Q21.07	Q15.07
Opening hours <i>El horario de atención</i>	1-10	Q11.03	Q10.03	Q9.02	Q11.02	Q12.02	Q13.02	Q16.02	Q19.02	Q17.02	Q21.02	Q15.02

Table A2.1.1.1. Primary care: Non-clinical factors in the SHB survey with the rating scale 1-10. 2002-2018 (Continued)

Factor <sup>a</sup>	Rating scale <sup>b</sup>	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Home care delivered by the health and nursing staff <i>La atención a domicilio dada por el personal médico y de enfermería</i>	1-10	Q11.05	Q10.05	Q9.04	Q11.04	Q12.04	Q13.04	Q16.04	Q19.04	Q17.04	Q21.04	Q15.04
Closeness of the health centres <i>La cercanía de los centros</i>	1-10	Q11.01	Q10.01	Q9.01	Q11.01	Q12.01	Q13.01	Q16.01	Q19.01	Q17.01	Q21.01	Q15.01
Waiting time to enter to the doctor office <i>El tiempo de espera hasta entrar en consulta</i>	1-10	Q11.09	Q10.09	Q9.09	Q11.09	Q12.09	Q13.09	Q16.09	Q19.09	Q17.09	Q21.09	Q15.09
Procedures to access to the specialist doctor <i>Los trámites para acceder al especialista</i>	1-10	Q11.12	-	-	-	-	-	-	-	-	-	-
Advice provided by the doctor about diet, exercise, tobacco, alcohol... <i>Los consejos del médico sobre alimentación, ejercicio, tabaco, alcohol, etc.</i>	1-10	-	Q10.13	Q9.13	Q11.13	Q12.13	Q13.13	Q16.13	Q19.13	Q17.13	Q21.13	Q15.13
Referral from your general practitioner to a specialist doctor when it is necessary <i>La derivación desde su médico de cabecera a un especialista en caso necesario</i>	1-10	-	Q10.10	Q9.10	Q11.10	Q12.10	Q13.10	Q16.10	Q19.10	Q17.10	Q21.10	Q15.10
Waiting time to be seen by GP since you make an appointment <i>El tiempo que tarda el médico en verle desde que pide la cita</i>	1-10	-	-	Q9.14	Q11.14	Q12.14	Q13.14	Q16.14	Q19.14	Q17.14	Q21.14	Q15.14
Waiting time to make the diagnostic tests <i>El tiempo que se tarda en hacer las pruebas diagnósticas</i>	1-10	-	-	-	-	-	Q13.15	Q16.15	Q19.15	Q17.15	Q21.15	Q15.15

Table A2.1.1.1. Primary care: Non-clinical factors in the SHB survey with the rating scale 1-10. 2002-2018 (*Continued*)

Factor <sup>a</sup>	Rating scale <sup>b</sup>	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Attention paid by the nurse <i>La atención prestada por la enfermera</i>	1-10	-	-	-	-	-	-	-	-	-	-	-
Care and attention that patients receive by the health staff <i>Los cuidados y la atención recibida del personal médico</i>	1-10	-	-	-	-	-	-	-	-	-	-	-
Care and attention that patients receive by the nurse staff <i>Los cuidados y la atención recibida del personal de enfermería</i>	1-10	-	-	-	-	-	-	-	-	-	-	-
Confidence and safety transmitting the nurse staff <i>La confianza y seguridad que transmite el personal de enfermería</i>	1-10	-	-	-	-	-	-	-	-	-	-	-

*Notes:* The codes included in this table for each factor and year provide the number of the question in the questionnaire of the SHB survey. If the question is not included in the survey, information retrieved from the Spanish Healthcare Barometer survey.

<sup>a</sup> The question in the SHB survey is: *According to your personal experience or the idea that you have, I would like you to assess the following factor to the care attention delivered by the general practitioner.* All the respondents can answer this question irrespective of whether they have used the service. The rating scale is from 1 to 10: 1 = *totally unsatisfactory*; and 10 = *totally satisfactory*. <sup>c</sup> Unlike the rest of years, only respondents who have at least used the service for 12 months are asked.



Table A2.1.1.2. Primary care: Non-clinical factors in the SHB survey with the rating scale 1-2. 2002-2018

Factor <sup>a</sup>	Rating scale <sup>b</sup>	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
To take part in decisions about your health problem and its treatment <i>Participar en las decisiones sobre su problema de salud y tratamiento</i>	1-2	-	-	-	-	-	-	-	-	-	-	-
Opportunity to make questions or to raise concerns <i>Oportunidad de hacer preguntas o plantear preocupaciones</i>	1-2	-	-	-	-	-	-	-	-	-	-	-
To wait more than one hour in the waiting room to enter in the office <i>Esperar de más de una hora en la sala de espera hasta entrar en consulta</i>	1-2	-	-	-	-	-	-	-	-	-	-	-
The doctor paid you less attention because of being with the computer <i>El médico presta menos atención de lo deseado por estar pendiente del ordenador</i>	1-2	-	-	-	-	-	-	-	-	-	-	-

Notes: The codes included in this table for each factor and year provide the number of the question in the questionnaire of the SHB survey. If the question is not included in the survey. Information retrieved from the Spanish Healthcare Barometer survey.

<sup>a</sup> Respondents are asked for answering whether they have experienced some of those aspects. These factors are only answered by respondents who have used primary care service in last 12 months. <sup>b</sup> Rating scale from 1 to 2: 1 = Yes, and 2 = No.

Table A2.1.1.3. Primary care: Self-reported waiting times in the SHB survey. 2002-2018

Factor	Rating scale	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Appointment to attend the health centre the same day <sup>a</sup> <i>Cita para asistir al centro de salud el mismo día</i>	1-4 <sup>b</sup>	-	-	-	-	-	-	Q14 <sup>c</sup>	Q17 <sup>c</sup>	Q14 <sup>d</sup>	Q18 <sup>d</sup>	Q13 <sup>d</sup>
Waiting time to be seen by the general practitioner <sup>e</sup> <i>Tiempo de espera para ser visto por el médico de cabecera</i>	Number of days	-	-	-	-	-	-	Q14A <sup>h</sup>	Q17A <sup>h</sup>	Q14A <sup>h</sup>	Q18A <sup>h</sup>	Q13A <sup>h</sup>

*Note:* The codes included in this table for each factor and year provide the number of the question in the questionnaire of the SHB survey. If a question is not included in the survey, information retrieved from the Spanish Healthcare Barometer survey.

<sup>a</sup> The question in the SHB survey is: *When you make an appointment with the general practitioner in your health centre to attend in the future, how often will you be able to attend in the same day?* 1 = *Always*; 2 = *Almost always*; 3 = *Hardly ever*; and 4 = *Never*. <sup>c</sup> All the respondents are asked for answering this question. <sup>d</sup> Only respondents reporting the category 1 (Always) in 'appointment to attend the health centre the same day' are asked for answering this question. <sup>e</sup> In the 2018 SHB survey, the formulation of the question is: *How long did you have to wait to see the general practitioner of the public primary care in last 12 months?* <sup>f</sup> In the 2018 SHB survey, the formulation of the question is: *How long elapsed since you made the appointment until you were seen by the general practitioner the last time that you made an appointment by any mean (calling, by internet, etc.), how long elapsed since you made the appointment until you were seen by the general practitioner?* <sup>g</sup> In the 2018 SHB survey, the formulation of the question is: *How long elapsed since you made the appointment until you were seen by the general practitioner the last time that you made an appointment by any mean (calling, by internet, etc.), how long elapsed since you made the appointment until you were seen by the general practitioner?* <sup>h</sup> In the 2018 SHB survey, the formulation of the question is: *How long elapsed since you made the appointment until you were seen by the general practitioner the last time that you made an appointment by any mean (calling, by internet, etc.), how long elapsed since you made the appointment until you were seen by the general practitioner?* <sup>i</sup> Only respondents reporting the categories 3 (Hardly ever) or 4 (Never) in 'appointment to attend the health centre the same day' are asked for answering this question. <sup>j</sup> Only respondents reporting the category 3 (It spent more than one day) in 'appointment to attend the health centre the same day' are asked for answering this question.

## 2. Specialised Care

Table A2.1.2.1. Specialised care: Non-clinical factors in the SHB survey with the rating scale 1-10. 2002-2018

Non-clinical factor <sup>a</sup>	Rating scale <sup>b</sup>	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Treatment that patients receive by the health staff <i>El trato recibido del personal sanitario</i>	1-10	Q13.08	Q13.08	Q12.08	Q14.08	Q16.08	Q16.08	Q19.08	Q22.08	Q20.08	Q24.08	Q18.08	Q18.08
Time devoted by the doctor to each patient <i>El tiempo dedicado por el médico a cada enfermo</i>	1-10	Q13.02	Q13.02	Q12.01	Q14.01	Q16.01	Q16.01	Q19.01	Q22.01	Q20.01	Q24.01	Q18.01	Q18.01
Confidence and safety transmitting the health staff <i>La confianza y seguridad que transmite el personal médico</i>	1-10	Q13.06	Q13.06	Q12.05	Q14.05	Q16.05	Q16.05	Q19.05	Q22.05	Q20.05	Q24.05	Q18.05	Q18.05
Information received about your health problem <i>La información recibida sobre su problema de salud</i>	1-10	Q13.09	Q13.09	Q12.09	Q14.09	Q16.09	Q16.09	Q19.09	Q22.09	Q20.09	Q24.09	Q18.09	Q18.09
Ease to get an appointment <i>La facilidad para conseguir cita</i>	1-10	Q13.01	Q13.01	Q12.06	Q14.06	Q16.06	Q16.06	Q19.06	Q22.06	Q20.06	Q24.06	Q18.06	Q18.06
Knowledge of the medical record and follow-up of the health problems of each user <i>El conocimiento del historial y seguimiento de los problemas de salud de cada usuario</i>	1-10	Q13.05	Q13.05	Q12.04	Q14.04	Q16.04	Q16.04	Q19.04	Q22.04	Q20.04	Q24.04	Q18.04	Q18.04
Number of specialities where you can access <i>El número de especialidades a las que se tiene acceso</i>	1-10	Q13.03	Q13.03	Q12.02	Q14.02	Q16.02	Q16.02	Q19.02	Q22.02	Q20.02	Q24.02	Q18.02	Q18.02

Table A2.1.2.1. Specialised care: Non-clinical factors in the SHB survey with the rating scale 1-10. 2002-2018 (*Continued*)

Non-clinical factor <sup>a</sup>	Rating scale <sup>b</sup>	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Waiting time to enter to the doctor office <i>El tiempo de espera hasta entrar en consulta</i>	1-10	Q13.04	Q13.04	Q12.03	Q14.03	Q16.03	Q16.03	Q19.03	Q22.03	Q20.03	Q24.03	Q18.03	Q18.03
Advice provided by the doctor about diet, exercise, tobacco, alcohol... <i>Los consejos del médico sobre alimentación, ejercicio, tabaco, alcohol, etc.</i>	1-10	-	Q13.10	Q12.10	Q14.10	Q16.10	Q16.10	Q19.10	Q22.10	Q20.10	Q24.10	Q18.10	Q18.10
Waiting time to be seen by the specialist since you make an appointment <i>El tiempo que tarda el médico en verle desde que pide la cita</i>	1-10	-	-	Q12.11	Q14.11	Q16.11	Q16.11	Q19.11	Q22.11	Q20.11	Q24.11	Q18.11	Q18.11
Waiting time to make the diagnostic tests <i>El tiempo que se tarda en hacer las pruebas diagnósticas</i>	1-10	-	-	-	-	Q16.12	Q16.12	Q19.12	Q22.12	Q20.12	Q24.12	Q18.12	Q18.12

*Notes:* The codes included in this table for each factor and year provide the number of the question in the questionnaire of the SHB survey. If a question is not included in the survey, information retrieved from the Spanish Healthcare Barometer survey.

<sup>a</sup> The question in the SHB survey is: *Regardless whether you use or not the offices of the specialist doctors in the public health system, how satisfied are you with the care referred to the specialised care.* All the respondents answer this question irrespective of whether they have used it or not the public health system; and 10 = *totally satisfactory*. <sup>c</sup> Unlike the rest of year, only respondents who have at least used the public specialised care are asked for their opinion.

Table A2.1.2.2. Specialised care: Non-clinical factors in the SHB survey with the rating scale 1-2. 2002-2018

Non-clinical factor <sup>a</sup>	Rating scale <sup>b</sup>	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Correct coordination between specialist and General Practitioner <i>Correcta coordinación entre especialista y médico de cabecera</i>	1-2	-	-	-	-	Q15F	Q15F	Q18F	Q21F	-	-	-	-
Correct communication between specialist and General Practitioner <i>Correcta comunicación entre especialista y médico de cabecera</i>	1-2	-	-	-	-	-	-	-	-	Q19F	Q23F	Q17F	Q17G
To take part in decisions about your health problem and its treatment <i>Participar en las decisiones sobre su problema de salud y tratamiento</i>	1-2	-	-	-	-	-	-	-	-	-	-	-	Q17B
Opportunity to make questions or to raise concerns <i>Oportunidad de hacer preguntas o plantear preocupaciones</i>	1-2	-	-	-	-	-	-	-	-	-	-	-	-
To wait more than one hour in the waiting room to enter in the office <i>Espera de más de una hora en la sala de espera hasta entrar en consulta</i>	1-2	-	-	-	-	-	-	-	-	-	-	-	-
Doctor paid you less attention because of being on the computer <i>El médico presta menos atención de lo deseado por estar pendiente del ordenador</i>	1-2	-	-	-	-	-	-	-	-	-	-	-	-

Notes: The code included in this table for each factor and year provides the number of the question in the questionnaire of the SHB survey. If the question is not asked in the survey. Information retrieved from the Spanish Healthcare Barometer survey.

<sup>a</sup> Respondents are asked for answering whether they have experienced some of these aspects. These factors are only answered by respondents who used specialised care service in last 12 months. <sup>b</sup> Rating scale from 1 to 2: 1 = *Yes*; and 2 = *No*.

Table A2.1.2.3. Specialised care: Self-reported waiting times in the SHB survey, 2002-2018

Factor <sup>a</sup>	Rating scale	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Waiting time to be seen by the specialist doctor <i>Tiempo de espera para ser visto por el especialista</i>	Number of months and days	-	-	Q11F01/ Q11F02 <sup>b</sup>	Q13B01/ Q13B02 <sup>b</sup>	Q15B01/ Q15B02 <sup>b</sup>	Q15B01/ Q15B02 <sup>b</sup>	Q18B01/ Q18B02 <sup>b</sup>	Q21B01/ Q21B02 <sup>b</sup>	Q19B01/ Q19B02 <sup>b</sup>	Q23B01/ Q23B02 <sup>b</sup>	Q17B01/ Q17B02 <sup>b</sup>	Q17C01/ Q17C02 <sup>b</sup>

*Note:* The codes included in this table for each factor and year provide the number of the question in the questionnaire of the SHB survey. If a question is not included in the survey, information retrieved from the Spanish Healthcare Barometer survey.

<sup>a</sup> The question in the SHB survey is: *And, how long elapsed since you made the appointment until you were seen by the specialist doctor*. <sup>b</sup> Only respondents who report having attended a specialist doctor from the public health system are asked for answering this question. <sup>c</sup> Only respondents who report having attended a specialist doctor for a new health problem or a health problem that got worse are asked for answering this question. <sup>d</sup> Only respondents who report having attended a specialist doctor and having been referred to the specialist doctor by the general practitioner are asked for answering this question.

### 3. Hospital Care

Table A2.1.3.1. Hospital care: Non-clinical factors in the SHB survey with the rating scale 1-10, 2002-2018

Non-clinical factor <sup>a</sup>	Rating scale <sup>b</sup>	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Number of people sharing a room <i>El número de personas que comparten habitación</i>	1-10	Q14.01	Q15.01	Q14.06	Q16.06	Q18.06	Q18.06	Q21.06	Q24.06	Q22.06	Q26.06	Q20.06	Q20.06
Care and attention paid by health staff <i>Los cuidados y atención del personal médico</i>	1-10	Q14.05	Q15.05	Q14.04	Q16.04	Q18.04	Q18.04	Q21.04	Q24.04	Q22.04	Q26.04	Q20.04	Q20.04
Care and attention paid by nurse staff <i>Los cuidados y atención del personal de enfermería</i>	1-10	Q14.06	Q15.06	Q14.05	Q16.05	Q18.05	Q18.05	Q21.05	Q24.05	Q22.05	Q26.05	Q20.05	Q20.05
Information received about the development of your health problem <i>La información recibida sobre la evolución del problema de salud por parte del personal de los hospitales</i>	1-10	Q14.09	Q15.09	Q14.09	Q16.09	Q18.09	Q18.09	Q21.09	Q24.09	Q22.09	Q26.09	Q20.09	Q20.09
Waiting time for a non-emergency admission <i>Tiempo de demora para el ingreso no urgente</i>	1-10	Q14.04	Q15.04	Q14.03	Q16.03	Q18.03	Q18.03	Q21.03	Q24.03	Q22.03	Q26.03	Q20.03	Q20.03
Accommodation aspects (diet, toilets and general comforts) <i>Aspectos de hostelería (comidas, aseos y comodidades generales de las habitaciones)</i>	1-10	Q14.02	Q15.02	Q14.01	Q16.01	Q18.01	Q18.01	Q21.01	Q24.01	Q22.01	Q26.01	Q20.01	Q20.01
Paperwork for the admission <i>Trámites administrativos para el ingreso</i>	1-10	Q14.03	Q15.03	Q14.02	Q16.02	Q18.02	Q18.02	Q21.02	Q24.02	Q22.02	Q26.02	Q20.02	Q20.02

Table A2.1.3.1. Hospital care: Non-clinical factors in the SHB survey with the rating scale 1-10. 2002-2018 (*Continued*)

Non-clinical factor <sup>a</sup>	Rating scale <sup>b</sup>	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Treatment that patients receive by the non-health staff <i>El trato recibido del personal no sanitario</i>	1-10	Q14.07	Q15.07	Q14.07	Q16.07	Q18.07	Q18.07	Q21.07	Q24.07	Q22.07	Q26.07	Q20.07	Q20.07
Advice provided by the doctor about diet, exercise, tobacco, alcohol... <i>Los consejos del médico sobre alimentación, ejercicio, tabaco, alcohol, etc.</i>	1-10	-	Q15.10	Q14.10	Q16.10	Q18.10	Q18.10	Q21.10	Q24.10	Q22.10	Q26.10	Q20.10	Q20.10

*Notes:* The codes included in this table for each factor and year provide the number of the question in the questionnaire of the SHB survey. If a question is not included in the survey. Information retrieved from the Spanish Healthcare Barometer survey.

<sup>a</sup> The question in the SHB survey is: *With regard to the care attention delivered by the public hospitals, I would like you to assess, according to the following aspects.* All the respondents answer this question irrespective of whether they have used or not the public service. <sup>b</sup> Rating scale 1-10 = *totally satisfactory*. <sup>c</sup> Unlike the rest of year, only respondents who have at least used the public hospital care service one time in last year.



Table A2.1.3.2. Hospital care: Non-clinical factors in the SHB survey with the rating scale 1-2. 2002-2018

Non-clinical factor <sup>a</sup>	Rating scale <sup>b</sup>	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Doctor assigned to you for anything related to your health problem <i>Médico responsable asignado al que acudir para problema de salud</i>	1-2	Q9C	Q14F	Q13D	Q15D	Q17D	Q17D	Q20D	Q23D	Q21D	Q25D	Q19D
To take part in the decisions about your health problem and its treatment <i>Participar en las decisiones sobre su problema de salud y tratamiento</i>	1-2	-	-	-	-	-	-	-	-	-	-	-
To be explored or washed in the presence of other people without your consent <i>Explorado o lavado en presencia de terceras personas sin permiso</i>	1-2	-	-	-	-	-	-	-	-	-	-	-
Doctor or nurse have spoken to you about your medical diagnosis or treatment in the presence of other people without your consent <i>El médico o la enfermera ha hablado de su diagnóstico en presencia de otras personas sin permiso</i>	1-2	-	-	-	-	-	-	-	-	-	-	-
To watch other patients to be explored or washed <i>Ver explorar o lavar a otro paciente</i>	1-2	-	-	-	-	-	-	-	-	-	-	-
To listen conversations between the health staff about medical diagnosis which are not yours <i>Escuchar conversaciones de profesionales sanitarios entre ellos con otro paciente sobre diagnósticos o tratamientos de otros pacientes</i>	1-2	-	-	-	-	-	-	-	-	-	-	-
To use the toilet or bedpan in the presence of other people without your consent <i>Usar el váter, orinal o cuña en presencia de personas extrañas sin permiso</i>	1-2	-	-	-	-	-	-	-	-	-	-	-

Notes: The codes included in this table for each factor and year provide the number of the question in the questionnaire of the SHB survey. If a question is not included in the survey. Information retrieved from the Spanish Healthcare Barometer survey.

<sup>a</sup> The question in the SHB survey is: *During last times in the last 12 months that you were admitted in a public hospital,...? Respondents who have experienced some of these aspects. These factors are only answered by respondents who have at least used one time the public hospital services. 1 = Yes; and 2 = No.*

## 4. Emergency Care

Table A2.1.4.1. Emergency care: Non-clinical factors in the SHB survey with the rating scale 1-4. 2002-2018

Non-clinical factor <sup>a</sup>	Rating scale <sup>b</sup>	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Promptness with which you were served <i>Rapidez con la que le atendieron</i>	1-4	-	-	Q10E	Q12E	Q14E	Q14E	Q17E	Q20E	Q18F	Q22F	Q16F

*Notes:* The codes included in this table for each factor and year provide the number of the question in the questionnaire of the SHB when the question is not included in the survey. Information retrieved from the Spanish Healthcare Barometer survey.

<sup>a</sup> The question in the SHB survey is: *With regard to the care attention that you received in your last emergency, do you think that it was very prompt, little prompt, or none of promptness?* These factors are only answered by respondents who have at least used either a hospital or a health centre in the primary care in last 12 months. <sup>b</sup> Rating scale from 1 to 4: 1 = *Very much promptness*; 2 = *Much promptness*; 3 = *Little promptness*; 4 = *None of promptness*.

Table A2.1.4.2. Emergency care: Non-clinical factors the SHB survey with the rating scale 1-2. 2002-2018

Factor <sup>a</sup>	Response category <sup>b</sup>	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
To be explored or washed in the presence of other people without your consent <i>Explorado o lavado en presencia de terceras personas sin permiso</i>	1-2	-	-	-	-	-	-	-	-	-	-	-	-
Doctor or nurse have spoken to you about your medical diagnosis or treatment in the presence of other people without your consent <i>El médico o la enfermera ha hablado de su diagnóstico en presencia de otras personas sin permiso</i>	1-2	-	-	-	-	-	-	-	-	-	-	-	-
To watch other patients being explored or washed <i>Ver explorar o lavar a otro paciente</i>	1-2	-	-	-	-	-	-	-	-	-	-	-	-
To listen conversations between the medical staff about medical diagnosis which are not yours <i>Escuchar conversaciones de profesionales sanitarios entre ellos con otro paciente sobre diagnósticos o tratamientos de otros pacientes</i>	1-2	-	-	-	-	-	-	-	-	-	-	-	-
To use the toilet or bedpan in the presence of other people without your consent <i>Usar el váter, orinal o cuña en presencia de personas extrañas sin permiso</i>	1-2	-	-	-	-	-	-	-	-	-	-	-	-

Notes: The codes included in this table for each factor and year provide the number of the question in the questionnaire of the SHB survey. If the question is not included in the survey, information retrieved from the Spanish Healthcare Barometer survey.

<sup>a</sup> The question in the SHB survey is: *During last times that in last 12 months you have attended the emergency care in the public hospital, answering whether they have experienced some of these aspects. These factors are only answered by respondents who have at least used either a hospital or a health centre in the primary care in last 12 months.* <sup>b</sup> Rating scale from 1 to 2: 1 = *Yes*; and 2 = *No*.

## 5. Healthcare System as a Whole

Table A2.1.5.1. Healthcare system as a whole: Non-clinical factors in the SHB survey. 2002-2018

Non-clinical factor <sup>a</sup>	Rating scale <sup>b</sup>	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Information provided by health institutions about the healthcare services that they deliver <i>La información que dan las instituciones sanitarias sobre los servicios que prestan</i>	1-10	Q15.01	Q17.01	Q15.01	Q17.01	Q19.01	Q19.01	Q22.01	Q25.01	Q23.01	Q27.01	Q21.01
Information about the patient rights and complaint procedures <i>La información acerca de los derechos y vías de reclamación de que disponen los usuarios</i>	1-10	Q15.02	Q17.02	Q15.02	Q17.02	Q19.02	Q19.02	Q22.02	Q25.02	Q23.02	Q27.02	Q21.02
Information about the healthcare laws approved by the health authorities <i>La información sobre medidas y leyes adoptadas por las autoridades sanitarias</i>	1-10	Q15.03	Q17.03	Q15.03	Q17.03	Q19.03	Q19.03	Q22.03	Q25.03	Q23.03	Q27.03	Q21.03
Information about campaign aimed at population on the main health problems <i>La información emitida a través de las campañas dirigidas a la población sobre los principales problemas de salud</i>	1-10	Q15.04	Q17.04	Q15.04	Q17.04	Q19.04	Q19.04	Q22.04	Q25.04	Q23.04	Q27.04	Q21.04
Information available about procedures to perform in order to visit the specialist or to be admitted to the hospital <i>La información sobre trámites para acceder al especialista o ingresar en hospital</i>	1-10	Q15.05	Q17.05	Q15.05	Q17.05	Q19.05	Q19.05	Q22.05	Q25.05	Q23.05	Q27.05	Q21.05
Information about the healthy lifestyle <i>La información sobre hábitos de vida saludables</i>	1-10	-	-	-	-	-	-	-	-	-	-	Q21.06

Table A2.1.5.1. Healthcare system as a whole: Non-clinical factors in the SHB survey. 2002-2018 (Continued)

Non-clinical factor <sup>a</sup>	Rating scale <sup>b</sup>	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Information about the functioning costs and proper utilization of health services <i>La información sobre el buen uso y los costes de funcionamiento de los servicios sanitarios</i>	1-10	-	-	-	-	-	-	-	-	-	-	Q21.07
Information provided by the health authorities about the illnesses prevention <i>Las autoridades sanitarias proporcionan información sobre la prevención de enfermedades</i>	1-4	-	-	-	-	-	-	-	-	-	-	-

*Note:* The codes included in this table for each factor and year provide the number of the question in the questionnaire of the SHB survey. If a question is not included in the survey, information retrieved from the Spanish Healthcare Barometer survey.

<sup>a</sup> The question in the SHB survey for the period 2003-2014 is: *I am going to read some kinds of information that the public health services provide*. The question for the period 2015-2016 is: *Do you think that the healthcare authorities from your region provide enough information about* each of the factors irrespective of whether they have used it or not. <sup>b</sup> In 2002, rating scale from 1 to 10: 1 = *totally unsatisfactory*; and 10 = *totally satisfactory*. <sup>c</sup> For the period 2015-2016, rating scale from 1 to 4: 1 = *Always*; 2 = *Usually*; 3 = *Rarely*; 4 = *Never*.

## Appendix 2.2. Socioeconomic Variables in the SHB Survey. 2002-2018

Table A2.2.1. Socioeconomic variables in the SHB survey. 2002-2018

Socioeconomic variables	Rating scale	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>General</b>													
Gender <i>Género</i>	1-2	Q40	Q37	Q36	Q28	Q29	Q33	Q36	Q38	Q39	Q40	Q39	Q40
Age <i>Edad</i>	18-98	Q41	Q38	Q37	Q29	Q30	Q34	Q37	Q39	Q40	Q41	Q40	Q41
Marital status <i>Estado civil</i>	1-5	Q42 <sup>a</sup>	-	-	-	-	-	-	-	-	-	-	-
Living in couple <i>Vivir en pareja</i>	1-2	P42A	-	-	-	-	-	-	-	-	-	-	-
<b>Family and household</b>													
Major household contributor <i>Contribuyente principal del hogar</i>	1-3	P48 <sup>b</sup>	-	-	-	-	-	-	Q42	Q45	Q47	Q45	Q46
Having descendants under 18 <i>Tener hijos/as o nietos/as menores de 18 años</i>	1-2	-	-	-	-	-	-	-	-	Q44	Q45	-	-
Having descendants between 11 and 18 years <i>Tener hijos/as o nietos/as entre 11 y 18 años</i>	1-2	-	-	-	-	-	-	-	-	Q44A	Q45A	-	-
People living at home <i>Personas que viven en el hogar</i>	1-98	-	Q39	-	-	-	-	-	-	-	-	-	-
<b>Education</b>													
School attendance <i>Asistencia al colegio</i>	1-3	Q43	Q41	Q38	Q30	Q31	Q35	Q38	Q41	Q42	Q43	Q42	Q43
School attendance MHC <i>Asistencia al colegio de la persona que más ingresos aporta al hogar</i>	1-3	Q49	-	-	-	-	-	-	-	-	-	-	-
Educational level <i>Nivel educativo</i>	1-6	Q43A	Q41A	Q38A	Q30A	Q31A	Q35A	Q38A	Q41A	Q42A	Q43A	Q42A	Q43A
Educational level MHC <i>Nivel educativo persona que más ingresos aporta al hogar</i>	1-6	Q49A	-	-	-	-	-	-	-	-	-	-	-

Table A2.2.1. Socioeconomic variables in the SHB survey. 2002-2018 (Continued)

Socioeconomic variables	Rating scale	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>Employment</b>												
Occupational status <i>Situación laboral</i>	1-8	Q44	Q42 <sup>e</sup>	Q39 <sup>e</sup>	Q32 <sup>e</sup>	Q32 <sup>e</sup>	Q36	Q39	Q43	Q46	Q48	Q49
Occupation <i>Ocupación</i>	Occupation	Q45 <sup>f</sup>	-	-	-	-	-	-	Q44	Q49	Q49	Q49
Type of occupation <i>Tipo de ocupación</i>	1-7	Q46 <sup>f</sup>	-	-	-	-	-	-	Q45	Q50	Q50	Q50
Type of company <i>Tipo de empresa en la que trabaja</i>	1-6	Q46A <sup>f</sup>	-	-	-	-	-	-	Q45A	Q50A	Q50A	Q50A
Occupational sector <i>Sector profesional</i>	Occupational sector	Q47 <sup>f</sup>	-	-	-	-	-	-	Q46	Q51	Q51	Q51
Occupational status MHC <i>Situación laboral de la persona que más ingresos aporta al hogar</i>	1-8	Q50	-	-	-	-	-	-	-	-	-	-
Occupation MHC <i>Ocupación de la persona que más ingresos aporta al hogar</i>	Occupation	Q51 <sup>g</sup>	-	-	-	-	-	-	Q44	Q49	Q49	Q49
Type of occupation MHC <i>Tipo de ocupación de la persona que más ingresos aporta al hogar</i>	1-7	Q52 <sup>g</sup>	-	-	-	-	-	-	Q45	Q50	Q50	Q50
Type of company MHC <i>Tipo de empresa en la que trabaja la persona que más ingresos aporta al hogar</i>	1-6	Q52A <sup>g</sup>	-	-	-	-	-	-	Q45A	Q50A	Q50A	Q50A
Occupational sector MHC <i>Sector profesional de la persona que más ingresos aporta al hogar</i>	Occupational sector	Q53 <sup>g</sup>	-	-	-	-	-	-	Q46	Q51	Q51	Q51
Father's occupation <i>Ocupación del padre</i>	Occupation	-	-	-	-	-	-	-	-	-	-	-
Father's occupational sector <i>Sector profesional del padre</i>	Occupational sector	-	-	-	-	-	-	-	-	-	-	-
Mother's occupation <i>Ocupación de la madre</i>	Occupation	-	-	-	-	-	-	-	-	-	-	-
Mother's occupational sector <i>Sector profesional de la madre</i>	Occupational sector	-	-	-	-	-	-	-	-	-	-	-
To be off sick <i>Estar de baja por enfermedad</i>	1-2	-	-	-	-	-	-	-	-	-	-	Q49
Number of times being off sick last 12 months <i>Veces que ha estado de baja por enfermedad</i>	Number of times	-	-	-	-	-	-	-	-	-	-	Q49
Days being off sick last 12 months <i>Días de baja enfermedad últimos 12 meses</i>	Number of days	-	-	-	-	-	-	-	-	-	-	Q49

Table A2.2.1. Socioeconomic variables in the SHB survey, 2002-2018 (Continued)

Socioeconomic variables	Rating scale	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>Income</b>												
Household income <i>Ingreso del hogar</i>	1-10	Q54 <sup>b</sup>	Q43 <sup>b</sup>	Q40 <sup>b</sup>	Q33 <sup>b</sup>	Q33 <sup>b</sup>	-	-	Q40	Q41	Q42	Q41
Personal income <i>Ingreso personal</i>	1-11	-	-	-	-	-	-	-	-	-	-	-
<b>Health</b>												
Self-reported health status <i>Estado de salud autorreportado</i>	1-5	-	-	-	-	-	-	-	-	Q43	Q44	Q43
Chronic illness <i>Enfermedad crónica</i>	1-2	-	-	-	-	-	-	-	-	-	Q46	Q44
Disabled people living at home <i>Personas discapacitadas viviendo en casa</i>	1-2	-	Q40	-	-	-	-	-	-	-	-	-
Type of smoker <i>Tipo de fumador</i>	1-4	-	-	-	-	-	-	-	-	-	-	-
<b>Use of health services</b>												
Use of the primary care <i>Uso de la atención primaria</i>	1-2	Q6	Q9	Q8	Q10	Q11	Q12	Q13	Q16	Q13	Q17	Q12
Level of use of public primary care <i>Nivel uso atención primaria pública</i>	Number of times	Q6A01	Q9A01	Q8A01	Q10A01	Q11A01	-	Q13A01	Q16A01	Q13A01	Q17A01	Q12A01
Level of use of private primary care <i>Nivel uso atención primaria privada</i>	Number of times	Q6A02	Q9A02	Q8A02	Q20A02	Q11A02	-	Q13A02	Q16A02	Q13A02	Q17A02	Q12A02
Use of the specialised care <i>Uso de la atención especializada</i>	1-2	Q8	Q12	Q11	Q13	Q15	Q15	Q18	Q21	Q19	Q23	Q17
Level use of public specialised care <i>Nivel de uso atención especializada pública</i>	Number of times	Q8A01	Q12A01	Q11A01	Q13A01	Q15A01	Q15A01	Q18A01	Q21A01	Q19A01	Q23A01	Q17A01
Level use of private specialised care <i>Nivel de uso atención especializada privada</i>	Number of times	Q8A02	Q12A02	Q11A02	Q13A02	Q15A02	Q15A02	Q18A02	Q21A02	Q19A02	Q23A02	Q17A02
Use of the hospital care <i>Uso de la atención hospitalaria</i>	1-2	Q9	Q14	Q13	Q15	Q17	Q17	Q20	Q23	Q21	Q25	Q19
Level use of public hospital care <i>Nivel de uso de atención hospitalaria pública</i>	Number of times	Q9A01	Q14A01	Q13A01	Q15A01	Q17A01	Q17A01	Q20A01	Q23A01	Q21A01	Q25A01	Q19A01
Level of use of private hospital care <i>Nivel de uso de atención hospitalaria privada</i>	Number of times	Q9A02	Q14A02	Q13A02	Q15A02	Q17A02	Q17A02	Q20A02	Q23A02	Q21A02	Q25A02	Q19A02



Table A2.2.1. Socioeconomic variables in the SHB survey. 2002-2018 (Continued)

Socioeconomic variables	Rating scale	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>Use of health services</b>												
Use of non-hospital emergency care <i>Uso de las urgencias no hospitalarias</i>	1-2	Q7	-	-	-	-	-	-	-	-	-	-
Level of use of the public non-hospital emergency care <i>Nivel de uso de las urgencias no hospitalarias públicas</i>	Number of times	Q7A01	-	-	-	-	-	-	-	-	-	-
Level of use of the private non-hospital emergency care <i>Nivel de uso de las urgencias no hospitalarias privadas</i>	Number of times	Q7A02	-	-	-	-	-	-	-	-	-	-
Use of hospital emergency care <i>Uso de las urgencias hospitalarias</i>	1-2	Q10	-	-	-	-	-	-	-	-	-	-
Level of use of the public hospital emergency care <i>Nivel de uso de las urgencias hospitalarias públicas</i>	Number of times	Q10A01	-	-	-	-	-	-	-	-	-	-
Level of use of the private hospital emergency care <i>Nivel de uso de las urgencias hospitalarias privadas</i>	Number of times	Q10A02	-	-	-	-	-	-	-	-	-	-
Use of the emergency care <i>Uso de las urgencias</i>	1-2	-	Q11	Q10	Q12	Q14	Q14	Q17	Q20	Q18	Q22	Q16
Level of use of public emergency care <i>Nivel de uso de las urgencias públicas</i>	Number of times	-	Q11A01	Q10A01	Q12A01	Q14A01	Q14A01	Q17A01	Q20A01	Q18A01	Q22A01	Q16A01
Level of use private emergency care <i>Nivel de uso urgencias privadas</i>	Number of times	-	Q11A02	Q10A02	Q12A02	Q14A02	Q14A02	Q17A02	Q20A02	Q18A02	Q22A02	Q16A02
<b>Policy</b>												
Political ideology <i>Ideología política</i>	1-10	-	-	-	-	-	-	-	-	Q36	Q37	Q37
Ideological classification <i>Clasificación ideológica</i>	1-10	-	-	-	-	-	-	-	-	P37/ P37A	P38/ P38A	-
Participation in general elections <i>Participación en las elecciones generales</i>	1-5	-	-	-	-	-	-	-	-	Q38 <sup>i</sup>	Q39 <sup>i</sup>	Q38 <sup>i</sup>
Political party voted <i>Partido al que votó</i>	1-12	-	-	-	-	-	-	-	-	Q38A	Q39A	Q38A



Table A2.2.2. Questions and rating scales for the socioeconomic variables in the SHB survey for the period 2002-2018

Variable	Addressed to...	Question in SHB survey	Rating scale
<b>General</b>			
Gender <i>Género</i>	All the respondents	Gender	1 = 2 =
Age <i>Edad</i>	All the respondents	How old are you?	Nu
Marital status <i>Estado civil</i>	All the respondents	Which is your marital status?	1 = 2 = 3 = 4 = 5 =
Living in couple <i>Vivir en pareja</i>	Respondents reporting categories from 2 to 5 in the variable 'Marital status'	Are you currently living as a couple?	1 = 2 =
<b>Family and household</b>			
Major household contributor <i>Contribuyente principal del hogar</i>	All the respondents	Who is the person contributing more income at household? <sup>a</sup>	1 = 2 = 3 =
Having descendants under 18 <i>Tener hijos/as o nietos/as menores de 18 años</i>	All the respondents	Do you have children or grandchildren under 18? <sup>b</sup>	1 = 2 =
Having descendants between 11 and 18 years <i>Tener hijos/as o nietos/as entre 11 y 18 años</i>	Respondents reporting the category 1 in 'Having descendants under 18'	Are some of them between 11 and 18 years?	1 = 2 =
People living at home <i>Personas que viven en el hogar</i>	All the respondents	Could you say to me the number of people currently living in your household (you included)?	Nu
<b>Education</b>			
School attendance <i>Asistencia al colegio</i>	All the respondents	Have you gone to school or carried out some kind of studies?	1 = 2 = 3 =
Educational level <i>Nivel educativo</i>	Respondents reporting the category 3 in 'school attendance'.	Which is the most level of official studies that you have studied (irrespective of whether you have finished them or not)? <sup>c</sup>	Na
School attendance MHC <i>Asistencia al colegio de la persona que más ingresos aporta al hogar</i>	Respondents reporting the category 2 in the variable 'major household contributor'.	Has the main household contributor gone to school or carried out some kind of studies?	1 = 2 = 3 =
Educational level MHC <i>Nivel educativo de la persona que más ingresos aporta al hogar</i>	Respondents reporting the category 2 in 'major household contributor' and the category 3 in 'school attendance MHC'.	Which is the most level of official studies that the main household contributor has studied (irrespective of whether he/she has finished them or not)?	Na

Table A2.2.2. Questions and rating scales for the socioeconomic variables in the SHB survey for the period 2002-2018 (Continued)

Variable	Addressed to...	Question in SHB survey	Rating scale
		<b>Employment</b>	
Occupational status <i>Situación laboral</i>	All the respondents	In which of the following situations are you currently?	1 = 2 = 3 = 4 = 5 = 6 = 7 = 8 =
Occupation <i>Ocupación</i>	Respondents reporting the categories 1, 2 or 4 in 'occupational status' <sup>f</sup>	What is/was your current/last job?	Na
Type of occupation <i>Tipo de ocupación</i>	Respondents reporting the categories 1, 2 or 4 in 'occupational status' <sup>f</sup>	You work as...	1 = 2 = 3 = 4 = 5 = 6 = 7 =
Type of company <i>Tipo de empresa en la que trabaja</i>	Respondents reporting the categories 1, 2 or 4 in 'occupational status' <sup>f</sup>	Do/Did you work in the Public Administration, in a public company, in a private company, in a non-profit organisation or in the domestic service?	1 = 2 = 3 = 4 = 5 = 6 =
Occupational sector <i>Sector profesional</i>	Respondents reporting the categories 1, 2 or 4 in 'occupational status' <sup>f</sup>	What is the main activity of the company where you work or worked?	Na
Occupational status MHC <i>Situación laboral de la persona que más ingresos aporta al hogar</i>	Respondents reporting the category 2 in 'major household contributor'.	In which of the following situations is the main household contributor currently?	1 = 2 = 3 = 4 = 5 = 6 = 7 = 8 =
Occupation MHC <i>Ocupación de la persona que más ingresos aporta al hogar</i>	Respondents reporting the categories 3, 5, 6, 7 or 8 in 'occupational status' <sup>g</sup>	What is or was your current/last job of the main household contributor?	Na

Table A2.2.2. Questions and rating scales for the socioeconomic variables in the SHB survey for the period 2002-2018 (Continued)

Variable	Addressed to...	Question in SHB survey	Rating scale
<b>Employment</b>			
Type of occupation MHC <i>Tipo de ocupación de la persona que más ingresos aporta al hogar</i>	Respondents reporting the categories 3, 5, 6, 7 or 8 in 'occupational status'	The main household contributor works as...	1 2 3 4 5 6 7
Type of company MHC <i>Tipo de empresa en la que trabaja la persona que más ingresos aporta al hogar</i>	Respondents reporting the categories 3, 5, 6, 7 or 8 in 'occupational status'	Do/Did the main household contributor work in the Public Administration, in a public company, in a private company, in a non-profit organisation or in the domestic service?	1 2 3 4 5 6
Occupational sector MHC <i>Sector profesional de la persona que más ingresos aporta al hogar</i>	Respondents reporting the categories 3, 5, 6, 7 or 8 in 'occupational status'	What is the main activity of the company where the main household contributor works or worked?	Na co
Father's occupation <i>Ocupación del padre</i>	All the respondents	When you were 16 years old, which was the occupation of your father?	Na
Father's occupational sector <i>Sector profesional del padre</i>	Respondents reporting his/her father/mother was working in 'father's occupation'	What is the main activity of the company where your father works or worked?	Na co
Mother's occupation <i>Ocupación de la madre</i>	All the respondents	When you were 16 years old, which was the occupation of your mother?	Na
Mother's occupational sector <i>Sector profesional de la madre</i>	Respondents reporting his/her father/mother was working in 'mother's occupation'	What is the main activity of the company where your mother works or worked?	Na
To be off sick <i>Estar de baja por enfermedad</i>	Respondents reporting the category 1 in 'occupational status'	Have you been off sick in last 12 months?	1 2
Number of times being off sick last 12 months <i>Veces que ha estado de baja por enfermedad</i>	Respondents reporting the category 1 in 'occupation status', and category 1 in 'to be off sick'	How many times have you been off sick in last 12 months?	Na
Days being off sick last 12 months <i>Días estando de baja por enfermedad últimos 12 meses</i>	Respondents reporting the category 1 in 'occupation status', and category 1 in 'to be off sick'	The last time, how many days were you off sick?	Na

Table A2.2.2. Questions and rating scales for the socioeconomic variables in the SHB survey for the period 2002-2018 (*Continued*)

<b>Variable</b>	<b>Addressed to...</b>	<b>Question in SHB survey</b>
<b>Income</b>		
Household income <i>Ingreso del hogar</i>	All the respondents	Currently, among all the members of the household (you included) and for every concept, how much net income is your household having on average? <sup>a</sup>
Personal income <i>Ingreso personal</i>	All the respondents	And, in which tranche of the same scale are your personal net income included?
<b>Health</b>		
Self-reported health status <i>Estado de salud autorreportado</i>	All the respondents	How do you describe your health status in general: very good, good, normal, bad, very bad?
Chronic illness <i>Enfermedad crónica</i>	All the respondents	Do you have some chronic illness or health problem?
Disabled people living at home <i>Personas discapacitadas viviendo en el hogar</i>	All the respondents	Are some of people living in your household disabled because of his/her age or health conditions?
Type smoker <i>Tipo de fumador</i>	All the respondents	Could you say to me whether you smoke?

Table A2.2.2. Questions and rating scales for the socioeconomic variables in the SHB survey for the period 2002-2018 (*Continued*)

Variable	Addressed to...	Question in SHB survey	Rating scale
<b>Policy</b>			
Political ideology <i>Ideología política</i>	All the respondents	When we talk about policy the expressions <i>left</i> and <i>right</i> are usually used. In what cell would you place yourself?	1 = 2 = 3 = ... 10 =
Ideological classification <i>Clasificación ideológica</i>	All the respondents	And, how do you define yourself in policy according to the following classification?	1 = 2 = 3 = 4 = 5 = 6 = 7 = 8 = 9 = 10 =
Participation in general elections <i>Participación en las elecciones generales</i>	All the respondents	Could you say to me whether in the general elections of the 9th of March of 2008...? <sup>i</sup>	1 = 2 = 3 = 4 = 5 =
Political party voted <i>Partido al que votó</i>	Respondents reporting category 1 in 'participation in general elections'	And, could you say to me the political party that you voted?	A l
<b>Use of health services</b>			
Use of the primary care <i>Uso de la atención primaria</i>	All the respondents	During the last year, have you attended a health centre of primary care for a real consultation, that is, not to make an appointment, to take a X-ray, a test, or to go with other person?	1 = 2 =
Level of use of the public primary care <i>Nivel de uso de la atención primaria pública</i>	Respondents reporting category 1 in 'use of primary care'	And, during this last year, how many times have you attended a public primary care service?	Nu
Level of use of the private primary care <i>Nivel de uso a la atención primaria privada</i>	Respondents reporting category 1 in 'use of the primary care'	And, during this last year, how many times have you attended a private primary care service?	Nu
Use of the specialised care <i>Uso de la atención especializada</i>	All the respondents	During the last year, have you attended an office of a specialist doctor who is not a dentist, a rehabilitation session, speech therapy and birth preparation? We refer to a real consultation, that is, not to make an appointment, to take a X-ray, a test, or to go with other person	1 = 2 =

Table A2.2.2. Questions and rating scales for the socioeconomic variables in the SHB survey for the period 2002-2018 (*Continued*)

Variable	Addressed to...	Question in SHB survey
<b>Use of health services</b>		
Level of use of the public specialised care <i>Nivel de uso de la atención especializada pública</i>	Respondents reporting category 1 in 'use of the specialised care'	And, during these last 12 months, can you remember how many times you have attended a public specialised care service?
Level of use of the private specialised care <i>Nivel de uso de la atención especializada privada</i>	Respondents reporting category 1 in 'use of the specialised care'	And, during these last 12 months, can you remember how many times you have attended a private specialised care service?
Use of the hospital care <i>Uso de la atención hospitalaria</i>	All the respondents	During the last 12 months, have you been admitted in a public or private hospital?
Level of use of the public hospital care <i>Nivel de uso de la atención hospitalaria pública</i>	Respondents reporting category 1 in 'use of the hospital care'	And, can you remember how many times have you been admitted in a public hospital?
Level of use of the private hospital care <i>Nivel de uso de la atención hospitalaria privada</i>	Respondents reporting category 1 in 'use of the hospital care'	And, can you remember how many times have you been admitted in a private hospital?
Use of the non-hospital emergency care <i>Uso de las urgencias no hospitalarias</i>	All the respondents	During the last year, have you attended a public or private (non-hospital) emergency care service because of a health problem of yours or some of your relative?
Level of use of the public non-hospital emergency care <i>Nivel de uso de las urgencias no hospitalarias públicas</i>	Respondents reporting category 1 in 'use of the non-hospital emergency care'	And, can you remember how many times have you attended a public (non-hospital) emergency care service because of a health problem of yours or some of your relative during the last year?
Level of use of the private non-hospital emergency care <i>Nivel de uso de las urgencias no hospitalarias privadas</i>	Respondents reporting category 1 in 'use of the non-hospital emergency care'	And, can you remember how many times have you attended a private (non-hospital) emergency care service because of a health problem of yours or some of your relative during the last year?
Use of the hospital emergency care <i>Uso de las urgencias hospitalarias</i>	All the respondents	During the last year, have you attended a public or private hospital emergency care service because of a health problem of yours or some of your relative?
Level of use of the public hospital emergency care <i>Nivel de uso de las urgencias hospitalarias públicas</i>	Respondents reporting category 1 in 'use of the hospital emergency care'	And, can you remember how many times have you attended a public hospital emergency care service because of a health problem of yours or some of your relative during the last year?
Level of use of the private hospital emergency care <i>Nivel de uso de las urgencias hospitalarias privadas</i>	Respondents reporting category 1 in 'use of the hospital emergency care'	And, can you remember how many times have you attended a private hospital emergency care service because of a health problem of yours or some of your relative during the last year?
Use of the emergency care <i>Uso de las urgencias</i>	All the respondents	During the last year, have you attended a public or private healthcare centre for an emergency, excluding times in which you have gone with other person?
Level of use of the public emergency care <i>Nivel de uso de las urgencias públicas</i>	Respondents reporting the category 1 in 'use of the emergency care'	During the last year, can you remember how many times you have attended a public centre for an emergency?
Level of use of the private emergency care <i>Nivel de uso de las urgencias privadas</i>	Respondents reporting the category 1 in 'use of the emergency care'	In the last 12 months, can you remember how many times you have attended a private centre for an emergency?



Table A2.2.2. Questions and rating scales for the socioeconomic variables in the SHB survey for the period 2002-2018 (*Continued*)

<b>Variable</b>	<b>Addressed to...</b>	<b>Question in SHB survey</b>
<b>Nationality</b>		
Type nationality <i>Tipo de nacionalidad</i>	All the respondents	With regard to the nationality, ¿Do you have...?
Spanish nationality since... <i>Nacionalidad española desde...</i>	Respondents reporting the category 1 or 2 in 'type nationality'	And, do you have the Spanish nationality since you were born or you have acquired it later?
Nationality <i>Nationality</i>	Respondents reporting the category 2 or 3 in 'type nationality'	What nationality?
Place of birth <i>Lugar de nacimiento</i>	All the respondents	In what country were you born?
Country of birth <i>País de nacimiento</i>	Respondents reporting the category 2 in 'place of birth'	Which?
<b>Residence</b>		
Municipality size <i>Tamaño del municipio donde habita</i>	All the respondents	Municipality size
<b>Language</b>		
Use of Spanish <i>Manejo del castellano</i>	Respondents reporting the category 3 in 'type nationality' or category 2 in 'Spanish nationality since...'	How do you define yourself your use of the Spanish language?

Table A2.2.2. Questions and rating scales for the socioeconomic variables in the SHB survey for the period 2002-2018 (*Continued*)

Variable	Addressed to...	Question in SHB survey
		<b>Religion</b>
Religious beliefs <i>Creencia religiosa</i>	All the respondents	How do you define yourself in terms of religion: catholic, believer in other religion, non-believer or atheist?
Frequency attending mass <i>Frecuencia con la que asiste a misa</i>	Respondents reporting the categories 1 or 2 in 'religious beliefs'	How often do you attend Mass or other religious services?

*Note:* Information retrieved from the Spanish Healthcare Barometer survey. SHB = Spanish Healthcare Barometer; MHC = Main household contributor. <sup>a</sup> In 2002, the question in the SHB survey is different from that of the rest of years: *Are you the person contributing more income at household (head of household or spouse)?* and 2 = No. <sup>b</sup> In 2017, the question in the SHB survey is different from that of the rest of years: *Do you have children under 18?* <sup>c</sup> In 2018, the question in the SHB survey is different from that of the rest of years: *Which are the most level studies that you have finished (obtaining the official certification)?* <sup>d</sup> Although respondents provide the following response scale: 1 = With no education; 2 = Primary education; 3 = Secondary education (first stage); 4 = Secondary education (second stage); 5 = Higher education. The classification is different from year, so a recodification has to be done to create a comparable variable with the response scale is from 1 to 6: 1 = Working; 2 = Retiree or pensioner; 3 = Unemployed; 4 = Studying; 5 = Domestic work with no remuneration; 6 = Other. <sup>e</sup> In 2002, the question is addressed to respondents reporting categories 1, 2, 3 or 4 in 'occupational status'. <sup>f</sup> For the period 2002-2006, the question is different from the following years since it does not refer to net income: *Which is the total income that you receive from all sources?* For the period 2002-2006, the SHB survey provides a rating scale from 1 to 8 with a different range. For the period 2015-2018, the rating scale is from 1 to 6, which is comparable with the rating scale of the period 2007-2014. <sup>g</sup> For the period 2010-2011, the SHB survey refers to general elections of 9<sup>th</sup> of March of 2011. For the period 2016-2018, the SHB survey refers to general elections of 26<sup>th</sup> of June of 2016. <sup>h</sup> For the period 2012-2015, the SHB survey refers to general elections of 20<sup>th</sup> of November of 2011. For the period 2016-2018, the SHB survey refers to general elections of 26<sup>th</sup> of June of 2016. <sup>i</sup> The rating scale is from 1 to 6. The sixth category 'You did not have the right to vote' was added. <sup>j</sup> The list of political parties changes with regard to 2015. <sup>k</sup> For 2008, the SHB survey uses a rating scale from 1 to 4: 1 = The Spanish nationality; 2 = The Spanish nationality and other one; 3 = Other nationality; 4 = In process to acquire the Spanish nationality. <sup>l</sup> All the respondents in the SHB surveys from 2003 to 2007.



# CHAPTER 3

## *The Overall Self-Reported Experience by People with the Spanish NHS: The Role of Health System's Responsiveness*

\* The results of this chapter have been presented in the *VI Taller de Investigación en Evaluación de Políticas y Servicios de Salud* in 2017, and in the *XXXVII Jornadas de Economía de la salud* in 2017 organised by the *Health Economics Association* (AES), as well as in the *XX Encuentro de Economía Aplicada* organised by the *Asociación Libre de Economía* (ALdE). Likewise, a part of the results has been published in the paper *Improving People's Self-Reported Experience with the Health Services: The Role of Non-Clinical Factors* in the *International Journal of Environmental Research and Public Health* 17(1), 178 <https://doi.org/10.3390/ijerph17010178> (see Fernández-Pérez & Sánchez, 2020).



## 1. Introduction

In this chapter, we address the first aim of this doctoral thesis, namely, to analyse the influence of health system's responsiveness on the overall self-reported experience of people with the Spanish healthcare system as a whole and its main health services, namely, the implications of health system's responsiveness. Specifically, we identify the most influential non-clinical factors to ensure patients report an overall satisfactory experience with primary (general practitioner), specialised (outpatient care), and hospital care (inpatient care) services, as well as with the Spanish healthcare system as a whole. In the health services' framework, we also check whether these factors are the same across health services or if they change depending on the specific service analysed. The findings of this chapter provide empirical evidence about the role that these factors play in shaping people's overall experience with the healthcare system as a whole and the main health services in Spain.

To that end, we use the 2015 cross-sectional microdata of the SHB survey.<sup>18</sup> As methodological approach, we apply the probit-adapted ordinary least squares, a method increasingly used in the most recent subjective well-being literature (Bárcena-Martín et al., 2017; Blázquez Cuesta & Budría, 2014; M. Navarro & Salverda, 2019). This method allows us to estimate models where the dependent variable and many of their independent variables are categorically ordered with no need to create a dummy variable for each category, which could hamper the interpretation of the results. This is a crucial aspect in our study, since most of our variables of interest are ordered categorically.

The chapter is structured as follows. In section 2, we include the background. Section 3 tackles the empirical strategy where we propose the models to estimate, the dataset and variables of interest for this study, and the methodology used. The results are contained in Section 4, whereas the discussion and conclusions are included in Sections 5 and 6, respectively.

---

<sup>18</sup> See chapter 2 for more details about the SHB survey.

## 2. Background

Since health systems' responsiveness concept was developed by WHO in 2000, several studies have focus on analysing this goal of the health systems. From the empirical point of view, we find two main lines of research in the literature on responsiveness: 1) those studies analysing the level of responsiveness (Bazzaz et al., 2015; Bramesfeld, Wedegärtner, et al., 2007; Chao et al., 2017; Coulter & Cleary, 2001; Kerssens et al., 2004; Njeru et al., 2009; Peltzer, 2009; Ristea et al., 2009), and 2) those papers studying the determinants of the level of responsiveness (Fiorentini et al., 2015; Puentes-Rosas et al., 2005; Rice et al., 2010b, 2011; Robone, Rice, et al., 2011; Sirven et al., 2012; Valentine et al., 2009; Valentine, Ortiz, et al., 2003). Given the subjective character of responsiveness concept when it comes to measuring it, several studies have addressed the question about what factors determine that people report a certain level of responsiveness in a health system. In this line, we find that both socioeconomic characteristics, such as age (Bramesfeld, Wedegärtner, et al., 2007; Sirven et al., 2012), gender (Coulter & Jenkinson, 2005; Sirven et al., 2012; Ugurluoglu & Celik, 2006) or educational level (Puentes Rosas et al., 2006; Rice et al., 2011; Sirven et al., 2012), and institutional features, such as the health expenditure (Anderson & Hussey, 2001; Malhotra & Do, 2017; Robone, Rice, et al., 2011; Valentine, De Silva, et al., 2003) or the GDP per capita (De Silva & Valentine, 2000; Murante et al., 2017), have been analysed as potential determinants of the level of health systems responsiveness.

However, despite the relevance of non-clinical factors to guarantee a satisfactory experience of patients with the health systems, no many studies have empirically analysed this influence, as well as the implications of the responsiveness on population health. There is an absence of studies using health system's responsiveness as a determinant. For instance, Bleich et al. (2009), in a study for 21 European Union countries, found a positive association between the patients' experience with the responsiveness domains (except for confidentiality) and the overall patients' satisfaction with the health system as a whole. Likewise, more recently, Valentine & Bonsel (2016) analysed the influence of health systems' responsiveness in the health outcomes and coverage across 57 countries. They found that a bad responsiveness was associated with a poorer health in areas of maternal mortality, child mortality or tuberculosis mortality, as well as a more deficient coverage in skilled birth attendance or measles vaccination.

In this context, it is relevant to provide more empirical evidence about the influence of responsiveness in items such as the health or the overall patient experience with the health system or health services. This last aspect is particularly relevant since, as we pointed out in chapter 1, several authors have claimed that having a positive experience with a health system could lead individuals to be more cooperative with their health problems, compliant with treatment procedures, or follow the advice of health staff (Naidu, 2009; Nunu & Munyewende, 2017; Sofaer & Firminger, 2005) by improving their health status. For that reason, it is relevant to identify those aspects of the non-clinical care which are most important so that people report a better experience with the health system as a whole and its main health services in order to the health systems can improve those items. Likewise, these results could allow health policy-makers to know where to allocate efficiently more resources to increase more properly the performance of the health system.

To the best of our knowledge, this is the first study to analyse the role of non-clinical factors for three of main health services in Spain and the health system as a whole. Although several studies have examined the influence of non-clinical factors on patient satisfaction, the analyses were confined to certain regional health services (Más et al., 2016; Serrano-del-Rosal & Loriente-Arín, 2008) or to a specific health service (Blanco-Abril et al., 2010; Fontova-Almató et al., 2015; Patricio Bustamante et al., 2013; Quintana et al., 2006). Studies addressing self-reported levels of overall satisfaction with the health system or its services in Spain have primarily examined the influence of socioeconomic or institutional factors. However, the potential effects of non-clinical factors on overall satisfaction have not yet been analysed (Valls Martínez & Abad Segur, 2018). Likewise, from the international point of view, studies taking into account non-clinical factors have mainly focused on analysing the influence of these factors on patients' satisfaction with a health service (Hussain et al., 2019; Nunu & Munyewende, 2017; Wang et al., 2019).

### **3. Empirical Strategy**

#### **3.1. Models**

We propose two models for analysing the influence of the non-clinical factors on the self-reported experience of people. The first model (health services model) states the



association between non-clinical factors and the overall self-reported experience of respondents with each of the three main Spanish health services (i.e., primary, specialised, and hospital care):

$$Y = \alpha + X\beta + Z\rho + R\lambda + \varepsilon \quad (3.1)$$

where  $Y$  is the vector of the dependent variable self-reported experience with the health service of  $n$  individuals and  $X$  is a matrix containing the set of non-clinical factors. Let  $\beta$  denote a vector of parameters where  $\beta = (\beta_1, \dots, \beta_j)'$  with  $j$  being the number of non-clinical factors included in the model;  $Z$  indicates the socioeconomic characteristics;  $\rho$  denotes a vector of parameters  $\rho = (\rho_1, \dots, \rho_k)'$  with  $k$  being the number of socioeconomic characteristics included in the model;  $R$  is the set of regional dummies; and  $\varepsilon$  is the error term that is assumed to have a normal distribution of zero mean and  $\sigma^2$  variance.

Given that we analyse three health services, we run model (3.1) three times, one for each health service. The parameters of interest in this chapter are represented by vector  $\beta$  in model (3.1), which indicates the level of correlation between the self-reported experience with each non-clinical factor and the overall self-reported experience with each health service.

The second model (health system model) indicates the association between non-clinical factors and the overall self-reported experience of the respondents with the Spanish NHS as a whole as follows:

$$Y = \alpha + D\beta + Z\rho + R\lambda + \varepsilon \quad (3.2)$$

where  $Y$  is the vector of the dependent variable *self-reported experience with the Spanish NHS as a whole* of  $n$  individuals and  $D$  is a matrix containing a set of responsiveness domains. Let  $\beta$  denote a vector of parameters where  $\beta = (\beta_1, \dots, \beta_j)'$  with  $j$  being the number of responsiveness domains included in the model;  $Z$  denotes the socioeconomic characteristics;  $\rho$  denotes a vector of parameters  $\rho = (\rho_1, \dots, \rho_k)'$  with  $k$  being the number of socio-economic characteristics included in the model;  $R$  is the set of regional dummies; and  $\varepsilon$  is the error term that is assumed to have a normal distribution of zero mean and  $\sigma^2$  variance.

Again, our parameter of interest is represented by vector  $\beta$  in model (3.2) which indicates the level of correlation between the self-reported experience with each responsiveness domains and the overall self-reported experience with the Spanish NHS as a whole. In model (3.2), we use the responsiveness domains as independent variables instead of directly applying the non-clinical factors. These procedure aims at on avoiding the multicollinearity between non-clinical factors generated by including variables which measure the same concept for different health service. The creation of the responsiveness domains from the non-clinical factors is explained in section 3.2.2.

### **3.2. Dataset and Variables of Interest**

In this chapter, we use the cross-sectional microdata obtained from the SHB survey of 2015. We analyse the data of this year for being the most recent year with the highest amount of non-clinical factors contained in the survey (see Appendix 2.1 in chapter 2). We take into account all the respondents of the survey irrespective of whether they had a previous experience with the health system in last 12 months. This fact allows us to avoid the potential overestimation of responsiveness arising when the users' opinion is only collected. Some authors have pointed out that gathering information only from users could generate a distribution biased towards positive ratings (Kleefstra et al., 2015; Schoenfelder et al., 2011; Sofaer & Firminger, 2005), since there could be people who do not use the health services for having an unsatisfactory perception of the health system (i.e., economic barriers or a bad previous experience) (Footman et al., 2013; Valentine et al., 2009). For that reason, our dataset contributes to correcting this bias by collecting information both from users and non-users of the Spanish NHS. In addition, we include all respondents without missing values in the studied variables, so we work with 6,252 observations for primary care, 5,854 for specialised care, and 4,702 for hospital care in the health services model, and 3,931 in the health system model. In the following subsection, we analyse the variables of interest separately for the health services and health system models.

#### **3.2.1. Health Services Model**

##### **Dependent Variables: Self-reported Experience with the Health Services**

In model (3.1), we analyse the overall self-reported experience separately for the primary, specialised and hospital care services of the Spanish NHS. This means that we

run three different regressions (one for each health service) by employing the same model. The values of the dependent variable are taken from the responses of respondents to the following questions:

*Based on your own experience or opinion, please rate the following public health services: primary care consultations (general practitioners or paediatrician consultations in healthcare centres); specialised care consultations (specialist consultations in public healthcare centres); admission and care in public hospitals.*

Respondents report their experience on a scale from 1 to 10 where 1 is *completely unsatisfactory* and 10 *completely satisfactory*.

### **Explanatory Variables: The Non-Clinical Factors**

The vector X of model (3.1) contains a series of variables collecting the subjective assessment of respondents with respect to a set of non-clinical factors with which they can have interacted when they come into contact with the health system. For each health service, the respondents are asked for rating a set of non-clinical factors on a 10-point scale where 1 is *completely unsatisfactory* and 10 *completely satisfactory* based on their own experience or the opinion that they have about the service. Table 3.1 presents all the non-clinical factors selected to be included in model (3.1), as well as the health services to which the question refers. The SHB survey provides us with 13 different non-clinical factors, however some of them are repeated in several health services. More specifically, there are nine non-clinical factors for primary care, seven for specialised care and six for hospital care.

### Chapter 3. The Overall Self-Reported Experience by People with the Spanish NHS: The Role of the Health System's Responsiveness

Table 3.1. Non-clinical factors from the SHB survey selected for the model (3.1) by health service. 2015

Non-clinical factor	Question in the SHB survey: Based on your own experience or opinion that you have, please rate...	Health service <sup>a</sup>
Treatment received	The treatment received from the health staff	Primary Specialised
Time devoted by doctor	The time devoted by the doctor to each patient	Primary Specialised
Confidence and security	The confidence and security transmitted by the doctor	Primary Specialised
Knowledge and follow-up health problems	Knowledge of medical records and follow-up of health problems	Primary
Information received on health problem	The information received on your health problem	Primary Specialised Hospital
Advice of doctor	Advice of the doctor about exercises, diet, smoking, alcohol consumption, etc.	Primary Specialised Hospital
Waiting time for appointments	The time you have to wait since you make the appointment until you are seen by the doctor	Primary Specialised
Waiting time for diagnostic tests	The waiting time for carrying out diagnostic tests	Primary Specialised
Care by nursing staff	The care delivered by nursing staff	Primary
Waiting time for non- emergency admission	The waiting time for a non-emergency admission	Hospital
Care and attention by medical staff	The care and attention delivered by medical staff	Hospital
Care and attention by nursing staff	The care and attention delivered by nursing staff	Hospital
Number of people sharing room	The number of people who share a room	Hospital

*Note:* SHB = Spanish Healthcare Barometer. Retrieved from the Spanish Healthcare Barometer.

<sup>a</sup> Service for which the non-clinical factor is rated.

### 3.2.2. Health System Model

#### **Dependent Variable: Self-reported Experience with the Health System as a Whole**

With regard to the model (3.2), we explain the self-reported experience with the Spanish NHS as a whole. Respondents are asked the following question:

*Are you satisfied or unsatisfied with how the public healthcare system works in Spain?*

The respondents answer this question by using a 10-point scale where 1 is *very unsatisfied* and 10 *very satisfied*.

#### **Explanatory Variables: The Responsiveness Domains**

The healthcare systems are comprised of different health services, so in order to explain the overall self-reported experience with the health system as a whole, we should take into account the influence of every non-clinical factor of all the health services with which individuals may interact when they come into contact with the system. However, given that some non-clinical factors listed in Table 3.1 measure the same aspects for different health services, multicollinearity problems could arise if we include all of them in the same model, namely, the  $D$  vector of model (3.2). For that reason and taking advantage of these non-clinical factors are related to some of the responsiveness domains developed by WHO, we group the 13 non-clinical factors included in model (3.1) into their corresponding responsiveness domain by following the proposal of Valentine, De Silva, et al. (2003), Gostin et al. (2003), and De Silva (2000) (see Appendix 1.1 in chapter 1). Table 3.2 shows the correspondence between the responsiveness domains and non-clinical factors in the SHB survey. We identify four responsiveness domains (*Communication, Dignity, Prompt attention, and Quality of basic amenities*). Subsequently, for those domains with more than one associated non-clinical factor, we apply principal component analysis. Specifically, we group them and synthesise the maximum amount of information of the different non-clinical factors by using the first component and then normalise them between 0 and 1. Finally, we apply the overall Kaiser-Meyer-Olkin test in order to check the adequacy of the factorial analysis. The index level is over 0.70 which is adequate in all the domains (Kaiser, 1974).

### Chapter 3. The Overall Self-Reported Experience by People with the Spanish NHS: The Role of the Health System's Responsiveness

Table 3.2. Correspondence between the responsiveness domains and the non-clinical factors included in the SHB survey, 2015

Responsiveness domain	Non-clinical factor	Health service
<b>Doctor-Patient Communication</b> Items: 11 KMO test: 0.906	Advice of doctor	Primary Specialised Hospital
	Confidence and security	Primary Specialised
	Time devoted by doctor	Primary Specialised
	Knowledge and follow-up of health problems	Primary
	Information received on health problem	Primary Specialised Hospital
<b>PA-Citizen Communication</b> Items: 5	Information received on service delivery	Health system
	Information received on patients' rights	Health system
	Information received on legislation	Health system
	Information received on disease and illness prevention	Health system
	Information received on functioning costs	Health system
<b>Dignity</b> Items: 5 KMO test: 0.7997	Treatment received	Primary Specialised
	Care by nursing staff	Primary
	Care and attention by medical staff	Hospital
	Care and attention by nursing staff	Hospital
<b>Prompt attention</b> Items: 5 KMO test: 0.7447	Waiting time for appointments	Primary Specialised
	Waiting time for diagnostic tests	Primary Specialised
	Waiting time for non-emergency admission	Hospital
<b>Quality of basic amenities</b> Items: 1	Number of people sharing room	Hospital

*Note:* KMO = Kaiser-Meyer-Olkin; PA = Public Administration.

In addition to the non-clinical factors contained in Table 3.1, we also include other factors related to the information received by respondents from the Public Administration which are related to the communication domain. These latter factors are assessed for the health system as a whole instead of for each health service.<sup>19</sup> We consider two separate groups for the communication domain: *Doctor-patient communication* and *PA-citizen communication*. The reason for which we analyse the communication domain separately is twofold. The variables capturing the assessments that respondents report with the information provided by PA in the SHB survey are measured differently than variables related to the communication between doctors and patients. Therefore, it is difficult to merge all the information in a same domain. Secondly, the communication domain is related to with the information provided in all types of contacts between population and the health systems and not only to interactions between a patient and a doctor (Valentine, De Silva, et al., 2003). Therefore, it could be also convenient to identify separately which is the influence of each of them.

The *PA-citizen communication* domain comprises five items. Each of them is a dummy variable where 1 indicates that respondents think that they always or usually receive enough information on service delivery, patients' rights, legislation, disease and illness prevention, and functioning costs of the health system from the PA; and 0 indicates that respondents think they rarely or never receive enough information. We follow Sabatini (2009) in order to build the *PA-citizen communication* domain. If respondent  $i$  states that he or she always or usually receives enough information in more than 50% of the five items, the domain takes the value of 1 and we will consider that he or she assesses the communication provided by PA as satisfactory. Otherwise, the domain takes the value of 0.

### 3.2.3. Socioeconomic Variables

In models (3.1) and (3.2), there is a common  $Z$  vector standing for a set of socioeconomic characteristics of individuals. These characteristics are the same in both models. We have chosen these socioeconomic variables in accordance with the literature (Bjertnaes et al., 2012; Crow et al., 2002; Hussin et al., 2015; Morgan et al., 2015; Muntlin et al., 2008; Naidu, 2009; Nunu & Munyewende, 2017; Park et al., 2016;

---

<sup>19</sup> In the SHB survey, the questions related to the *PA-citizen communication* domain refer to the Spanish NHS as a whole and not for a specific health service.

Schoenfelder et al., 2011; Sofaer & Firminger, 2005; Vogus & McClelland, 2016). Specifically, we consider the following 10 variables: age (Aged 60); gender (Female); level of education (Higher education); marital status (Single); place of residence (Urban); place of birth (Born abroad); occupational status (Employed); self-reported health (Good health); self-reported chronic illness (Chronically ill); and experience with public health service and system. Definitions of the variables are shown in Table 3.3.

Table 3.3. Socioeconomic variables of respondents to analyse self-reported experience with the public Spanish NHS as a whole and its main health services. 2015

Variable	Definition
Aged60	1 if respondent is aged over 60 and 0 otherwise
Female	1 = female, 0 = male
Higher education	1 if respondent has secondary or tertiary education and 0 if respondent has primary education or no schooling
Single	1 if respondent is single and 0 if respondent is married, widowed, separated or divorced
Urban	1 if respondent lives in a municipality over 10,000 inhabitants and 0 otherwise (rural)
Born abroad	1 if respondent was not born in Spain and 0 otherwise
Employed	1 if respondent is employed and 0 otherwise
Good health	1 if respondent perceives his/her state of health as good or very good and 0 otherwise
Chronically ill	1 if respondent reports being chronically ill and 0 otherwise
Experience with public health system	1 if respondent has used, at least once, the Spanish public health system or any of their services in the last 12 months and 0 otherwise

*Note:* Centre for Sociological Research, *Spanish Healthcare Barometer* survey 2015.

### 3.3. Method: The Probit-Adapted Ordinary Least Squares

Concerning the methodology, we rely on probit-adapted ordinary least squares. POLS is a method that is increasingly used in the most recent subjective well-being literature (Bárcena-Martín et al., 2017; Blázquez Cuesta & Budría, 2014; Budria & Ferrer-i-Carbonell, 2012; M. Navarro & Salverda, 2019). This method was developed by van Praag & Ferrer-i-Carbonell (2008) in order to estimate coefficients by using the ordinary least square method instead of an ordered probit or ordered logit method for regression models where the dependent variable is ordered categorically.

The POLS method has several outstanding advantages. Firstly, it facilitates the interpretation of coefficients since they can be directly interpreted as OLS-coefficients



instead of calculating margin effects for an OP or odds ratios for an OL method (Blázquez Cuesta & Budría, 2014). Secondly, the POLS method seems to yield the same signs and significance of the coefficients as the OP or OL methods (van Praag & Ferrer-i-Carbonell, 2008). Thirdly, the method can also be applied in explanatory variables representing ordered categories (van Praag & Ferrer-i-Carbonell, 2008), which highly simplifies the calculation. For our study, this aspect is crucial. Given that the self-reported variables are measured in a 10-points scale, if the OP or OL method is used instead of POLS, nine dummies (10 categories minus 1) must be included in model (3.1) as explanatory variables for each of the non-clinical factors analysed in the model. For example, in the case of primary care, it would be necessary to include 81 dummy variables (nine non-clinical factors multiplied by nine dummies) generating a very complex model to be interpreted. Finally, it enables interpreting coefficients in more complex models, such as those that include interactions between variables (Bárcena-Martín et al., 2017; Budria & Ferrer-i-Carbonell, 2012).

The application of the POLS method involves two stages. Firstly, the dependent and explanatory variables are changed from ordinals to cardinals values, which is so-called the 'cardinalisation process'; and secondly, the OLS estimation is applied on the new transformed variables.

In the cardinalisation process, the POLS method draws on the implicit cardinalisation of  $y_i^*$  (a continuous unobserved variable) of the latent variable model of the OP method to transform the observed variable ( $y$ ), which, in our case, only takes ordered integer values from 1 to 10, into a variable able to take any value on the real line  $(-\infty, +\infty)$  ( $\bar{y}$ ). In order to cardinalise, it is necessary to carry out an increasing monotonic transformation to preserve the order of the response categories of the variables. In line with van Praag & Ferrer-i-Carbonell (2008, pp. 28–34), we use the normal distribution in our study. For this reason, we assume that our four dependent variables  $Y$  will be approximately normally distributed. The transformation is carried out taking into account the relative and absolute frequencies of the  $J$  response categories of the ordered variables, as well as the values of the standard normal distribution function.

Following van Praag & Ferrer-i-Carbonell (2008), we first obtain the  $\mu_j$  values (cut-points in the OP method). These values are associated to the standard normal distribution function from accumulated frequencies of the  $J$  response categories of the ordered categorical variables  $\{\mu_j\}$   $J_j=0$  with  $\mu_0 = -\infty$  and  $\mu_j = +\infty$ . Then, we calculate

the conditional expectation of the unobserved variable for each of the response categories. Therefore, if the continuous unobserved variable of individual  $i$  is  $y_i^*$ , where the observed variable is  $y_i = j$  if  $\mu_0 < y_i^* < \mu_j$  for all  $j = 1, \dots, J$ , in accordance with the normal distribution theory, the conditional expectation of the unobserved variable would be:

$$\bar{y}_i = E(y_i^* | \mu_{j-1} < y_i^* < \mu_j) = \frac{n(\mu_{j-1}) - n(\mu_j)}{N(\mu_j) - N(\mu_{j-1})} \quad (3.3)$$

where  $\bar{y}_i$  is the cardinalisation of the dependent variable,  $n(\bullet)$  stands for the standard normal density function, and  $N(\bullet)$  is the accumulated normal distribution function. Once this transformation has been carried out, we can estimate the coefficient of models (3.1) and (3.2) by using the OLS method on the transformed variable.

Given that non-clinical factors in the  $X$  matrix of model (3.1) are also measured on a scale of 1 to 10, we also applied equation (3.3) in order to cardinalise them.

## 4. Results

### 4.1. Descriptive Statistics

Tables 3.4–3.6 show the descriptive statistics of all the variables used in this study. Primary care is the highest rated health service with a mean score of 7.3 ( $t$  [14697] = 18.89;  $p = 0.0000$ ), whereas hospital care shows the worst rating with a mean score of 6.5 ( $t$  [14167] = - 3.55;  $p = 0.0004$ ). The average satisfaction with the health system as a whole is 6.4 (see Table 3.4).<sup>20</sup> Figure 3.1 shows the distribution of frequencies of the self-reported experience with each of the health services and the health system as a whole of the Spanish NHS. The three services were skewed slightly towards positive values although their distributions were similar to the normal distribution. Regarding primary care, more than 90% of the respondents rated the service with a score of 5 or more and around 50% of the respondents gave a rating of 8, 9, and 10. In specialised and hospital care, the values were more centred, since most of the responses (70%) were

---

<sup>20</sup> In order to check whether there are significant differences in the mean values, we performed a mean-comparison test for paired data.

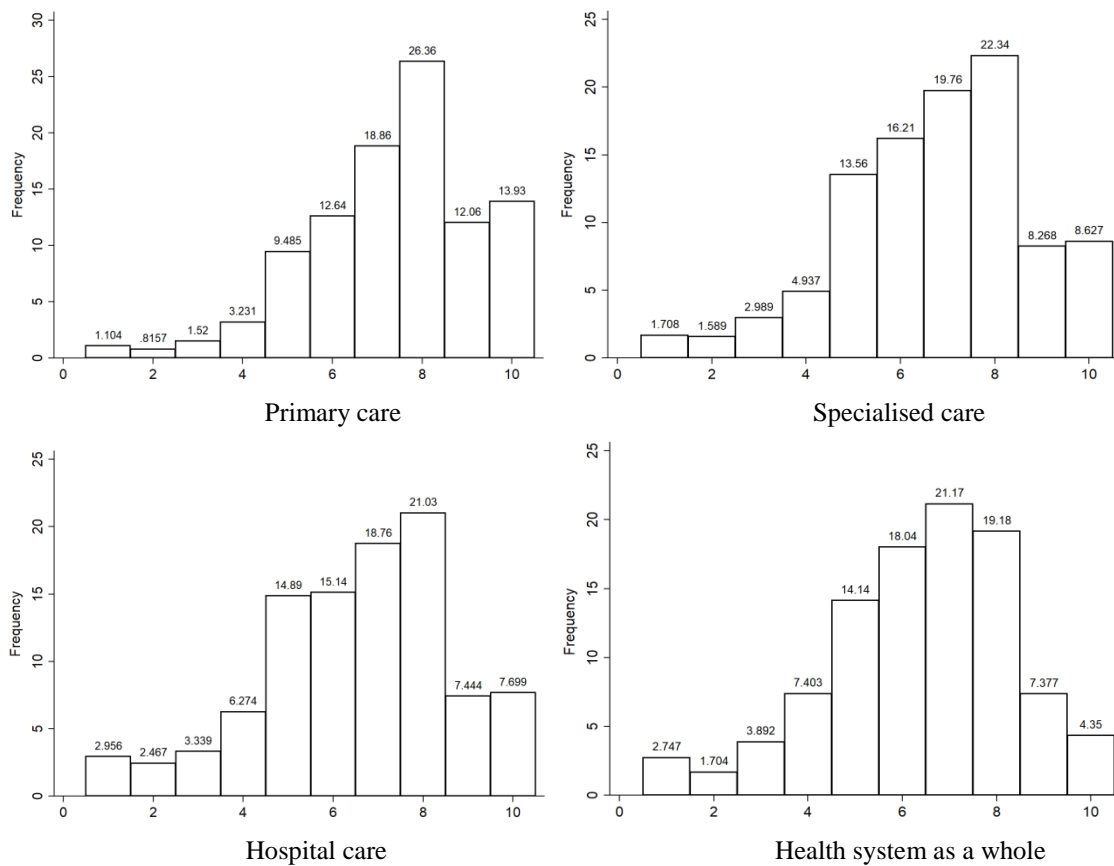
in the central categories 5–8. The distribution of ratings of the health system as a whole displays the most centred values which is the most similar to a normal distribution.

Table 3.4. Descriptive statistics of the overall performance of the Spanish public health services and the Spanish public health system as a whole in 2015

Type of healthcare	N	Mean	SD	Min-Max
Primary	6,252	7.3	1.9	1-10
Specialised	5,854	6.8	2.0	1-10
Hospital	4,702	6.5	2.1	1-10
Health system as a whole	3,931	6.4	2.0	1-10

Note: SD = Standard Deviation; Min = Minimum; Max = Maximum. Adapted from the Spanish Centre for Sociological Research, *Spanish Healthcare Barometer* survey 2015

Figure 3.1. Distribution of the frequencies of the self-reported experience by respondents with the health services and health system as a whole of the Spanish NHS.



Note: Retrieved from the Spanish Healthcare Barometer survey 2015.

Regarding non-clinical factors, confidence and security (primary care), treatment received from health staff (specialised care), and care and attention delivered by nursing staff (hospital care) were the items with which the respondents reported the most

satisfactory experience. Conversely, items related to waiting times were the most poorly rated out of all health services (see Table 3.5).<sup>21</sup>

Although the sample sizes in each health service are slightly different, the socioeconomic characteristics of respondents are almost identical in all the health services and the health system as a whole. By around 30% of respondents is over 60 years, are single, and are chronically ill. The 52% of respondents is women, by around 75% of them has secondary or tertiary education, and self-report a good or very good health. The 80% of the sample resides in urban areas, the 43 % is employed, and the 11% were born abroad. The main difference among the services analysed is the previous experience with the service in last 12 months. Whereas the 72% of the sample had, at least, an experience with the primary care service in the last year, only the 42% and 9% of them attended the specialised and hospital care services, respectively (see Table 3.6).

---

<sup>21</sup> In order to check whether there are significant differences in the mean values between non-clinical factors, we have used a mean-comparison test for paired data.

Table 3.5. Descriptive statistics of non-clinical factors for each health service and the health system as a whole of the Spanish NHS in 2015

<b>Non-clinical factors</b>	<b>Mean</b>	<b>SD</b>
<i>Primary care<sup>a</sup></i>		
Treatment received	7.6	1.7
Time devoted by doctor	7.1	2.0
Confidence and security	7.7	1.9
Knowledge and follow-up health of problems	7.5	2.0
Information received on health problem	7.5	1.9
Advice of doctor	7.4	2.1
Waiting time for appointments	6.6	2.2
Waiting time for diagnostic tests	5.7	2.3
Care by nursing staff	7.4	1.8
<i>Specialised care<sup>b</sup></i>		
Treatment received	7.3	1.8
Time devoted by doctor	6.7	1.9
Confidence and security	7.2	1.9
Information received on health problem	7.2	2.0
Advice of doctor	6.9	2.2
Waiting time for appointments	5.1	2.4
Waiting time for diagnostic tests	5.0	2.3
<i>Hospital care<sup>c</sup></i>		
Waiting time for non-emergency admission	4.9	2.3
Care and attention by medical staff	7.2	1.9
Care and attention by nursing staff	7.3	1.8
Number of people sharing room	5.7	2.3
Information received on health problem	7.2	1.9
Advice of doctor	7.0	2.0

*Note:* SD = Standard deviation. Responses are rated on a scale of 1-10 where 1 is *totally unsatisfactory* and 10 *totally satisfactory*. Adapted from the Spanish Healthcare Barometer survey 2015.

<sup>a</sup> N = 6,252. <sup>b</sup> N = 5,854. <sup>c</sup> N = 4,702.

## Chapter 3. The Overall Self-Reported Experience by People with the Spanish NHS: The Role of the Health System's Responsiveness

Table 3.6. Descriptive statistics of socioeconomic characteristics of respondents, 2015

Variables	Type of health service						Health system as a whole <sup>d</sup>	
	Primary <sup>a</sup>		Specialised <sup>b</sup>		Hospital <sup>c</sup>		Mean	SD
	Mean	SD	Mean	SD	Mean	SD		
Aged60	0.28	0.45	0.28	0.45	0.28	0.45	0.26	0.44
Female	0.52	0.50	0.53	0.50	0.52	0.50	0.52	0.50
Higher education	0.75	0.43	0.75	0.43	0.76	0.43	0.77	0.42
Single	0.31	0.46	0.31	0.46	0.30	0.46	0.31	0.46
Urban	0.79	0.40	0.80	0.40	0.79	0.40	0.80	0.40
Born abroad	0.11	0.31	0.10	0.30	0.10	0.30	0.09	0.29
Employed	0.43	0.49	0.43	0.50	0.44	0.50	0.44	0.50
Good health	0.74	0.44	0.73	0.45	0.73	0.44	0.74	0.44
Chronically ill	0.32	0.47	0.33	0.47	0.33	0.47	0.33	0.47
Experience with								
Primary care	0.72	0.45	-	-	-	-	-	-
Specialised care	-	-	0.42	0.49	-	-	-	-
Hospital care	-	-	-	-	0.09	0.29	-	-
Health system	-	-	-	-	-	-	0.75	0.43

*Note:* SD = Standard deviation. Adapted from the Spanish Centre for Sociological Research, *Spanish Healthcare Barometer* survey 2015.

<sup>a</sup> N = 6,252. <sup>b</sup> N = 5,854. <sup>c</sup> N = 4,702. <sup>d</sup> N = 3,931.

### 4.2. Health Services Model

Table 3.7 shows the results of the estimations with the regression results for each of the three Spanish public health services analysed: primary, specialised, and hospital care. After checking the corresponding tests, we did not detect problems of heteroscedasticity (corrected by the robust standard errors after using weights), multicollinearity (tested using the variance inflation factor), or omitted variables (Ramsey test) (see Appendix 3.1).

The results in Table 3.7 indicate that the coefficients of all the non-clinical factors were positive and statistically significant in all health services, with the exception of advice of doctor in specialised and hospital care, and knowledge and follow-up of health problems in primary care, which were not significant. This indicates that the more satisfactory the self-reported experience with non-clinical factors, the more satisfactory the experience with the health services as a whole.

More specifically, when focusing on the quantitative importance of the correlations (absolute value of the coefficients), not all of the correlations are found to have the same

effect on self-reported experience with the health service. In primary care, for instance, we find that both the treatment received from health staff (treatment received) and confidence and security transmitted by the doctor (confidence and security) show the highest correlation, thus indicating that these factors contribute most to people reporting a more satisfactory experience with that health service. The Wald test of equality of the estimated parameters reveals that both coefficients were statistically equal ( $F [1, 6214] = 1.30; p = 0.3525$ ), but different from the third one ( $F [1, 6214] = 4.93; p = 0.0264$ ). From a statistical point of view, four non-clinical factors in specialised care have a similar quantitative importance on self-reported experience with the service as a whole, namely time devoted by the doctor, treatment received, confidence and security, and waiting time for diagnostic tests (Wald joint test of equality of estimated parameters:  $F [2, 5818] = 0.89, p = 0.4087$ ). Finally, in hospital care, three non-clinical factors, waiting time for non-emergency admission, information received on health problems, and care and attention by medical staff show the highest association for self-reported experience with the service in similar quantitative terms (Wald joint test of equality of estimated parameters:  $F [2, 4667] = 0.30, p = 0.7404$ ).

Regarding the socioeconomic variables, for the sake of simplicity, in Table 3.7 we omit the coefficients of the socioeconomic variables, which are not significant for any of the three health services. This is the case of age, marital status, employment status, chronic illness, and experience. Our findings indicate that some individuals' socioeconomic characteristics are correlated with self-reported experience of the health service. For example, gender was statistically significant only for primary care. Specifically, females report a more satisfactory experience with primary care than males. Regarding educational level, people with a higher education report a worse overall experience with primary and hospital care services. Respondents living in urban areas (towns with more than 10,000 inhabitants) tend to report a better overall experience in primary care. People born outside of Spain assess their overall experience with the specialised and hospital care services better than those born in Spain. Finally, people with self-reported good health indicate a better experience with primary care.

### Chapter 3. The Overall Self-Reported Experience by People with the Spanish NHS: The Role of the Health System's Responsiveness

Table 3.7. Determinants of overall self-reported experience with the Spanish public health services in 2015

	Health Service		
	Primary	Specialised	Hospital
<i>Non-clinical factors</i>			
Advice of doctor	0.054 * (0.022)	0.031 (0.023)	0.042 (0.025)
Confidence and security	0.172 *** (0.027)	0.121 *** (0.030)	-
Time devoted by doctor	0.095 *** (0.021)	0.164 *** (0.024)	-
Knowledge and follow-up of health problems	-0.012 (0.026)	-	-
Information received on health problem	0.128 *** (0.029)	0.085 ** (0.029)	0.175 *** (0.028)
Treatment received	0.215 *** (0.021)	0.127 *** (0.026)	-
Care by nursing staff	0.063 *** (0.019)	-	-
Care and attention by medical staff	-	-	0.152 *** (0.030)
Care and attention by nursing staff	-	-	0.124 *** (0.028)
Waiting time for appointments	0.084 *** (0.018)	0.103 *** (0.025)	-
Waiting time for diagnostic tests	0.039 * (0.016)	0.116 *** (0.025)	-
Waiting time for non-emergency admission	-	-	0.181 *** (0.017)
Number of people sharing room	-	-	0.001 *** (0.017)
<i>Socioeconomic variables</i>			
Female	0.039 * (0.019)	-0.021 (0.022)	-0.011 (0.025)
Higher education	-0.093 *** (0.028)	-0.058 (0.033)	-0.081 * (0.040)
Urban	0.074 ** (0.025)	0.035 (0.028)	0.016 (0.030)
Born abroad	0.026 (0.033)	0.134 *** (0.039)	0.097 * (0.046)
Good health	0.056 * (0.026)	0.020 (0.030)	0.036 (0.034)
Aged 60	Yes	Yes	Yes
Single	Yes	Yes	Yes
Employed	Yes	Yes	Yes
Chronically ill	Yes	Yes	Yes
Experience with public health services	Yes	Yes	Yes
<i>Regional variables</i> <sup>a</sup>	Yes	Yes	Yes
Constant	-0.121 * (0.053)	-0.112 (0.058)	-0.184 ** (0.066)
Observations	6,252	5,854	4,702
R <sup>2</sup>	0.537	0.422	0.431

*Note:* Probit-adapted ordinary least squares regression. Entries show parameter estimates with robust standard errors in parenthesis. 'Yes' indicates that the variables have been included in the model, but their coefficients were not statistically significant in any of the regressions. <sup>a</sup>Some coefficients of the region dummies (16 dummies) were significant but have not been included for the sake of brevity.

\*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05.



### 4.3. Health System Model

Table 3.8 presents the results of the estimations for the health system as a whole of the Spanish NHS. After checking with the corresponding tests, problems of heteroscedasticity, multicollinearity and omitted variables were not found (see Appendix 3.1). Given that the *PA-citizens communication* domain is not measured on the same scale as the rest of domains, we cannot identify which the most correlated responsiveness domains with the overall self-reported satisfaction with the health system as a whole are. For that reason, we calculate standardised coefficients in order to homogenise and identify them. Table 3.9 shows the standardised coefficients of the responsiveness domains which are statistically significant in Table 3.8.

All the responsiveness domains show a positive association with the overall self-reported satisfaction with the Spanish health system as a whole, except for *Quality of basic amenities* domain, which is not statistically significant. The non-clinical factors related to the *Prompt attention* and *Dignity* domains are the most influential factors so that people report a higher overall satisfaction with the health system as a whole. It is also worth noting that communication between the public administration and citizens is statistically significant. This means that if individuals think that the information provided by the Spanish public administration on several items is satisfactory, they will also report a higher level of satisfaction with the health system as a whole.

With regard to the socioeconomic characteristics of the respondents, for the sake of simplicity, we omit the coefficients of the socioeconomic variables which are not significant. People aged over 60 reports a higher level of satisfaction with the Spanish health system as a whole. Living in a municipality with over 10,000 inhabitants (Urban), being born outside Spain (Born abroad) and self-reported good or very good health (Good health) is correlated with higher reported satisfaction with the health system as a whole. Lastly, we find that people who have used any public service of the Spanish healthcare system at least once in the last 12 months report lower levels of satisfaction with the health system as a whole.

### Chapter 3. The Overall Self-Reported Experience by People with the Spanish NHS: The Role of the Health System's Responsiveness

Table 3.8. Determinants of overall self-reported experience by citizens with the Spanish public health system as a whole in 2015

	<b>Health system as a whole</b>
<i>Responsiveness domains</i>	
Doctor-Patient Communication	0.419* (0.177)
PA-Citizens Communication	0.179*** (0.032)
Dignity	1.163*** (0.174)
Prompt attention	1.268*** (0.120)
Quality of basic amenities	0.017 (0.020)
<i>Socioeconomic variables</i>	
Aged60	0.213*** (0.048)
Urban	0.104** (0.038)
Born abroad	0.211*** (0.058)
Good health	0.108** (0.040)
Experience with public health system	-0.133*** (0.033)
Female	Yes
Higher education	Yes
Single	Yes
Employed	Yes
Chronically ill	Yes
Region	Yes
Constant	-1.922*** (0.110)
Observations	3,931
R <sup>2</sup>	0.3236

*Note:* PA = public administration. POLS regression. Robust Standard Errors in parenthesis. 'Yes' indicates that the variables have been included in the regressions but their coefficients are not statistically significant.

\*\*\* p < .001; \*\* p < .01; \* p < .05

Table 3.9. Standardised coefficients for responsiveness domains in the model of Spanish public health system as a whole

<b>Responsiveness domains</b>	<b>Standardised coefficients</b>
Doctor-Patient Communication	0.073*
PA-Citizens Communication	0.087***
Dignity	0.201***
Prompt attention	0.260***

*Note:* PA = Public Administration. Robust standard errors in parenthesis.

\*\*\* p < .001; \*\* p < .01; \* p < .05

## 5. Discussion

Our findings show that individuals' interaction with non-clinical factors is significantly associated with a satisfactory self-reported experience both with the Spanish health system as a whole and its main health services. These results suggest that health policy-makers in Spain should not only focus on the medical or technical aspects of healthcare, but also on non-clinical factors to ensure that people have a more satisfactory experience with the health services. This is a key finding because, as the literature has emphasised, improving responsiveness has positive effects on people's health.

In the health services context, the results of our study indicate that not all non-clinical factors correlate in the same manner with the self-reported experience with the health services. This seems to be in line with the previous literature. For instance, Schoenfelder et al. (2011) showed that the treatment received only from the nursing staff in the hospital care of Dresden (Germany) was more important than those aspects related to the quality of accommodation. On the contrary, Fenny et al. (2014) found that, out of nine non-clinical factors analysed, the health staff's friendliness with patients was the most relevant for the primary care service in Ghana. This result suggests that not all the non-clinical factors have the same relevance for citizens but the importance given by people depends on the health services where they attend.

For each health service of the Spanish NHS, we identify where the scarce public resources could be targeted to ensure people have a more satisfactory experience with the analysed health service. More specifically, based on our findings in primary care, it is important to improve the treatment that health providers provide patients, and the confidence and security transmitted by the health staff. In specialised care, our results suggest that it is necessary to increase the time doctors devote to each patient, enhance

the treatment received, improve the confidence and security transmitted by the health staff, and reduce the waiting times for diagnostic tests. It is worth highlighting that there is more room for improvement in waiting times for diagnostic tests and time devoted by doctors, since they are the items with which people are least satisfied, as indicated by the scores for these two factors (5 and 6.7, respectively). Finally, in hospital care, it would be convenient to reduce the waiting times for non-emergency admission, provide patients with better information about their health problems, and improve the care and attention delivered by medical staff. If we look more closely at the results for hospital care, despite the importance of waiting times for non-emergency admissions as a driver of a more satisfactory self-reported experience, our findings show that this service received the lowest rating for this non-clinical factor, with an average score of 4.9 out of 10. According to our results, this low score in waiting times could explain, at least partially, why hospital care in Spain is the most poorly rated health service by people (an average score of 6.5).

We also observe that non-clinical factors related to treatment received and waiting times appear as the most relevant factors in all the health services. This fact is confirmed when we analyse the influence of non-clinical factors on the overall self-reported satisfaction with the health system as a whole. We find that all the responsiveness domains are statistically significant with the exception of *Quality of basic amenities*. However, the *Prompt attention* and *Dignity* domains have strongly the highest influence. This means that guaranteeing that people have a good experience or perception with non-clinical factors related to these two domains is essential to achieve that they report a better overall satisfaction with the health system as a whole. Although the non-clinical factors related to the *Dignity* domain receive the highest average rating (7.6 in primary care, 7.3 in specialised care, and 7.2 and 7.3 in hospital care), those related to the *Prompt attention* domain are the lowest rated (6.6 and 5.7 in primary care, 5.1 and 5.0 in specialised care, and 4.9 in hospital care), so there is room for improvement in this aspect. The relevance of these domains has been pointed out in the literature. For instance, the Multi-Country Survey 2000-2001 developed by WHO shows that, on average, by around 46% of respondents in developed countries chose prompt attention as one of the most important aspects to take into account when assessing a health system (Valentine et al., 2008). In addition, most studies highlight that delays in care delivery are one of the main causes of dissatisfaction among patients

(Bjertnaes et al., 2012; Kamra et al., 2016), particularly in emergency services (Morgan et al., 2015). In contrast, Tinelli et al. (2015) found that patients consider waiting times to be a less important feature when choosing primary care services in Germany, England, and Slovenia. Likewise, according to the literature review carried out by Crow et al. (2002), the relationship between patient and health staff (including the information received) is the factor that shows the strongest correlation between patient satisfaction and health services. Courtesy, empathy and friendliness toward the patient are significantly associated with patient satisfaction (Kamra et al., 2016; Schoenfelder et al., 2011; Senic & Marinkovic, 2013).

It is worth mentioning that the communication between PA and citizens seems to be even more influential on the overall satisfaction with the health system as a whole than the communication between doctors and patients. This finding supports the suggestions of other authors who highlight the main role played by the information transmitted by health authorities so that people report a higher satisfactory experience or perception with the health system (Bleich et al., 2009; Valentine, De Silva, et al., 2003).

These results indicate that in the Spanish case, the key factors of experience are related to respect for people, which is not so dependent on economic resources (De Silva, 2000; De Silva & Valentine, 2000; WHO, 2000b). For instance, ensuring respectful treatment by the health staff only requires developing certain personal skills that could be fostered through better training in higher education programmes (Fiorentini et al., 2018). Conversely, improving waiting times or increasing the time devoted to each patient could be more resource demanding since more health staff or amenities would be needed. De Silva & Valentine (2000) note that the access to emergency care, and a wide spread of primary health care services could strengthen the prompt attention process. On the contrary, shortage of trained health care personnel and geographic inaccessibility may be the main obstacles to achieve a high score on this element. To sum up, policy-makers should consider the type of financing, the way in which the resources are combined, and the development of strategies for generating resources that could contribute to ensuring a better attainment of crucial non-clinical factors (Murray & Evans, 2003).

With regard to the influence of socioeconomic variables, in general, we observe uneven effects. For instance, people who were born abroad seem to report more overall satisfaction with all the health services (except for primary care) than people from

Spain. Muntlin et al. (2008) highlight the role played by the expectations in this context which may be explained by the 'happy migrant effect', that is, people from other countries tend to minimise the negative effect of their care and are usually more satisfied with the care they receive than nationals (Garrett et al., 2008). Likewise, people with higher level of education report lower level of satisfaction, or a worse experience or perception with the primary and hospital care service which is in line with other studies (Bleich et al., 2009; Fiorentini et al., 2015; Muntlin et al., 2008). Once again, Muntlin et al. (2008) suggest that expectations could be explaining this difference with more educated people being more demanding.

Unlike other authors point out, the results of this study do not indicate a conclusive effect for the age (Bleich et al., 2009; Serrano-del-Rosal & Loriente-Arín, 2008; Sofaer & Firminger, 2005; Vogus & McClelland, 2016), gender (Ali et al., 2015; Fiorentini et al., 2015; Quintana et al., 2006; Sitzia & Wood, 1997), marital status (Naidu, 2009; Park et al., 2016), or occupational status (Fiorentini et al., 2015). On the contrary, the non-significant effect found for the chronic illness is shared by other papers (Ali et al., 2015; Bolibar, 1999).

## **6. Conclusions**

In this chapter, we have analysed the influence of the non-clinical factors on the self-reported experience of people with the Spanish healthcare system as a whole and its main health services (primary, specialised and hospital care) by using data of the SHB survey for 2015, and applying the POLS method to estimate the coefficients of the proposed models. The findings show the relevance to take into account the non-clinical factors (mainly those related to *Prompt attention* and *Dignity* domains of responsiveness) so that people report a more satisfactory overall experience or perception with both the health system as a whole and the health services.

Regarding the limitations of our study, it is worth noting that, due to the lack of data, we have not been able to include other non-clinical factors that could be associated with self-reported experience, nor have we been able to analyse the same factors in all health services. Furthermore, due to cultural idiosyncrasies as well as differences in the conception of the welfare state across populations, it would not be appropriate to extrapolate these results to other countries. For this reason, further studies that examine

the influence of non-clinical factors on the overall experience in different settings as well as from a dynamic perspective over time are needed. Additionally, the differences in the overall self-reported experiences found between individuals by level of education, place of birth or health status could be caused by the reporting heterogeneity (Rice et al., 2010b; Robone, Rice, et al., 2011; Sirven et al., 2012). This means that it is not possible to know whether such differences are caused because of an actually different experience or because of a systematically different interpretation of the meaning of the available response categories, namely, reporting bias (King et al., 2003). Some authors have shown that individuals from the same country assess differently identical experiences and, moreover, the socioeconomic differences explain part of such differences (Rice et al., 2012). For instance, Rice et al. (2008) find that individuals from Mexico with a higher level of education are more likely to select the *very good* category for a certain fixed experience with the *Dignity* domain than individuals from the same country with a lower level of education. The use of anchoring vignettes and the hierarchical ordered probit model is the procedure applied by some author to address the issue of reporting heterogeneity (Puentes-Rosas et al., 2005; Rice et al., 2012; Sirven et al., 2012).<sup>22</sup>

---

<sup>22</sup> For more details about how vignettes can be used to address the issue of reporting heterogeneity and enhance comparability across individuals see Bago D'Uva et al. (2008).

### Appendix 3.1. Multicollinearity and Omitted Variables Tests

Table A3.1.1. Multicollinearity test for the regressions of the health services model by health service

	Primary		Specialised		Hospital	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
<i>Non-clinical factors</i>						
Advice of doctor	3.07	0.33	2.84	0.35	2.81	0.36
Confidence and security	4.64	0.22	4.33	0.23	-	-
Time devoted by doctor	3.01	0.33	2.98	0.34	-	-
Knowledge and follow-up of health problems	4.71	0.21	-	-	-	-
Information received on health problem	5.32	0.19	4.42	0.23	3.60	0.28
Treatment received	3.01	0.33	3.59	0.28	-	-
Care by nursing staff	2.72	0.37	-	-	-	-
Care and attention by medical staff	-	-	-	-	4.73	0.21
Care and attention by nursing staff	-	-	-	-	4.14	0.24
Waiting time for appointments	2.28	0.44	3.00	0.33	-	-
Waiting time for diagnostic tests	2.09	0.48	3.02	0.33	-	-
Waiting time for non-emergency admission	-	-	-	-	1.44	0.69
Number of people sharing room	-	-	-	-	1.64	0.61
<i>Socioeconomic variables</i>						
Female	1.04	0.96	1.03	0.97	1.03	0.97
Higher education	1.60	0.62	1.64	0.61	1.64	0.61
Urban	1.14	0.87	1.11	0.90	1.10	0.91
Born abroad	1.08	0.93	1.08	0.93	1.08	0.93
Good health	1.37	0.73	1.38	0.73	1.38	0.73
Aged 60	1.94	0.52	1.98	0.51	1.99	0.50
Single	1.18	0.85	1.18	0.85	1.17	0.85
Employed	1.34	0.75	1.34	0.75	1.34	0.74
Chronically ill	1.36	0.74	1.38	0.72	1.37	0.73
Experience with public health services	1.09	0.92	1.14	0.88	1.05	0.95
<b>Mean VIF</b>	1.77	-	1.69	-	1.56	-

Note: VIF = Variance Inflation Factor.



Table A3.1.2. Multicollinearity test for the regressions of the health system model

	VIF	1/VIF
<i>Responsiveness domains</i>		
Doctor-Patient Communication	4.18	0.24
PA-Citizens Communication	1.09	0.92
Dignity	3.90	0.26
Prompt attention	2.20	0.45
Quality of basic amenities	1.56	0.64
<i>Socioeconomic variables</i>		
Aged60	1.94	0.52
Urban	1.11	0.90
Born abroad	1.08	0.92
Good health	1.33	0.75
Experience with public health system	1.11	0.90
Female	1.04	0.96
Higher education	1.61	0.62
Single	1.17	0.86
Employed	1.33	0.75
Chronically ill	1.37	0.73
	<b>Mean VIF</b>	1.43
		-

Note: VIF = Variance Inflation Factor.

Table A3.1.3. Omitted variables test for the regressions of the health services and system models

	RESET test	Prob>F
<i>Health service model</i>		
Primary care	F(3, 6211) = 2.04	0.1065
Specialised care	F(3, 5815) = 0.70	0.5545
Hospital care	F(3, 4664) = 1.29	0.2745
<i>Health system model</i>	F(3, 3894) = 0.09	0.9657

Note: H<sub>0</sub>: model has no omitted variables. RESET = Ramsey Regression Equation Specification Error Test.

# CHAPTER 4

## *The Effect of the Freedom of Choice Policies on Health Systems' Responsiveness: The Case of the Single Health Area in the Community of Madrid*

\* The results of this chapter have been presented in the *VII Taller de Investigación en Evaluación de Políticas y Servicios de Salud* in 2018, in the *XXXVIII Jornadas de Economía de la salud* in 2018, and in the *XXXIX Jornadas de Economía de la Salud* in 2019 organised by the *Health Economics Association* (AES), as well as in the *XII European Conference on Health Economics* organised by the *European Health Economics Association* (EuHEA). Likewise, a part of the results has been published in the working paper *The Effect of Freedom of Choice on Health System Responsiveness. Evidence from Spain* in the *Health, Econometrics and Data Group (HEDG) Working Papers* 19/21 of the University of York (UK) (see Fernández-Pérez et al., 2019).

<https://www.york.ac.uk/media/economics/documents/hedg/workingpapers/1921.pdf>



## 1. Introduction

In the previous chapter, we found that the non-clinical factors are a key element to guarantee a better overall experience of people with both the Spanish health system as a whole and its main health services. Accordingly, improving the response of the health system with aspects mainly related to the *Prompt attention* and *Dignity* domains should be a priority goal of health authorities if the overall performance of the health system pretends to be enhanced. As some authors have stated, the public policies are one of the main levers of countries to improve health systems' responsiveness (Murray & Evans, 2003; Murray & Frenk, 2000). In this chapter, we aim at studying whether health policies implemented by the healthcare authorities influence health systems' responsiveness. Specifically, we focus on the influence of the policies of freedom of choice of health provider by patients (freedom of choice policies).

The freedom of choice policies are increasingly common in Europe as a means for improving the quality and efficiency of health systems. During the last two decades, countries with a National Health System such as the UK, Sweden, Finland, Norway, Denmark or Portugal have gradually minimised or removed those administrative barriers that prevented a comprehensive choice of health provider by patients within the whole country or within some of the regions of the country (Longo, Siciliani, Moscelli, et al., 2017; Miani et al., 2013; Simões et al., 2017). These reforms not only develop a basic patients' right included in the main health laws in most of countries (Barros et al., 2015), but also intend to simulate the US healthcare model (Gaynor & Town, 2012; Propper, 2018) by generating competence mechanisms between health providers allowing to improve their performance.

Spain has been other country where the freedom of choice policies have been implemented. In November 2009, the Spanish regional government of the Community of Madrid enacted a law extending the patients' right to choose health providers for primary and specialised care. A Single Area Healthcare system was implemented, enabling citizens to choose their GP or medical specialist from those practicing throughout the region, and not just from those in their corresponding referral health area. In this chapter, we analyse the impact of these reform on the responsiveness of the primary and specialised care services of the Community of Madrid, services where the policy took place. Specifically, we study how extending the freedom of choice of health

care provider to this region has affected the patients' experience with the *Dignity*, *Communication* and *Prompt attention* domains of responsiveness.

This analysis is based on cross-sectional microdata obtained from the Spanish Healthcare Barometer survey for the period 2002-2016. The Synthetic Control Method is used to evaluate the effects of the freedom of choice reform on health system responsiveness in the region of Madrid (Abadie et al., 2010, 2015; Abadie & Gardeazabal, 2003). The SC method is an impact assessment method increasingly employed in policy evaluation (Gaughan et al., 2019) which builds on Difference in Difference estimation, but uses a data driven approach to selecting the control group comparisons to get causal effects.

To our knowledge, this is the first analyse providing empirical evidence about the effects of the freedom of choice policies on some of the responsiveness domains proposed by the WHO to evaluate health care systems. While some previous studies explore the impact of competition reforms on quality from the patients' point of view, these studies focus on broader measures of patient satisfaction as opposed to responsiveness (Gravelle et al., 2019). Unlike much of the previous literature, this study does not restrict attention to freedom of choice for hospital providers, but analyses and compares the effects of the choice reform in both primary and secondary health care (Gravelle et al., 2019; Propper, 2012). Due to the asymmetrical implementation of the reform across sectors, and specifically, the different incentives faced by providers of primary and secondary care in the region of Madrid, this analysis provides a unique setting to compare alternative providers' effects (for-profit versus non-profit) in these two distinct areas (Siciliani et al., 2017). In addition, it contributes to the scant empirical evidence on the effects of freedom of choice in the primary sector by drawing on a reform where no financial incentives exist for GPs to attract additional patients (Propper, 2012, 2018). Finally, we measure the effect of the policy on one of the domains (*Prompt attention*) by using objective and subjective indicators of waiting times and provide further support to previous literature showing a strong correlation between both types of measures.

The chapter is structured as follows. In section 2, we review the freedom of choice policies in the literature and describe the reform implemented in the Community of Madrid. Section 3 then describes the empirical strategy employed, detailing the dataset, the variables and the method applied. In section 4, we present the main results of our

analysis. These are discussed in section 5, after which the main conclusions drawn are summarised in section 6.

## **2. Background**

### **2.1. The Freedom of Choice Policies in the Health Sector**

Freedom of choice of healthcare provider has received particular attention in recent years (Dixon, Robertson, & Bal, 2010; Gaynor et al., 2016). Public policies aimed at guaranteeing citizens' right to freely choose their healthcare provider have sought to remove any administrative barrier which might prevent its exercise (Miani et al., 2013). For instance, between 2006 and 2008, the British government extended patients' right to freely choose their specialist doctor. In the new system, after referral by the GP, the UK citizens are entitled to choose from among the specialists available at any hospital (public or private) in the country (Cooper et al., 2011; Longo, Siciliani, Gravelle, et al., 2017). Similarly, in 2016, a new law allowed users of the Portuguese NHS to freely choose any hospital within or outside their referral area for outpatient consultations (Simões et al., 2017). An extended freedom of choice has also been facilitated in Norway, Finland, Denmark and Sweden, where similar reforms have been implemented (Dietrichson et al., 2020; Miani et al., 2013; Vrangbæk et al., 2007).

Policymakers promoting the freedom of choice of healthcare provider cite goals such as improving the responsiveness and quality of the health system, increasing efficiency and even achieving more favourable health outcomes (Gutacker et al., 2016; Siciliani et al., 2017). It is argued that when patients can freely choose any doctor within their region or country of residence, providers will become more responsive to patients' demands. Accordingly, their performance will be improved, in order to maintain or increase users' satisfaction, and demand for the provider's services will be supported. However, extending the freedom of choice may not directly imply competition between health providers (P. P. Barros et al., 2016). Other parallel actions are 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 (Beukers et al., 2014; Cooper et al., 2011; Coulter, 2010; Miani et al., 2013; Ringard & Hagen, 2011).

Empirical evidence on the effects of freedom of choice reflects mixed results. In an analysis of the 2002 London Patient Choice Project, Dawson et al. (2007) found that greater freedom of choice of hospital care led to a slight reduction in average waiting times at London hospitals. A more pronounced reduction in waiting times was found by Ringard & Hagen (2011) after the 2001 entry into force of the Patients' Rights Act in Norway. However, Simões et al. (2017), in a descriptive analysis, reported opposite results when considering a similar reform in Portugal. Regarding hospital quality, Gaynor et al. (2016) and Cooper et al. (2011) reported that reforms extending the freedom of choice of hospital within the British NHS in 2006 improved the acute treatment provided for myocardial infarction and decreased mortality rates following heart bypass, respectively. However, Moscelli et al. (2016) found that the UK freedom of choice reform worsened health care quality in terms of emergency readmissions after hip and knee replacements. The literature in this field does not, a priori, allow us to draw firm conclusions regarding the freedom of choice policies effects on waiting times and hospital quality.

## **2.2. The Single Healthcare Area in the Community of Madrid**

In Spain, the freedom of choice of health provider by citizens in the public health system is a right guaranteed by nationwide laws. In order to do it effective, the Ministry of Health enacted two Royal Decrees in 1993 and 1996 which regulate that right in the whole territory for primary and specialised care services, respectively (BOE, 1993, 1996). For primary care, this legislation allowed patients to freely choose among GPs and paediatricians of any health centre located within their referral Health Area. For specialised care, the law guaranteed the freedom of choice among specialists who delivered a service in outpatient clinic or specialities centres of any hospital within their referral Health Area.<sup>23</sup>

One of the main features of this regulation is that it did not introduce a comprehensive freedom of choice of health provider in all the Spain, namely, freedom to choose any health provider of any part of country. The central government imposed a general framework and set the Health Area as main administrative barrier for a comprehensive freedom of choice within each region. Likewise, it devolved the ability to implement reforms to the Autonomous Communities (regions) in order to extend the

---

<sup>23</sup> See chapter 2 for more details about the organisation of the Spanish NHS.

patients' right within their territories. Since the entry in force of the nationwide legislation, 10 out of 17 Spanish regions have enacted regional laws either for primary or specialised care or simultaneously for both health services. Extremadura (2006) and Navarre (1994) are the only Spanish regions to approve legislation only for primary care (BON, 1994; DOE, 2006), whereas Aragon (2007) and Basque Country (1990) have laws regulating only the specialised care service (BOA, 2007; BOPV, 1990). Andalusia, Castilla-La Mancha, Community of Madrid, Galicia, La Rioja, and Valencian Community have implemented regional normative for both health services (BOCM, 2009, 2010; BOE, 2014; BOJA, 1997, 1999; BOR, 2016; DOCV, 2015; DOG, 2015). On the contrary, the remaining regions (Asturias, Balearic Islands, Canary Islands, Cantabria, Castile and León, Catalonia, and Region of Murcia) are still being regulated by the national regulation, so no significant changes in the freedom of choice of health provider have been deployed in these regions.

Most of regional legislation enacted is quite limited, since they do not modify the main barriers for a comprehensive freedom of choice within regions or introduce other parallel mechanisms to boost it. A special case is that of the Community of Madrid. In 2009, a regional health law was passed to develop the national legislation regarding patients' right to freely choose health providers in primary and specialised care. The new regulation replaced the former eleven Health Areas of the region –the main barrier for a full choice within the region– with a new Single Health Area. Accordingly, since 2009, citizens of the Community of Madrid have been able to freely choose from any GP, paediatrician or nurse available in the primary care service, and from any specialist at any hospital in the whole region, with respect to specialised health care, instead of choosing only among those within their referral Healthcare Area. Madrid is the only region in Spain to have abolished the former Health Areas, thus overcoming a major normative barrier to achieving freedom of choice for patients. The new structure aims at developing the right of citizens to take part in decision making related to their health, and providing health authorities with valuable information. However, the main underpinning objective was to improve the healthcare services quality (BOCM, 2009).

Additionally, the health authorities of the Community of Madrid have gradually adopted measures to facilitate patient choice. In primary care, the patients need only communicate their choice of doctor to the health centre where the GP in question

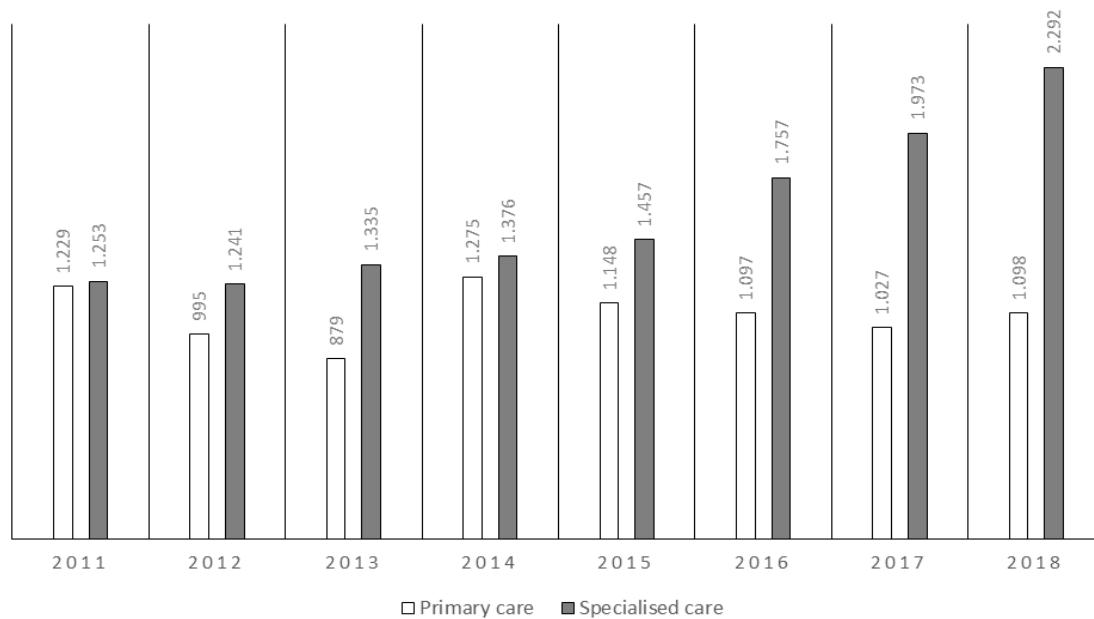


delivers the service. In specialised care, after being referred by their GP, patients are given an appointment request receipt with which they can choose the specialist preferred without any further action required by the GP. The appointment can be obtained by internet, mobile app, digital facilities 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. In addition, since 2014 the health authorities have been publishing indicators of the performance and speciality-specific waiting lists for hospitals in the region, in order to facilitate patients' decision making and thus ensure the effective exercise of the right to choose freely.<sup>24</sup> In 2011, the citizens of the Community of Madrid made 1,253 changes of specialist doctor per 100,000 consultations. The most recent data show that, in 2018, the number of changes increased by around 83% up to the 2,292 changes (SERMAS, 2020). On the contrary, in primary care, the trend remained more stable during the period 2011-2018 (Figure 4.1).

---

<sup>24</sup> For more information about the system of choice in the Community of Madrid see <http://www.comunidad.madrid/servicios/salud/libre-eleccion-sanitaria>

Figure 4.1. Number of times that citizens exercise the freedom of choice per 100,000 consultations in primary and specialised care in the Community of Madrid (2011-2018).



*Notes:* For primary care, the amounts include number of changes of GP, nursing and paediatric care, either in the same or in another health centre. Information retrieved from the Annual reports of the Madrid Health Service (SERMAS).

### 3. Empirical Strategy

#### 3.1. Dataset and Variables of Interest

For this chapter, we use the cross-sectional microdata obtained from the Spanish Healthcare Barometer survey for the period 2002-2016. We focus exclusively on respondents who reported experience with the public health system during the last twelve months.<sup>25</sup> As the Spanish healthcare system is mainly publicly funded, a high proportion of respondents recognised having made use of it during this period.<sup>26</sup> Our analysis is based on pooled data with a total sample size of 109,601 unique respondents.

In addition to data of the SHB survey, other regional-wide level data were collected from the external sources. The GDP per capita and the percentage of population aged over 65 years by region are retrieved from the National Statistics Institute of Spain,

<sup>25</sup> We use this approach in order to standardise the type of user analysed since, for some of our key variables, we can only take into account respondents who report having used public health services.

<sup>26</sup> From 2002 to 2016, in primary care, around 70% of the respondents had used the service, and of these, around 95% used the public service. In specialised care, around 40% of the respondents had used the service and, of these, approximately 82% used the public service.

whereas data related to the size of health services (number of general practitioners, nurses, and public health and non-health staff per 100,000 inhabitants) and health expenditures (public expenditure per capita both in primary and specialised care) are obtained from the Ministry of Health, Social Services and Equality (see Table 4.3).

We measure the impact of the reform on the non-clinical factors contained in the SHB survey (see Appendix 2.1 in chapter 2). We select those factors which are related to the WHO responsiveness domains, and for which we have information for the greatest number of years as possible. For primary care, we selected six non-clinical factors which are related to three out of the eight WHO responsiveness domains: Communication (2 factors), Dignity (2 factors) and Prompt attention (2 factors). For specialised care, we included five non-clinical factors which are stood for the same three domains. Tables 4.1 and 4.2 show the correspondence between the WHO responsiveness domains and the items included in the SHB questionnaire for primary and specialised care, respectively. As we saw in chapter 2, respondents are asked to rate the level of responsiveness of each health service, for each non-clinical factor, on a scale from 1 to 10, where 1 means “totally unsatisfactory” and 10 “totally satisfactory”. We applied Pearson's correlation coefficient to determine whether the items were properly grouped in their corresponding domains. This analysis revealed a strong and statistically significant association in every case. In a later stage of the analysis, the non-clinical factors were merged with the corresponding domains, following the procedure described by Fiorentini et al. (2015), and Fiorentini et al. (2018) (see Appendix 4.1).

## Chapter 4. The Effect of the Freedom of Choice Policies on the Health Systems' Responsiveness: The Case of the Single Health Area in the Community of Madrid

Table 4.1. Primary 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>Communication</b>	- The information received about your health problem	2002-2016
Pearson's Correlation: $r(57,752) = 0.74, p < 0.001$	- 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
Pearson's Correlation: $r(9,257) = 0.68, p < 0.001$	- The attention paid by the nurse	2015-2016
<b>Prompt attention</b>	- The waiting time from when you made the appointment until you were seen by the doctor	2004-2016
Pearson's Correlation: $r(40,913) = 0.63, p < 0.001$	- The waiting time until diagnostic tests were performed	2007-2016

*Note:* The time period column indicates the years when the information of the non-clinical factor is available 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, De Silva, et al. (2003) and SHB survey.

Table 4.2. 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>Communication</b>	- The information received about your health problem	2002-2016
Pearson's Correlation: $r(33,913) = 0.75, p < 0.001$	- 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>	- The waiting time from when you made the appointment until you were seen by the doctor	2004-2016
Pearson's Correlation: $r(27,615) = 0.75, p < 0.001$	- 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, De Silva, 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 linked to the Prompt attention domain but are measured in a more objective way

than the previous domain (see chapter 2). Therefore, this domain is termed *Prompt attention (objective)* in order to distinguish it from the *Prompt attention (subjective)*, which is measured according to the satisfaction-scale ranging from 1 to 10.

## 3.2. Method

### 3.2.1. The Synthetic Control Method

In this study, our empirical strategy is based on the Synthetic Control Method, a technique which focuses on analysing the impact of a certain event or policy intervention, which takes place in units at an aggregate level, on a variable of interest. The SC method is considered an *ex-post* impact evaluation method (Abadie & Cattaneo, 2018) which is applied in contexts where the treatment has not been randomly assigned. Therefore, this method overcomes the main drawbacks of the self-selected comparison, and difference-in-differences methods to find a control group with identical or very similar characteristics to the treatment group.

The main objective of the SC method is to create a *synthetic unit* showing the evolution of a certain variable of interest in the treated unit in the absence of policy during the intervention period in order to compare it to the real evolution of the same variable. The synthetic unit is created through a weighted combination of the potential comparisons with units where the policy did not take place. The SC method employs data-driven procedures to calculate the most suitable comparison group for the unit treated, using observed quantifiable characteristics to determine the affinity between treated and non-treated units. According to Athey & Imbens (2017), the synthetic control method is «the most important innovation in the policy evaluation literature in the last 15 years».

We apply the SC method for two reasons: 1) it overcomes the drawbacks of other methods (self-selected comparison or difference-in-differences) to find a control group with identical or very similar characteristics to that of the treatment group (Gertler et al., 2017), and 2) it is a proper option when the parallel trends assumption of the DD method does not hold as in our case (see Figures 4.4 and 4.5) (Lépine et al., 2018).

Suppose that we have a pooling cross section sample of  $N$  regions ( $i = 1, 2, \dots, N$ ) from different years ( $t = 1, 2, \dots, T$ ). Suppose that at time  $T_0$ , a region receives a treatment or intervention (*treatment or treated region*,  $G = 1$ ), whereas the rest of regions continues without treatment (*control or untreated regions*,  $G = 0$ ). We

distinguish two periods: 1) a pre-intervention period ( $t = 1, 2, \dots, T_0$ ); and 2) a post-intervention period ( $t = T_0+1, T_0+2, \dots, T$ ). In order to identify the average treatment effect (ATE) on a certain variable of interest ( $Y_t^G$ ) during the post-intervention period, we apply the following equation:

$$ATE_t = Y_t^1(K=1) - Y_t^1(K=0) \quad \text{with } t > T_0 \quad (4.1)$$

where  $ATE_t$  is the average treatment effect at time  $t$ ;  $\bar{Y}_t^1(K=1)$  is the average observed value of the variable of interest in the treated region at time  $t$  when the treatment has been really implemented ( $K=1$ ); and  $Y_t^1(K=0)$  is the average value which would have been observed in the treated region at time  $t$  if the intervention had not been implemented in that group ( $K=0$ ). This last term is so-called *counterfactual* or *benchmark*. Since the treatment has been effectively implemented in the treated region, the values of the first term in the equation (4.1) ( $Y_t^1(K=1)$ ) can be observed by data for the whole post-intervention period. On the contrary, the value of the second term ( $Y_t^1(K=0)$ ) is unknown since we cannot simultaneously observe the value of the variable of interest for the same group with and without treatment. Therefore, the central problem is to estimate the value of that counterfactual during the post-intervention period ( $\hat{Y}_{t>T_0}^1(K=0)$ ).

We use the quasi-natural experiment in the case of the Community of Madrid (treatment group) to analyse the effect of the freedom of choice reform occurred in 2009 on health system responsiveness by using the remaining Spanish regions as the control group.<sup>27</sup> To perform this analysis, we had to aggregate the level of responsiveness by region. This aggregation was made by computing the arithmetic mean of the individual assessments –with regard to each domain– by region and year.

The SC method estimates the counterfactual value of the equation (4.1) in the post-intervention period from the values of the variable of interest in the control regions (*donor pool*). It suggests applying an average by using optimal weights for each unit in

---

<sup>27</sup> Ceuta and Melilla are excluded from the control regions since the information for these autonomous cities is only available as of 2008.

the donor pool in order to obtain a comparison unit the most similar as possible to the treated unit. Thus, the equation (4.1) would be rewritten as follows:

$$ATE_t = Y_t^1(K=1) - \sum_{j=2}^J w_j^* Y_{jt}^0(K=0) \quad \text{with } t > T_0 \quad (4.2)$$

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. Abadie et

al. (2010) prove that  $\sum_{j=2}^J w_j^* Y_{jt}^0(K=0)$  could be a good estimator of  $Y_t^1(K=0)$  if the

number of pre-intervention periods is large relative to the scale of the transitory shocks.

The vector  $w^*$  is chosen to minimize  $\|X_1 - X_0 w\|$  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  $(k \times J)$  matrix which contains the same variables for the untreated units. A weighted Euclidean norm is commonly employed to measure the discrepancy between the characteristics of the treated and synthetic unit:

$$\|X_1 - X_0 w\| = \sqrt{(X_1 - X_0 w)' V (X_1 - X_0 w)} \quad (4.3)$$

where  $X_{1m}$  is the value of the  $m$ -th variable included in the  $(k \times 1)$  vector of the  $k$  characteristics of the treated region;  $X_{0m}$  is a  $(1 \times J - 1)$  vector containing the values of the  $m$ -th variable for each region in the donor pool; and  $V_m$  is a weight that reflects the relative importance assigned to the  $m$ -th variable, that is, to the characteristics included in the vectors.<sup>28</sup>

The variables included in the  $X_0$  and  $X_1$  vectors must be predictor characteristics of the variables of interests to be analysed (Abadie et al., 2010, 2015). The explanatory variables in this study were selected following the empirical literature on responsiveness and determinants of waiting times (Ringard & Hagen, 2011; Robone, Rice, et al., 2011;

---

<sup>28</sup> There are two approaches to calculate vector  $V$ : nested and regression. The first one selects the weights minimising the mean squared prediction error (MSPE) for the pre-intervention period. The second one divides the pre-intervention period into an initial training period and a subsequent validation period. In this last case, the matrix  $V$  is chosen to minimise the MSPE by the weights  $W^*(V)$  during the validation period. The second strategy is not recommended when the pre-intervention period is not large enough (Abadie et al., 2010; Kaul et al., 2018).

Siciliani & Martin, 2007). Table 4.3 shows the characteristics included in the  $X_0$  and  $X_1$  vectors. In addition, several lagged values for the pre-intervention period are included.<sup>29</sup>

Table 4.3. Explanatory variables of the variables of interest by type of health service

Factors	Variable	Health service	Source
Health Expenditure	Ln (Public expenditure in primary care per capita)	Primary	Ministry of Health
	Ln (Public expenditure in specialised care per capita)	Specialised	
Size of health services	General practitioners per 100,000 inhabitants	Primary	Ministry of Health
	Nurses per 100,000 inhabitants	Primary	
	Public non-health staff per 100,000 inhabitants	Primary	
	Public health staff per 100,000 inhabitants	Specialised	
Country wealth	Ln (GDP real per capita)	Primary	National Statistics Institute
		Specialised	
Ageing	% population aged $\geq 65$ years	Primary	National Statistics Institute
		Specialised	

*Note:* The public health expenditure and GDP per capita are measured in real terms. Adapted from SHB survey, National Statistics Institute, and Ministry of Health, Social Services and Equality.

### 3.2.2. Statistical Inference for the SC Method

In order to determine the robustness of the results, placebo tests were applied as an inferential technique, akin to the classical framework for permutation inference (Abadie et al., 2010). Three kind of placebos tests have been usually used in the literature: in-time placebos, in-space placebos, and leave-one-out tests (Abadie et al., 2015; Abadie & Gardeazabal, 2003; Bertrand et al., 2004; Cavallo et al., 2013; Hernæs, 2018). In this study, we focus on in-space placebos and leave-one-out tests. The in-time placebos cannot be properly employed with our data since we have a very short pre-intervention period.

The in-space placebo test consists in applying the SC method to each of the units in the donor pool as if the policy had really been implemented in these units (Abadie et al., 2015; Galiani & Quistorff, 2017). By this means we obtain an exact distribution of the estimated effects of the placebo interventions, which in turn allows us to examine

<sup>29</sup> Although some pre-intervention values of the study variables could be included in the  $X_1$  and  $X_0$  vectors as pre-intervention characteristics, we have not included all the years as this would make the remaining covariates irrelevant in the characteristic vector (Kaul et al., 2018).



whether the estimated effect for the treated region is large in relative to the estimated effects for the regions not exposed to the intervention. If the estimated effect of our real synthetic control lies well within the distribution of placebo effects, our confidence about its effect would be undermined. By contrast, if the main effect is abnormally large, it is unlikely to be observed by chance.

A quantitative comparison between the distribution of placebo effects and the synthetic control estimate can be operationalised using p-values (Abadie et al., 2015). If the estimated effect for a particular  $t$  time within the post-treatment period is  $\hat{\alpha}_{1t}$ , and the distribution of the corresponding placebo test is  $\hat{\alpha}_{1t}^{PL} = \{\hat{\alpha}_{jt} : j \neq 1\}$ , then the two-side p-values will be:

$$p - value = \Pr\left(|\hat{\alpha}_{1t}^{PL}| > |\hat{\alpha}_{1t}|\right) = \frac{\sum_{j \neq 1} \mathbf{1}\left(|\hat{\alpha}_{jt}^{PL}| > |\hat{\alpha}_{1t}|\right)}{J} \quad (4.4)$$

Here, the p-value can be interpreted as representing the proportion of control units that have an estimated effect at least as large as that of the treated unit (Galiani & Quistorff, 2017). That is, this is the probability of finding a region with an effect larger than that of the treated unit (Abadie et al., 2010, 2015).

Apart from the policy effects, it is also necessary to consider how closely the trends of the study variables in the synthetic region fit those of the treated region during the pre-intervention period (Abadie et al., 2015). For this purpose, Galiani & Quistorff (2017) calculate a pseudo t-statistic where all effects are controlled by the pre-intervention fit, using the RMSPE<sup>30</sup> as follows:

$$pseudo - tstat = \Pr\left(\left|\frac{\hat{\alpha}_{1t}^{PL}}{RMSPE_1^{PL}}\right| > \left|\frac{\hat{\alpha}_{1t}}{RMSPE_1}\right|\right) = \frac{\sum_{j \neq 1} \mathbf{1}\left(\left|\frac{\hat{\alpha}_{jt}^{PL}}{RMSPE_1^{PL}}\right| > \left|\frac{\hat{\alpha}_{1t}}{RMSPE_1}\right|\right)}{J} \quad (4.5)$$

---

<sup>30</sup> The Root Mean Squared Prediction Error is the square root of the average of the squared discrepancies of the values of the variables of interest between the real region and its synthetic counterpart. The pre-intervention RMSPE is defined as follows (Abadie et al., 2015):

$$RMSPE = \left( \frac{1}{T_0} \sum_{t=1}^{T_0} \left( Y_{1t} - \sum_{j=2}^J w_j^* Y_{jt} \right)^2 \right)^{1/2}$$

Thus, large effects become smaller if the pre-intervention fit of the synthetic region is poor, while small effects tend to become enlarged with a good pre-intervention fit, presenting a higher value in the distribution.

Abadie et al. (2010) suggest a way to test the overall significance of the effects, by calculating the distribution of the ratios of post/pre-intervention RMSPE in order to determine how many times the effect of the post-intervention RMSPE is larger than that of the pre-intervention period.

As far as the leave-one-out test is regard, it is used to check whether the results are driven by a particular region in the donor pool (Hernæs, 2018). The test leaves out each of the regions receiving the highest positive weights in the synthetic unit, and then it applies the estimation by using the SC method without the region removed.

## 4. Results

### 4.1. Descriptive Statistics

Figures 4.2 and 4.3 plot the trend of the four responsiveness domains analysed for the Community of Madrid and the rest of the Spanish regions (donor pool) for primary and specialised care, respectively.<sup>31</sup> For the primary care, the trends between both regions seem to be similar during the whole period analysed except for the *Communication* domain. The responsiveness with that dimension is, on average, higher in the rest of Spain than in the Community of Madrid, above all, during the post-intervention period. On the contrary, the responsiveness with the *Dignity* domain is higher in the Community of Madrid than in the rest of Spain during the pre-intervention period; however, after 2009, both trends tend to converge. With regard to the *Prompt attention (objective)* domain, the responsiveness is better in the Community of Madrid during the whole period analysed since the users of that region tend to wait to be served by the GP half the time compared with the users of the rest of Spain. The average waiting times in

---

<sup>31</sup> In 2007, for the primary care, we cannot know whether the respondents have used the public service in last 12 months since the question is not included in the survey for that year. Therefore, for that year, we can know the average assessment of respondents who have used the public service in the last 12 months at least once. For it, we apply a lineal interpolation of the value of the interest variables only for that year in order to analyse all the services with the same type of user.

the Community of Madrid are by around two days and a half whereas in the rest of Spain are by around four days.

For specialised care service, the average responsiveness in three out of four domains (*Communication, Dignity and Prompt attention (subjective)*) is always higher in the rest of Spain than in the Community of Madrid, above all, during the pre-intervention period. Such differences begin to decline until practically disappearing in the last years of the post-intervention period. The domains of this health service with the greatest average assessment in the Community of Madrid are *Dignity* and *Communication*. In the *Prompt attention (objective)* domain, the responsiveness of the Community of Madrid is similar to those of the rest of Spain during the previous years to the reform. However, as of 2009, the average waiting times reduced by around 7.5% in Community of Madrid whereas they kept a constant path in the rest of Spain. In 2015, the average time that respondents had to wait to be served by specialist doctor ever since they made the appointment in the Community of Madrid was by around 75 days in contrast with the three months in the rest of Spain.

In any case, we find that the average responsiveness with any domain in the Community of Madrid, both in primary and specialised care, tends to increase after implementing the reform in 2009. For instance, on average, the responsiveness of the specialised care with the *Prompt attention* domain in the Community of Madrid has incremented by around 14% in the period 2009-2016, whereas in the *Communication* domain, the responsiveness is by around 12% higher in 2016 than in 2009.

## Chapter 4. The Effect of the Freedom of Choice Policies on the Health Systems' Responsiveness: The Case of the Single Health Area in the Community of Madrid

Figure 4.2. Primary care: Average responsiveness with the communication, dignity, prompt attention (subjective) and prompt attention (objective) domains for the Community of Madrid and the rest of Spain.

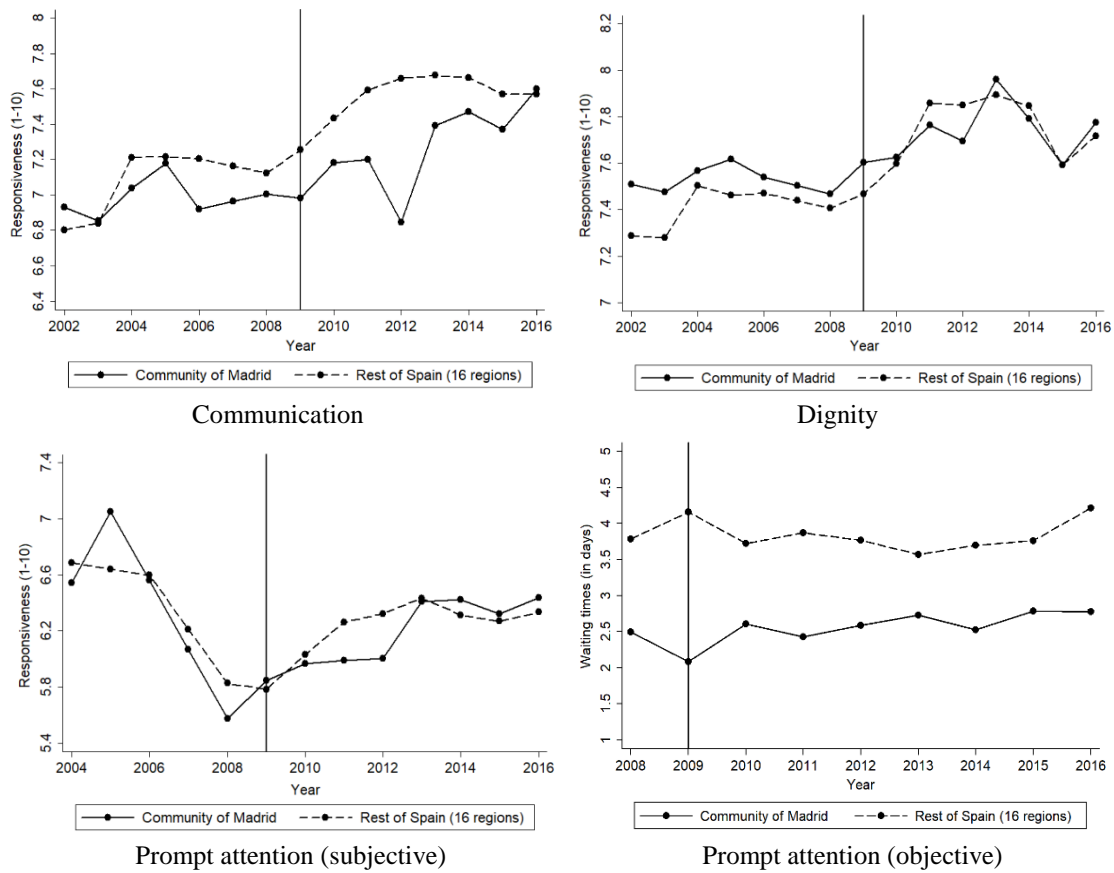
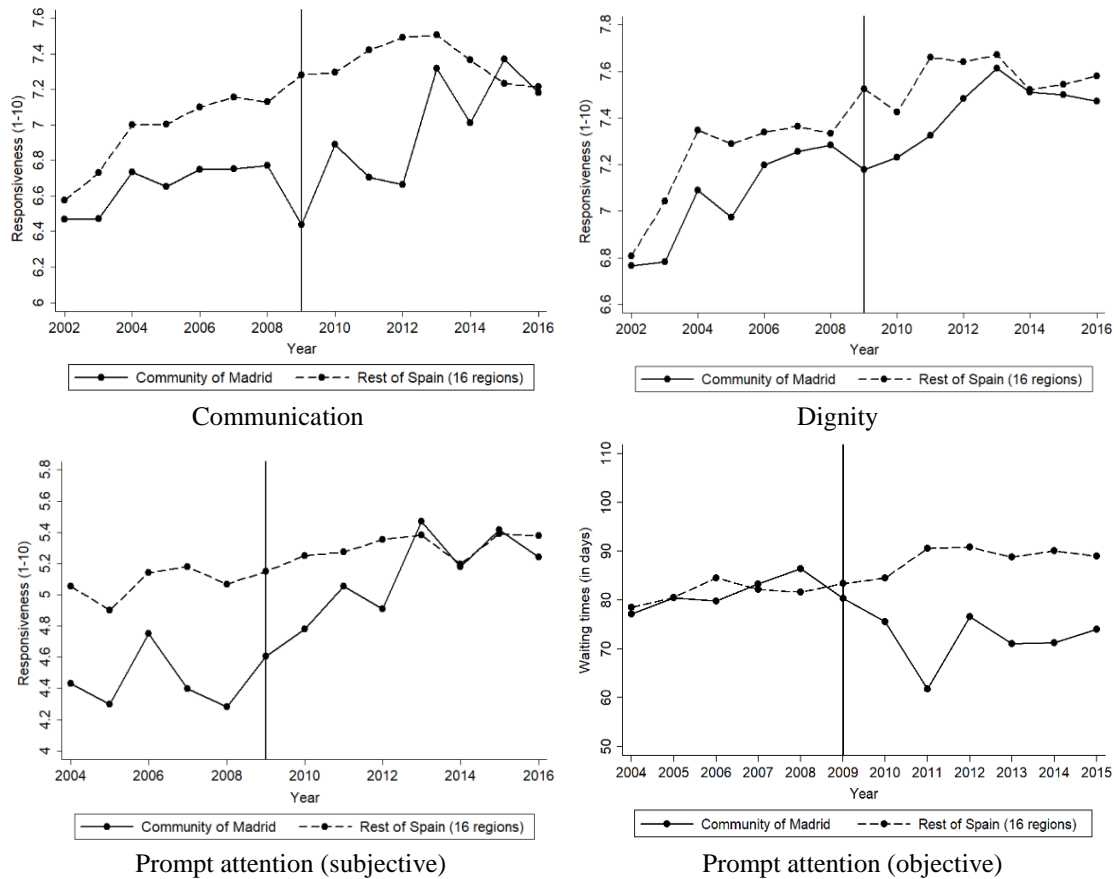


Figure 4.3. Specialised care: Average responsiveness with the communication, dignity, prompt attention (subjective) and prompt attention (objective) domains for the Community of Madrid and the rest of Spain.



## 4.2. The Synthetic Control Method

Figures 4.4 and 4.5 show the trends observed in the responsiveness domains in the Community of Madrid, together with the synthetic version for primary and specialised care, respectively. As expected, the trends of the variables of interest in the synthetic Community of Madrid are similar to those of the treated unit during the pre-intervention period (see Figures 4.2 and 4.3). This suggests 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 synthetic region are shown in Appendix 4.2. The effect of the policy in each domain is measured by the difference between the responsiveness in Madrid and that in its synthetic counterpart after the policy implementation in 2009.<sup>32</sup>

<sup>32</sup> For the *Communication*, *Dignity* and *Prompt attention (subjective)* domains, higher values mean greater responsiveness in the domain. On the contrary, for the *Prompt attention (objective)* domain, higher values mean poorer responsiveness.

## Chapter 4. The Effect of the Freedom of Choice Policies on the Health Systems' Responsiveness: The Case of the Single Health Area in the Community of Madrid

Figure 4.4. Trends in responsiveness domains for primary care: Community of Madrid vs. synthetic Community of Madrid

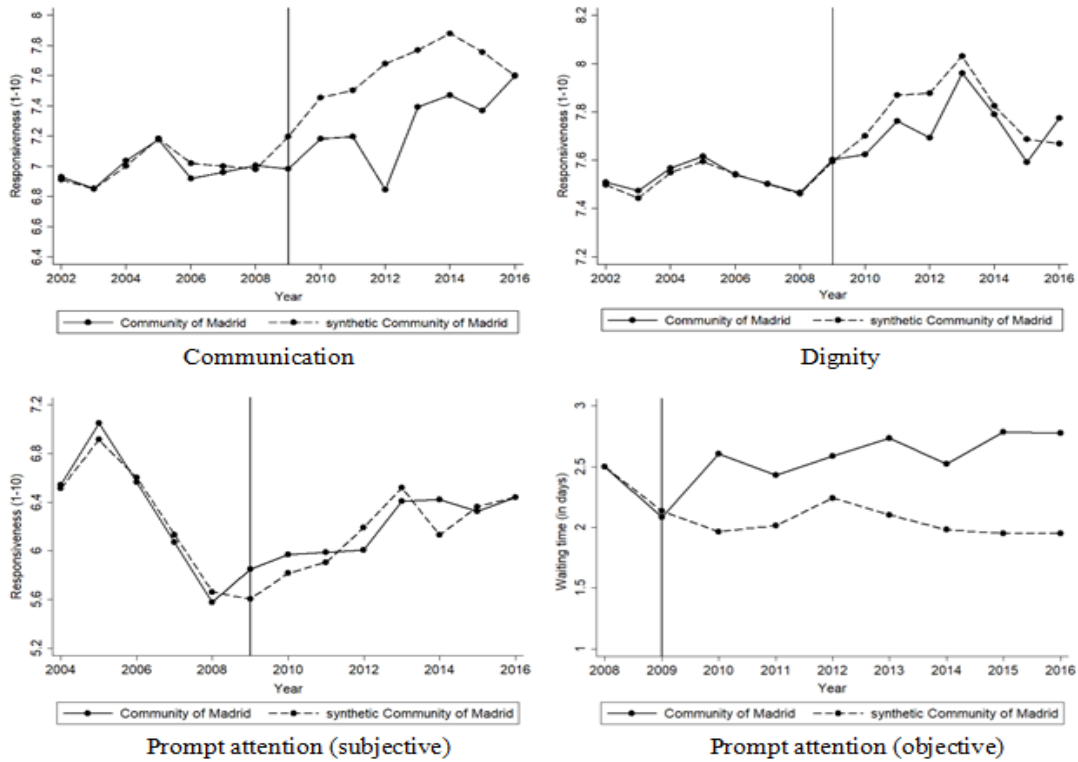
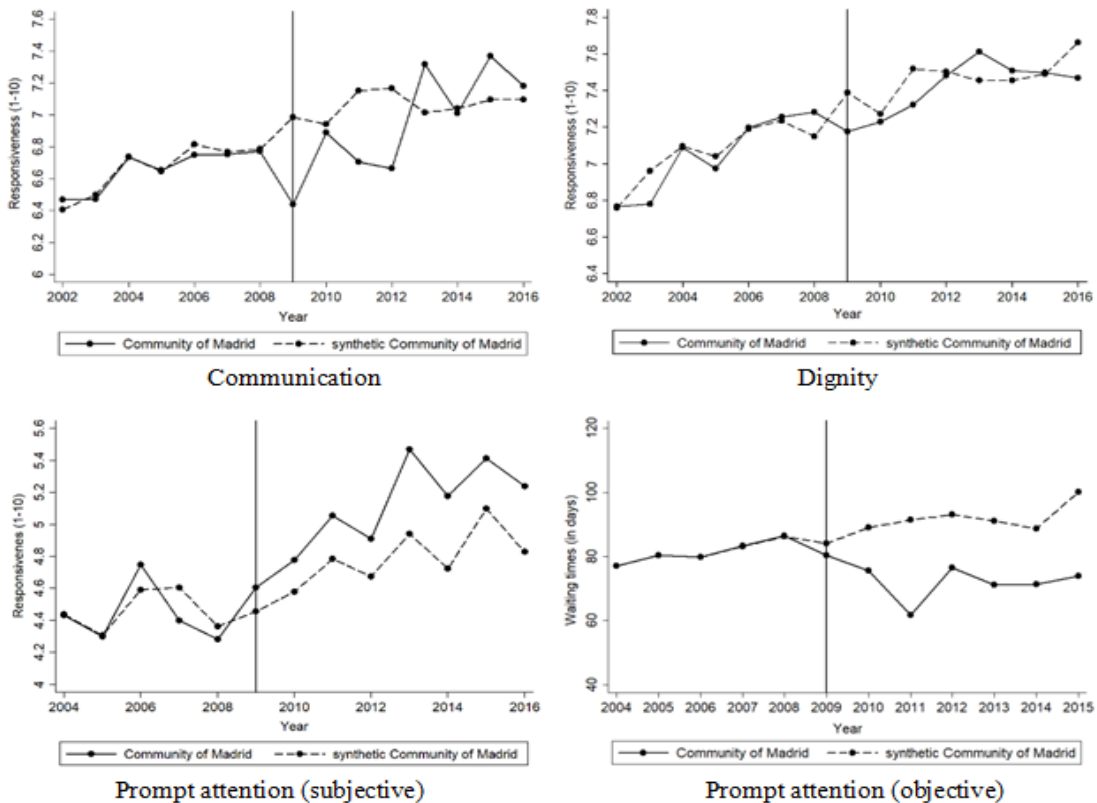


Figure 4.5. Trends in responsiveness domains for specialised care: Community of Madrid vs. synthetic Community of Madrid



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 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, the responsiveness was around 5% lower than it would have been with no policy implementation during the period 2010-2016. In the *Dignity* domain, the effects were similar but not as strong as in the *Communication* dimension.

Regarding the *Prompt attention (subjective)* domain, the effect on responsiveness was ambiguous, producing positive and negative effects during the post-intervention stage. By contrast, in the objective measure, the impact seems to be slightly negative. In any case, the results for *Prompt attention (objective)* domain should be taken very carefully given that the availability of data restricts us to using a single year during the pre-intervention period (Abadie et al., 2015). In any case, the very slight impact on objective waiting times after the reform could explain why the effect of the policy on the subjective dimension of *Prompt attention* is unclear.

For specialised care, we observed no clear impact of the policy on responsiveness for the *Dignity* domain. This suggests that the policy had little or no effect on overall average responsiveness in these domains. With regard to the subjective dimension of *Prompt attention*, our study results show that the reform contributed to a stronger increase in responsiveness during the post-intervention period. In 2014, the level of responsiveness for *Prompt attention (subjective)* was almost 0.6 higher 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 these reflect the largest effects of the policy. As shown in the fourth graph of Figure 4.5, the policy examined provoked a sharp reduction in waiting times for specialist health care in Madrid. Our results show that, without the reform, these waiting times would have remained constant, at an average of 90 days, throughout the post-intervention period. In fact, during this period, 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 (Fiorentini et al., 2018).

### 4.3. Placebo Tests

Figures 4.6 and 4.7 display the main results for p-values, pseudo t-stats (left-side graphs) and RMSPE ratios (right-side graphs) for primary and specialised care, respectively.

For primary care, according to the RMSPE ratio, the overall effects are significant in the *Communication*, *Dignity* and *Prompt attention (objective)* domains, whereas the effects on the *Prompt attention (subjective)* domain are not significant. In the first right-side graph (*Communication*), the post-intervention RMSPE in the Community of Madrid is ten times that for the pre-treatment period; in the second (*Dignity*), it is more than eight times that for the pre-treatment period; and in the third (*Prompt attention (objective)*), more than 60,000 times, since the pre-intervention fit is almost perfect. Observation of the robustness of the effects year by year (pseudo t-stats) shows that the probability of finding by chance an effect as large as that of the Community of Madrid is practically zero for any year and any domain except for the *Prompt attention (subjective)* domain. In all three significant domains, the Community of Madrid stands out in the distribution. In consequence, if the intervention were assigned at random in the data, the probability of obtaining a RMSPE ratio as large as that of the Community of Madrid would be  $1/16=0.0625$ , a value lower than the level of 10% usually used in tests of statistical significance.

For specialised care, the overall effects are significant for the *Communication*, *Prompt attention (subjective)*, and *Prompt attention (objective)* domains. In consequence, it seems that the results reported by the synthetic method for these domains are generally reliable. The post-intervention RMSPE in the Community of Madrid is around 10 times larger than that of the pre-intervention in the first domain of the right-side graph (*Communication*); around three times that in the second one (*Prompt attention (subjective)*); and more than 800 times that in the third (*Prompt attention (objective)*). This means that the probability of such effects being caused by chance is  $1/16=0.0625$  for the *Communication* and *Prompt attention (objective)* domains, and  $1/15=0.0667$  for the *Prompt attention (subjective)* domain. All these



values are below the 10% confidence level applied in most tests of statistical significance. With regard to the annual effects, the results of the pseudo t-stats show that most of these effects are also significant, above all in the *Communication* and *Prompt attention* domains.

The results of the leave-one-out test seem to support the hypothesis that none of the control regions is driving the effects found. Figure 4.8 displays that the estimated effects of the policy in the *Prompt attention (objective)* domain in specialised care are very similar although the regions with the most weight in the synthetic unit are excluded, namely, Catalonia (0.388), Aragon (0.259), and Extremadura (0.253).

# Chapter 4. The Effect of the Freedom of Choice Policies on the Health Systems' Responsiveness: The Case of the Single Health Area in the Community of Madrid

Figure 4.6. Placebo tests for primary care: p-value and pseudo t-stats (left-side graphs); and RMSPE ratio (right-side graphs)

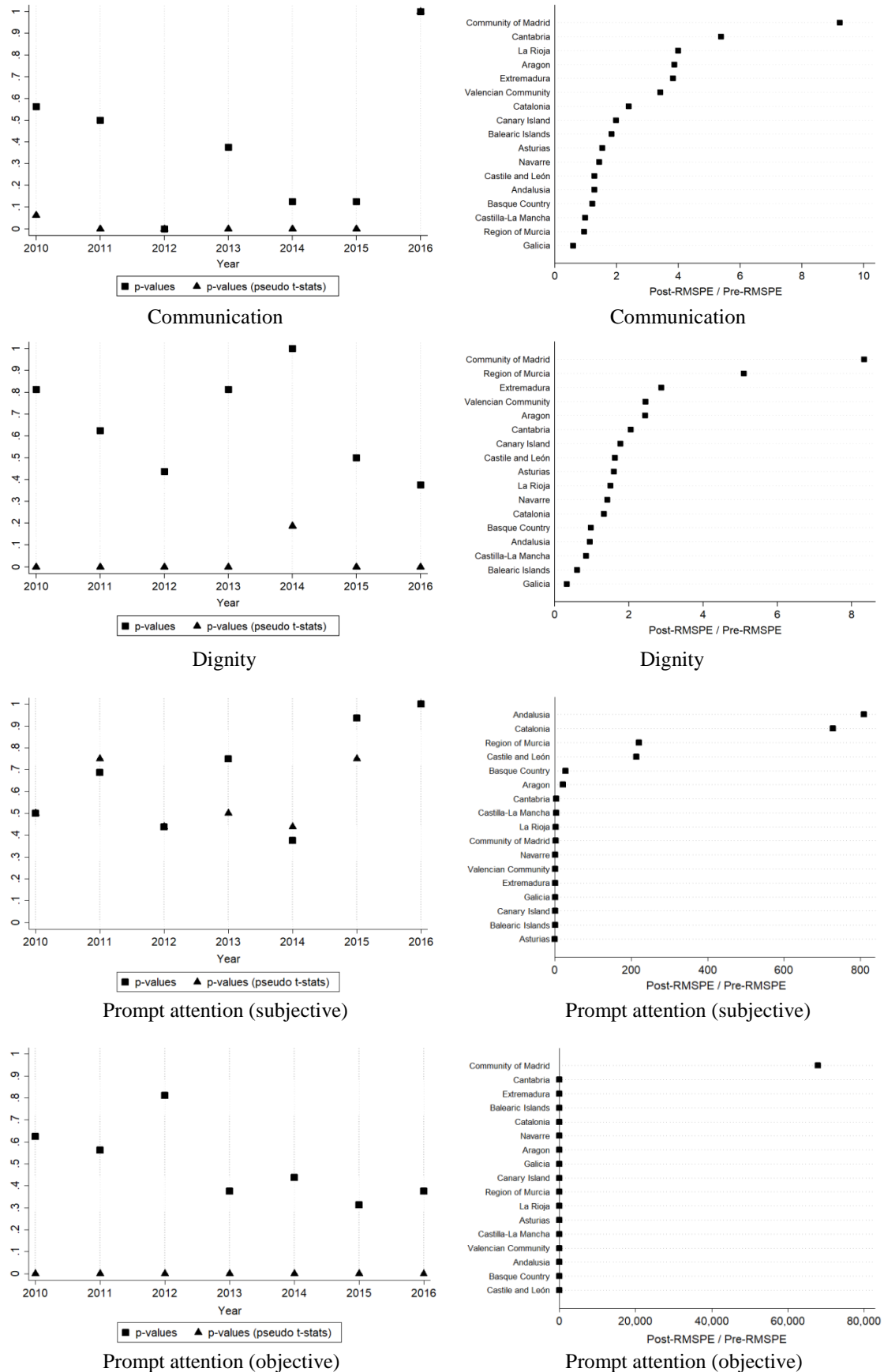


Figure 4.7. Placebo tests for specialised care: p-value and pseudo t-stats (left-side graph); and RMSPE ratio (right-side graph)

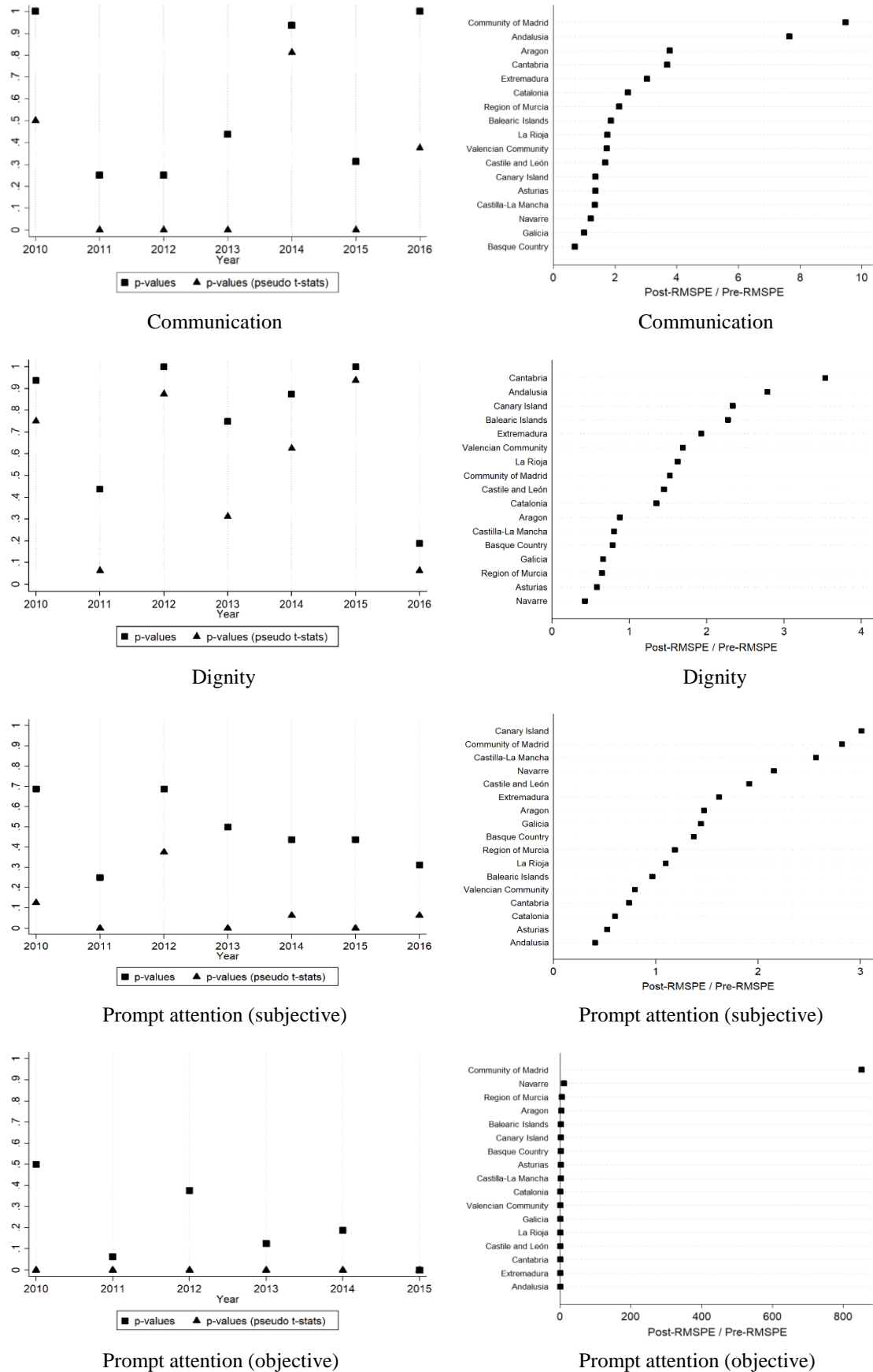
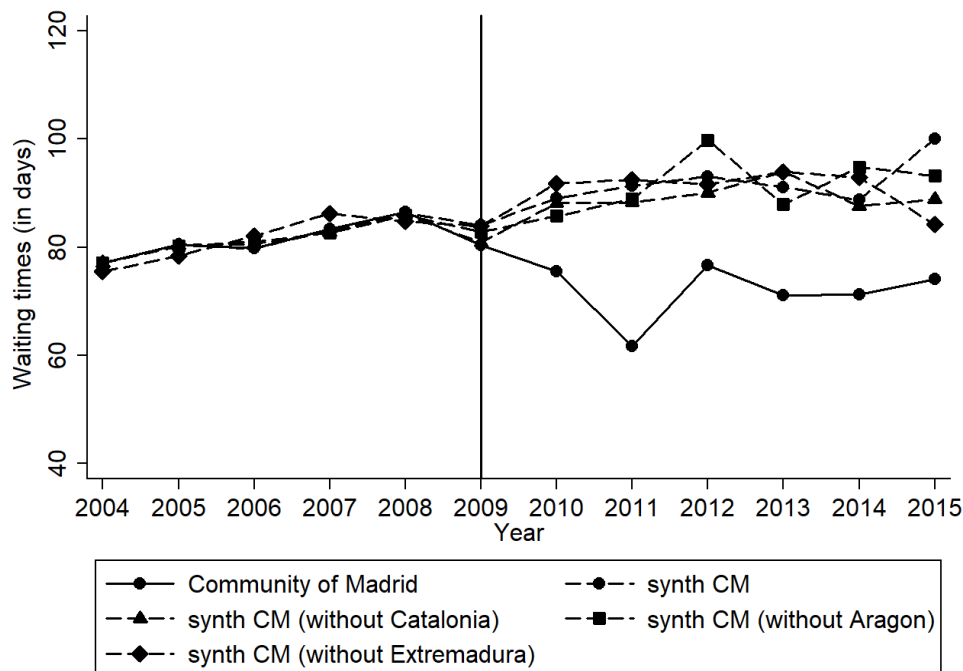


Figure 4.8. Leave-one-out test distribution of the synthetic Community of Madrid in the Prompt attention (objective) domain for specialised care.



Notes: Each synthetic unit is created by leaving one region out from the donor pool, except for “synth CM” which takes into account all the 16 Spanish regions. CM = Community of Madrid; synth = Synthetic.

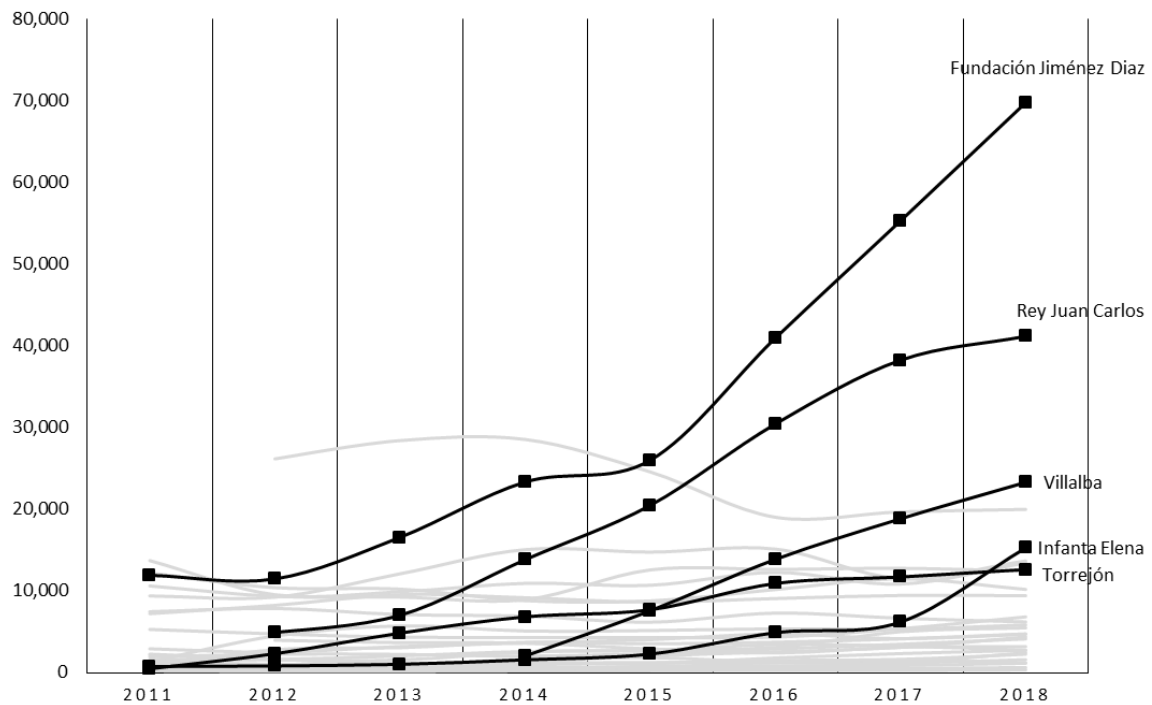
## 5. Discussion

One of the most striking findings of this study is the strong and significant reduction in average waiting times for specialised care following the implementation of the freedom of choice policy in the Community of Madrid. Although this reform –which included a very efficient system of appointment scheduling, on the basis of waiting times and a progressive strengthening of patient knowledge of provider characteristics– was the main factor underlying the improvement, the presence of economic incentives among some Madrid hospitals could also have played an important role in generating the positive effects observed.

After the 2009 policy implementation, and assuming that waiting time is among the most important factors considered when choosing a health care provider (Beukers et al., 2014; Vengberg et al., 2019), we suggest that patients originally registered at hospitals with long waiting times would switch to others where waiting times are shorter. 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 meant that

waiting times at the most in-demand hospitals (i.e., those where pre-reform waiting times were shortest) might not have increased or could even have decreased, despite their receiving more patients, switching from elsewhere. In Figure 4.9, we see that the Madrid hospitals that presented the largest increase in patient demand from other centres, during the period 2011-2018, were *Fundación Jiménez-Díaz*, *Rey Juan Carlos*, *Villalba*, *Torrejón* and *Infanta Elena* (solid black line), whereas the remaining hospitals experienced a more moderate growth or even a decrease (solid grey line). Although the first-named group of hospitals received the largest number of patients in 2018, four of these five had the shortest average waiting times in November 2018 (see Figure 4.10).

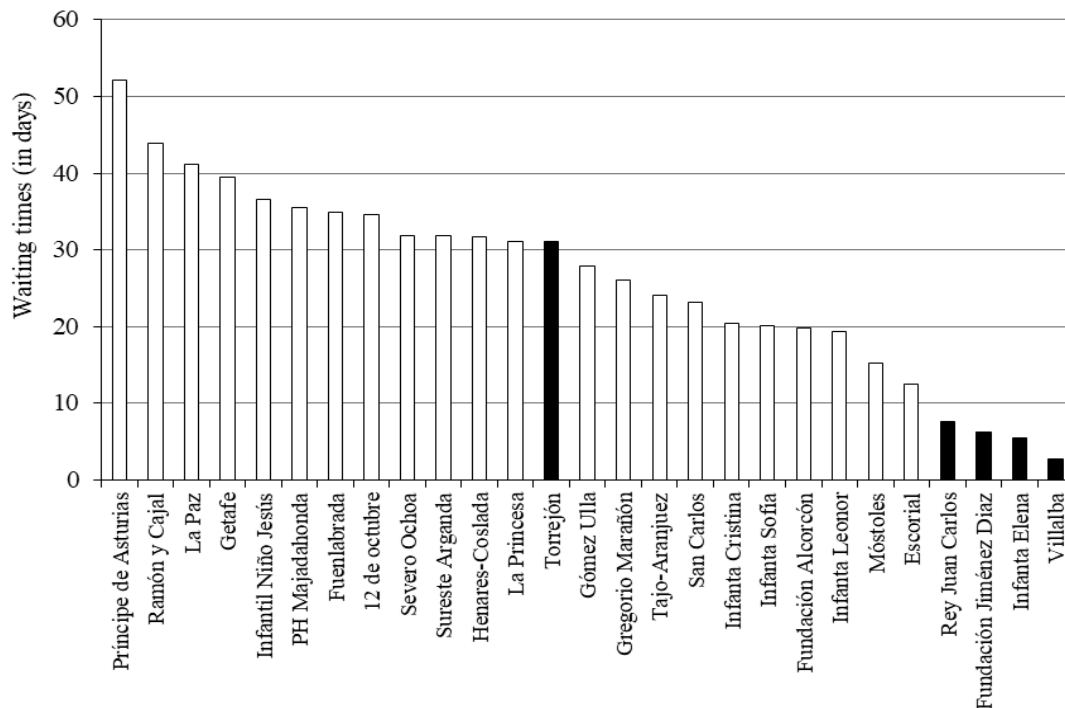
Figure 4.9. Number of patients that hospitals receive from other centres in the Community of Madrid under the freedom of choice policy.



Notes: The black line highlights the hospitals that underwent the largest increase in the number of patients received in the period 2011-2018. Retrieved from the Annual report of the SERMAS. 2011-2018

## Chapter 4. The Effect of the Freedom of Choice Policies on the Health Systems' Responsiveness: The Case of the Single Health Area in the Community of Madrid

Figure 4.10. Average waiting times (in days) by hospital for specialised care in November of 2018 in the Community of Madrid.



Notes: Retrieved from the SERMAS. Department of Health. Hospitals managed by private companies in black.

The above findings suggest that, after the policy implementation, these five hospitals might be responsible for the observed reduction in average waiting times for specialised care in the Community of Madrid, in two directions: 1) by reducing the waiting times at hospitals with a poor record in this respect before the reform, by absorbing their patient demands; 2) by maintaining relatively short waiting times despite receiving additional patients originally assigned elsewhere.

One of the main features of the above five hospitals is that they are managed by means of indirect management formulas PPP. While four of the five PPP hospitals in Madrid opened after the reform (Sevillano, 2012), and others were created under a PFI formula that began operating in 2008, it is interesting to note that the number of health staff per capita in all hospitals (PPP, PFI and others) in this region remained constant during the study period, at a very similar level to that in the rest of Spain (SIAE, 2019). Therefore, it might not be the higher supply per se that is driving our results with respect to waiting times.

In the concession contracts of these hospitals, a part of the reimbursements depends on the number of patients treated from other centres. Accordingly, they have incentives

to attract patients from other hospitals by keeping waiting times short in order to be more attractive to these other patients.

Precisely, it is the lack of incentives in primary care that might be generating the negative effects observed with respect to the *Communication* and *Dignity* domains in the Community of Madrid. Unlike some of the hospitals, the health centres in primary care have no incentive to attract more patients. In consequence, as the reputation of individual GPs could be an important factor underlying patients' choice of primary care provider (Miani et al., 2013), we would expect patients to swap the "grumpy" GP for the "nice" one (perceived as a good communicator and with a good reputation) after the reform. This switch would mean the "nice" GPs having to treat more patients than before the reform, thus experiencing work overload and stress. This negative consequence would tend to harm the doctor-patient relationship, inducing GPs to pay less attention to questions such as providing full, comprehensible information to their patients, or changing the way in which patients are treated. As a result, patient satisfaction would decrease. Indeed, there is evidence in the literature that the pressure on health staff subjected to a heavy workload could lead them to be less responsive in terms of the quality of communication and the respect afforded to patients (Fiorentini et al., 2018). Moreover, in the absence of incentives to GPs to attract patients, the personality of "grumpy" GPs would not magically become "nice" even with a reduced patient demand, and the remaining patients would still be dissatisfied with their "grumpy" GP. In short, the overall satisfaction of patients with the *Communication* and *Dignity* domains of responsiveness in primary care is expected to decrease after the reform.

Our findings for waiting times to see a specialist doctor are in line with those of previous studies based on competitive markets where providers are financially incentivised to treat more patients (such as Norway or the UK) (Siciliani et al., 2017). Our results for primary care contradict those of some previous studies (Gravelle et al., 2019; Santos et al., 2017). This could be due to the little incentives faced by primary care providers to attract more patients in the region of study as opposed to the competitive markets in which GPs operate in other countries (such as the UK). By contrast, a recent study has also shown no significant improvements in patient satisfaction with waiting times in primary care after the implementation of the freedom of choice policies (Dietrichson et al., 2020).

## 6. Conclusions

In this chapter, we analyse the effects on health system responsiveness produced by the freedom of choice policy carried out in the Community of Madrid in 2009. We find that the reform had a positive effect on responsiveness with respect to the *Communication* (on the long run) and *Prompt attention* domains in specialised care, whereas it impacted negatively on the *Communication*, *Dignity* and *Prompt attention (objective)* domains in primary care. Our analysis indicates that increasing patients' freedom of choice of health provider could have important positive consequences on the responsiveness of the health system. In particular, we find that if the policy had not been implemented, the waiting times for specialised care would not have been reduced as they were in practice. However, as in most of previous empirical studies, our results show that 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. Hospital CEOs would then have more incentives to compete, by increasing budgetary availability, and this could have a positive impact on the responsiveness achieved.

This chapter presents some limitations. From the methodological point of view, although the SC method could provide a more appropriate comparison unit for the treated region than other techniques, the quality of the inference is limited. Given that the method uses a single treated unit followed over time, standard errors cannot be obtained, therefore placebo tests are conducted. In this case, the significance of the effects may depend on either the number of potential control units over which these placebo tests can be conducted (Gaughan et al., 2019), or how the outcomes of the synthetic unit are fitted to those of the treated unit during an extended period of time prior to the intervention (Abadie et al., 2010). For this reason, it is necessary to rely on a sizable number of periods before treatment. For instance, the results for the *Prompt attention (objective)* domain for primary care in our study show a pre-treatment period which is only composed of one year, therefore conclusions with regard to the effects of the policy should be taken very carefully.



As we saw in chapter 1, given the difficulty to use objective indicators to measure the responsiveness of the health system with some domains, we use patient-reported measures to quantify the quality with non-clinical factors. However, they could have some limitations. While data collected at national level should ideally be used in some domains such as prompt attention, the lack of homogenized and comprehensive administrative data in Spain for waiting times at the regional level restricts us to using survey self-reported proxies. However, for this domain, our data source contains a more objectively measured indicator of patients' responsiveness with prompt attention which is strongly correlated with the subjective measure, as reported in much of the previous literature. Moreover, we acknowledge that the data on responsiveness used in our study are self-reported, and thus our analysis might be affected by reporting bias (King et al., 2003). Some studies addressing the issue of reporting heterogeneity have employed anchoring vignettes and the HOPIT model (Rice et al., 2012).<sup>33</sup> Unfortunately, in our study we are unable to address the issue of reporting heterogeneity by estimating the HOPIT model since vignettes are not available in the Spanish Healthcare Barometer. 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 (Fiorentini et al., 2018), in particular with regard to the domain of prompt attention.

In the future it would be helpful to investigate the role played by financial incentives and information systems in how freedom of choice might affect responsiveness. Furthermore, it would have been interesting to establish the precise reasons why waiting times decreased at such a considerable rate after the reform. We hypothesise that financial incentives offered to the PPP hospitals may be one reason for this, but it would be interesting to determine whether staff at these hospitals has a higher workload than those elsewhere, or whether staff numbers at PPP hospitals have increased faster than in other types of hospitals. In addition, it could be helpful to examine whether the ability of PPP hospitals to absorb patients from other centres by keeping waiting times short is achieved at the expense of patients' health or, even, whether they are engaging in risk selection (Varkevisser et al., 2012). Finally, more research is needed on whether the

---

<sup>33</sup> For more details about how vignettes can be used to address the issue of reporting heterogeneity and enhance comparability across individuals (Bago D'Uva et al., 2008).

enhancement of patient choice is contributing to the reduce of inequalities in waiting times as previous literature has shown (Moscelli et al., 2018).

Nevertheless, this study provides helpful insights for policy makers, particularly in areas that are currently involved in freedom of choice reforms. Other Spanish regions, for instance, have recently moved or are planning to move in the same direction as the Community of Madrid. According to our results, if these policies provide patients with the necessary information and offer them real freedom of choice, they are likely to achieve positive effects on health system responsiveness. In addition, our findings showing a strong association between subjective and more objective measures of health care responsiveness supports the results shown in previous studies that self-reported measures can be considered valid predictors of more objective measures of responsiveness and could be employed as useful tools to evaluate the performance of health systems.



## Appendix 4.1. Procedure to Merge the Non-Clinical Factors with the Responsiveness Domains

In order to merge the non-clinical factors into the corresponding responsiveness domain, we have followed the methodological strategy of Fiorentini et al. (2015) and Fiorentini et al. (2018). Tables 4.A1.1 and 4.A1.2 show an example of the merging procedure for the primary care service. The original dataset is in a *wide* format, namely, each observation is an individual (see Table 4.A1.1). We transform the dataset into a *long* format (see Table 4.A1.2). In this way, each observation is expanded as many times as number of non-clinical factors selected. In the case of the primary care service, each observation is expanded eight times given that we take into account eight non-clinical factors.

After reshaping the dataset, we create three new variables corresponding to the three responsiveness domains identified. Such variables contain the individuals' assessment of those non-clinical factors which have been previously associated to the corresponding responsiveness domain. We run the regression with the new variables.

Table A4.1.1. Example of the original dataset in “wide form” for the primary care service

id	year	region	age65	gender	high education	...	information received	advice doctor	treatment staff	treatment nurse	waiting time appointment	waiting time diagnostic tests	ease appointment	waiting time enter doctor office
1	2012	Community of Madrid	0	Female	1	...	7	5	7	-	6	6	6	6
2	2016	Extremadura	1	Female	0	...	9	9	9	9	9	9	-	-
3	2011	Community of Madrid	0	Female	1	...	7	6	8	-	7	-	8	4
4	2011	Galicia	0	Male	1	...	6	6	6	-	6	6	3	4
.	.	.	.	.	.	...	.	.	.	.	.	.	.	.
.	.	.	.	.	.	...	.	.	.	.	.	.	.	.
.	.	.	.	.	.	...	.	.	.	.	.	.	.	.

Table A4.1.2 Example of the transformed dataset in “long form” for the primary care service

id	year	region	age65	gender	high education	...	non-clinical factors	responsiveness	communication	dignity	prompt attention
1	2012	Community of Madrid	0	Female	1	...	1	7	7	-	-
1	2012	Community of Madrid	0	Female	1	...	2	5	5	-	-
1	2012	Community of Madrid	0	Female	1	...	3	7	-	7	-
1	2012	Community of Madrid	0	Female	1	...	4	-	-	-	-
1	2012	Community of Madrid	0	Female	1	...	5	6	-	-	6
1	2012	Community of Madrid	0	Female	1	...	6	6	-	-	6
1	2012	Community of Madrid	0	Female	1	...	7	6	-	-	6
1	2012	Community of Madrid	0	Female	1	...	8	6	-	-	6
2	2016	Extremadura	1	Female	0	...	1	9	9	-	-
2	2016	Extremadura	1	Female	0	...	2	9	9	-	-
2	2016	Extremadura	1	Female	0	...	3	9	-	9	-
2	2016	Extremadura	1	Female	0	...	4	9	-	9	-
2	2016	Extremadura	1	Female	0	...	5	9	-	-	9
2	2016	Extremadura	1	Female	0	...	6	9	-	-	9
2	2016	Extremadura	1	Female	0	...	7	-	-	-	-
2	2016	Extremadura	1	Female	0	...	8	-	-	-	-
3	2011	Community of Madrid	0	Female	1	...	1	7	7	-	-
3	2011	Community of Madrid	0	Female	1	...	2	6	6	-	-
3	2011	Community of Madrid	0	Female	1	...	3	8	-	8	-
3	2011	Community of Madrid	0	Female	1	...	4	-	-	-	-
3	2011	Community of Madrid	0	Female	1	...	5	7	-	-	7
3	2011	Community of Madrid	0	Female	1	...	6	-	-	-	-
3	2011	Community of Madrid	0	Female	1	...	7	8	-	-	8
3	2011	Community of Madrid	0	Female	1	...	8	4	-	-	4
4	2011	Galicia	0	Male	1	...	1	6	6	-	-
4	2011	Galicia	0	Male	1	...	2	6	6	-	-
4	2011	Galicia	0	Male	1	...	3	6	-	6	-
4	2011	Galicia	0	Male	1	...	4	-	-	-	-
4	2011	Galicia	0	Male	1	...	5	6	-	-	6
4	2011	Galicia	0	Male	1	...	6	6	-	-	6
4	2011	Galicia	0	Male	1	...	7	3	-	-	3
4	2011	Galicia	0	Male	1	...	8	4	-	-	4
.	.	.	.	.	.	...	.	.	.	.	.
.	.	.	.	.	.	...	.	.	.	.	.
.	.	.	.	.	.	...	.	.	.	.	.

## Appendix 4.2. Weights and Characteristics of the Synthetic Region

### 1. Primary Care

Table A4.2.1.1. Primary care: Region weights for the synthetic Community of Madrid by domain

Region	Communication	Dignity	Prompt attention	
			Subjective	Objective
Andalusia	0	0	0	0
Aragon	0.280	0.302	0	0
Asturias	0	0	0	0
Balearic Islands	0	0.094	0	0.082
Canary Islands	0.176	0	0	0
Cantabria	0	0	0.137	0
Castilla-La Mancha	0	0	0	0
Castile and Leon	0	0	0	0
Catalonia	0	0	0	0
Valencia Community	0.471	0.494	0.345	0
Extremadura	0	0	0.518	0
Galicia	0.032	0	0	0
Region of Murcia	0	0.048	0	0
Navarre	0	0.061	0	0
Basque Country	0.041	0	0	0.918
La Rioja	0	0	0	0

Table A4.2.1.2. Primary care: Predictors average of the Communication domain

	Community of Madrid		Average of 16 control regions
	Real	Synthetic	
Ratio population aged 65 or more	14.26	16.93	17.80
Ln(GDP per capita)	10.43	10.11	10.09
Ln(Public expenditure per capita in primary care)	4.76	4.96	5.05
Number of doctors per 100,000 inhab.	54.54	59.40	62.40
Number of nurses per 100,000 inhab.	52.44	59.71	63.40
Number of non-health staff per 100,000 inhab.	43.58	43.77	40.76
Communication (2008)	7.01	6.98	7.28
Communication (2006)	6.92	7.02	7.37
Communication (2004)	7.04	7.00	7.27
Communication (2002)	6.93	6.91	6.99

*Note:* All variables are averaged for the pre-intervention period (2002-2008). GDP per capita and public expenditure are measured in 2016 euros.

Table A4.2.1.3. Primary care: Predictors average of the Dignity domain

	Community of Madrid		Average of 16 control regions
	Real	Synthetic	
Ratio population aged 65 or more	14.26	17.23	17.80
Ln(GDP per capita)	10.43	10.13	10.09
Ln(Public expenditure per capita in primary care)	4.76	4.96	5.05
Number of doctors per 100,000 inhab.	54.54	59.52	62.40
Number of nurses per 100,000 inhab.	52.44	59.79	63.40
Number of non-health staff per 100,000 inhab.	43.58	43.80	40.76
Dignity (2008)	7.47	7.46	7.50
Dignity (2006)	7.54	7.54	7.61
Dignity (2004)	7.57	7.55	7.55
Dignity (2002)	7.51	7.50	7.41

*Note:* All variables are averaged for the pre-intervention period (2002-2008). GDP per capita and public expenditure are measured in 2016 euros.

Table A4.2.1.4. Primary care: Predictors average of the Prompt attention (subjective) domain

	Community of Madrid		Average of 16 control regions
	Real	Synthetic	
Ratio population aged 65 or more	14.20	17.90	17.68
Ln(GDP per capita)	10.45	9.91	10.11
Ln(Public expenditure per capita in primary care)	4.85	5.19	5.12
Number of doctors per 100,000 inhab.	54.54	65.07	62.40
Number of nurses per 100,000 inhab.	52.44	69.72	63.41
Number of non-health staff per 100,000 inhab.	43.58	44.44	40.76
Prompt attention (subjective) (2008)	5.58	5.66	5.98
Prompt attention (subjective) (2006)	6.56	6.60	6.76
Prompt attention (subjective) (2005)	7.05	6.91	6.77
Prompt attention (subjective) (2004)	6.54	6.52	6.79

*Note:* All variables are averaged for the pre-intervention period (2004-2008). GDP per capita and public expenditure are measured in 2016 euros.

Table A4.2.1.5. Primary care: Predictors average of the Prompt attention (objective) domain

	Community of Madrid		Average of 16 control regions
	Real	Synthetic	
Ratio population aged 65 or more	14.19	18.09	17.48
Ln(GDP per capita)	10.46	10.43	10.13
Ln(Public expenditure per capita in primary care)	5.00	5.42	5.30
Number of doctors per 100,000 inhab.	56.36	58.99	63.74
Number of nurses per 100,000 inhab.	52.02	60.93	64.23
Number of non-health staff per 100,000 inhab.	43.40	40.27	41.10

*Note:* All variables are averaged for the pre-intervention period (2008). GDP per capita and public expenditure are measured in 2016 euros.



## 2. Specialised Care

Table A4.2.2.1. Specialised care: Region weights for the synthetic Community of Madrid by domain

Region	Communication	Dignity	Prompt attention	
			Subjective	Objective
Andalusia	0	0	0	0
Aragon	0	0	0	0.259
Asturias	0	0	0	0
Balearic Islands	0.228	0.134	0	0
Canary Islands	0.034	0	0.476	0.006
Cantabria	0	0	0	0.017
Castilla-La Mancha	0	0	0	0
Castile and Leon	0	0	0	0
Catalonia	0	0.299	0	0.388
Valencia Community	0.112	0	0	0
Extremadura	0.033	0	0.524	0.253
Galicia	0.463	0.286	0	0
Region of Murcia	0	0	0	0
Navarre	0	0	0	0.033
Basque Country	0.131	0.280	0	0
La Rioja	0	0	0	0.043

Table A4.2.2.2. Specialised care: Predictors average of the Communication domain

	Community of Madrid		Average of 16 control regions
	Real	Synthetic	
Ratio population aged 65 or more	14.26	18.30	17.80
Ln(GDP per capita)	10.43	10.09	10.09
Ln(Public expenditure per capita in specialised)	6.39	6.40	6.40
Number of health staff per 100,000 inhab.	672.89	658.15	671.40
Communication (2008)	6.77	6.78	7.24
Communication (2006)	6.75	6.82	7.25
Communication (2004)	6.74	6.74	7.12
Communication (2002)	6.47	6.41	6.67

*Note:* All variables are averaged for the pre-intervention period (2002-2008). GDP per capita and public expenditure are measured in 2016 euros.

Table A4.2.2.3. Specialised care: Predictors average of the Dignity domain

	Community of Madrid		Average of 16 control regions
	Real	Synthetic	
Ratio population aged 65 or more	14.26	18.06	17.80
Ln(GDP per capita)	10.43	10.22	10.09
Ln(Public expenditure per capita in specialised)	6.39	6.41	6.40
Number of health staff per 100,000 inhab.	672.89	564.94	671.40
Dignity (2008)	7.28	7.15	7.45
Dignity (2006)	7.20	7.19	7.51
Dignity (2004)	7.09	7.10	7.45
Dignity (2002)	6.77	6.76	6.85

*Note:* All variables are averaged for the pre-intervention period (2002-2008). GDP per capita and public expenditure are measured in 2016 euros.

Table A4.2.2.4. Specialised care: Predictors average of the Prompt attention (subjective) domain

	Community of Madrid		Average of 16 control regions
	Real	Synthetic	
Ratio population aged 65 or more	14.20	15.76	17.68
Ln(GDP per capita)	10.45	9.88	10.11
Ln(Public expenditure per capita in specialised)	6.48	6.48	6.48
Number of health staff per 100,000 inhab.	689.91	689.99	684.84
Prompt attention (subjective) (2008)	4.28	4.36	5.06
Prompt attention (subjective) (2006)	4.75	4.59	5.17
Prompt attention (subjective) (2004)	4.43	4.44	5.13

*Note:* All variables are averaged for the pre-intervention period (2004-2008). GDP per capita and public expenditure are measured in 2016 euros.

Table A4.2.2.5. Specialised care: Predictors average of the Prompt attention (objective) domain

	Community of Madrid		Average of 16 control regions
	Real	Synthetic	
Ratio population aged 65 or more	14.20	18.17	17.68
Ln(GDP per capita)	10.45	10.16	10.11
Ln(Public expenditure per capita in specialised)	6.48	6.47	6.48
Number of health staff per 100,000 inhab.	689.91	636.39	684.84
Prompt attention (objective) (2008)	86.46	86.30	82.17
Prompt attention (objective) (2006)	79.84	79.75	83.24
Prompt attention (objective) (2004)	77.14	77.02	74.83

*Note:* All variables are averaged for the pre-intervention period (2004-2008). GDP per capita and public expenditure are measured in 2016 euros.

# CHAPTER 5

*The Effect of the Freedom of  
Choice Policies on Health Systems'  
Responsiveness: A methodological comparison*

\* The results of this chapter have been presented in the VII EuHEA PhD Student-Supervisor and Early Career Researcher Conference in 2020 organised by the Erasmus School of Health Policy & Management and Erasmus School of Economics of the Erasmus University Rotterdam.



## 1. Introduction

In the previous chapter, we saw that the freedom of choice policy implemented in the Community of Madrid in 2009 had a significant and strong positive effect on the objective waiting times in the specialised care service –waiting times (in days) to be seen by the specialist doctor since the patient was referred by the GP–. Specifically, they were reduced by around 21% because of the reform. However, such effect was estimated by using only the synthetic control method. Some authors have stated that the impact evaluation method selected to estimate the effects could influence the results obtained. For instance, Manski & Pepper (2018) find that there are ambiguous conclusions in the literature about the effects of laws allowing individuals to carry handguns (right-to-carry laws) to reduce the crime rate. This ambiguity could be generated by the application of different impact evaluation methods which tend to violate their identification assumptions, thereby yielding biased results of the effects of the policy.

For that reason, the aim of this chapter is to apply different impact evaluation methods to estimate the effects of the freedom of choice policy implemented in the Community of Madrid on the waiting times for the specialised care service. We are aiming at verifying whether the effect found in the previous chapter is robust regardless of the impact evaluation method that we use. Specifically, we apply the most employed impact evaluation methods in order to guarantee the robustness of the impact found and to avoid the potential biased results. Specifically, we use the before-and-after comparison method; self-selected comparison method; difference-in-differences method; synthetic control method; and the Manski and Pepper method. All of them are *ex post* evaluation method, since measure the effects of the treatment after the intervention was deployed (Abadie & Cattaneo, 2018). Furthermore, we draw on four impact evaluation method to calculate the MP indicator, thereby extending the contributions of the previous literature where only two methods are used (Depalo, 2019; Manski & Pepper, 2013, 2018). The use of several impact evaluation methods and the comparison of the results we got from them provides an original contribution to the literature of reference.

## 2. Empirical Strategy

### 2.1. Dataset and Variable of Interest

In this study we use cross-sectional microdata from the Spanish Healthcare Barometer survey for the period 2004-2015.<sup>34</sup> Our analysis is based on pooled data with a sample size of 84,355 observations. We use as variable of interest in our empirical analysis the self-reported waiting times to be seen by the specialist doctor since the patient was referred by the GP. The respondents in the SHB survey are asked to indicate, regarding their last consultation, the number of days elapsed since the GP referred them to the specialised care services until they were seen by a specialist doctor. We focus exclusively on respondents who reported experience with the public health system during the last 12 months. As the Spanish healthcare system is mainly publicly funded, a high proportion of respondents recognised having made use of it during this period.<sup>35</sup> Other regional-wide level data used for the application of the SC method, such as GDP, public health expenditure per capita, or the number of health staff and non-health staff in public specialised care were collected from the National Statistics Institute and the Ministry of Health in Spain.

### 2.2. Methods

In order to identify the impact of the freedom of choice policy in the Community of Madrid we draw on methods of impact evaluation. Suppose that we have a pooling cross section sample of  $N$  individuals ( $i = 1, 2, \dots, N$ ) from different years ( $t = 1, 2, \dots, T$ ). Suppose that at time  $T_0$  a group of those  $N$  individuals receives a treatment or intervention (*treatment or treated group*,  $G = 1$ ), whereas the rest of individuals continues without treatment (*control or untreated group*,  $G = 0$ ). We distinguish two periods: 1) a pre-intervention period ( $t = 1, 2, \dots, T_0$ ); and 2) a post-intervention period ( $t = T_0+1, T_0+2, \dots, T$ ). In order to identify the average treatment effect on a certain variable of interest ( $Y_t^G$ ) during the post-intervention period, we apply the following equation:

---

<sup>34</sup> See Chapter 2 for more details about the SHB survey.

<sup>35</sup> We use this approach since only those respondents who had an experience with the specialised care services in last 12 months could answer the question about the self-reported waiting times. From 2004 to 2015, in specialised care, around 46% of the respondents in survey had used the service and, of these, approximately 83% used the public service.

$$ATE_t = E[Y_{it}^1 | K = 1] - E[Y_{it}^1 | K = 0] \quad \text{with } t > T_0$$

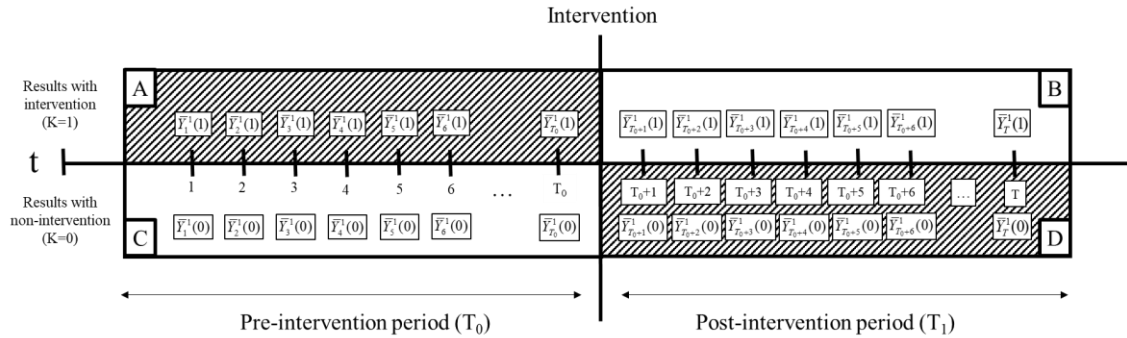
$$ATE_t = \bar{Y}_t^1(1) - \bar{Y}_t^1(0) \quad \text{with } t > T_0 \quad (5.1)$$

where  $ATE_t$  is the average treatment effect at time  $t$ ;  $E[Y_{it}^1 | K = 1] = \bar{Y}_t^1(1)$  is the average observed value of the variable of interest in the treated group at time  $t$  when the treatment has been really implemented ( $K = 1$ ); and  $E[Y_{it}^1 | K = 0] = \bar{Y}_t^1(0)$  is the average value which would have been observed in the treated group at time  $t$  if the intervention had not been implemented in that group ( $K = 0$ ). This last term is so-called *counterfactual* or *benchmark*. Since the treatment has been effectively implemented in the treated group, the values of the first term in the equation (5.1) ( $\bar{Y}_t^1(1)$ ) can be observed by data for the whole post-intervention period. On the contrary, the value of the second term ( $\bar{Y}_t^1(0)$ ) is unknown since we cannot simultaneously observe the value of the variable of interest for the same group with and without treatment. Therefore, the central problem in the studies analysing the impact of policy interventions is to estimate the value of that counterfactual during the post-intervention period.

In Figure 5.1, we show a map of the situation throughout a temporal line which represents the potential results of variable of interest for region  $k$  with and without intervention. We observe two mutually exclusive results for region  $k$  in a same time: with and without intervention. Before the intervention, the results that we observe in data for region  $k$  are those in area C (white area). However, after the policy intervention, the values of variable of interest for region  $k$  at time  $t$  shown by data are those of the area B. The values of the area D (striped area) are counterfactuals, that is, they are potential values of the variable of interest for region  $k$  in the absence of policy intervention. One of our objectives is to estimate the counterfactual values year by year of the variable  $Y$  during the post-intervention period.



Figure 5.1. Map of the potential values of the variable of interest for the treated group ( $G = 1$ ) with ( $K = 1$ ) and without ( $K = 0$ ) treatment. Blank and striped areas represent, respectively, the observed and unobserved values of the variable of interest by data



In order to estimate the values of  $\bar{Y}_t^1(0)$ , we apply the following methodological techniques: before-and-after comparison method; self-selected comparison method; difference-in-differences method; synthetic control method; and the Manski and Pepper method. Given that all of them have limitations, we apply all the five techniques in order to compare the results we got through these techniques and assess the possible biases in the estimations of  $\bar{Y}_t^1(0)$  caused by the application of a certain method. The application of several methods allows us to have more robust results about the impact of the treatment on the variable of interest.

The freedom of choice policy implemented in the Community of Madrid came into effect in November of 2009, so we count on six pre-intervention years (2004-2009) and six post-intervention years (2010-2015). We measure the impact of the policy for the period 2010-2015. The treatment group is composed by all the individuals in the sample who recently (in last 12 months) received specialised care services within the NHS in the Community of Madrid (SERMAS).<sup>36</sup> The control group is made up of the same type of individuals who do not live in the area of Madrid but in the other regions of Spain (16 regions). Information about the sample of both groups is collected in Table 5.1.

<sup>36</sup> Moreover, we only included in our sample individuals who indicated the number of days to be seen by a specialist doctor since the General Practitioner referred them to a specialised service.

Chapter 5. The Freedom of Choice Policies on Health System Responsiveness:  
A Methodological Comparison

Table 5.1. Sample of individuals in the Spanish Healthcare Barometer survey to perform the analysis

Group	Year												Total
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
Treated group: <i>Community of Madrid</i>	241	251	235	258	233	242	257	252	247	219	241	238	2,914
Control group: <i>Rest of Spain</i>	1,601	1,920	1,837	1,909	2,014	2,093	2,093	2,135	2,148	2,144	2,046	1,979	23,919
Andalusia	220	235	235	245	268	215	209	192	214	240	196	201	2,670
Aragon	76	89	78	98	106	88	122	123	132	137	123	134	1,306
Asturias	86	87	88	81	87	98	91	95	89	91	81	78	1,052
Balearic Islands	51	66	63	78	74	87	92	101	92	86	105	86	981
Canary Islands	66	91	98	119	117	119	124	120	127	138	111	107	1,337
Cantabria	43	43	55	53	64	86	69	90	85	83	75	89	835
Castilla-La Mancha	89	121	103	84	118	112	122	140	125	110	134	104	1,362
Castile and León	99	148	137	112	144	146	119	149	131	119	125	101	1,530
Catalonia	270	328	294	306	271	246	267	250	231	241	207	255	3,166
Valencian Com.	174	191	197	211	205	215	205	208	217	217	213	194	2,447
Extremadura	71	83	55	79	87	109	112	107	136	137	113	109	1,198
Galicia	99	135	128	143	153	154	121	132	159	129	126	106	1,585
Region of Murcia	56	76	87	91	94	96	118	117	97	97	104	101	1,134
Navarra	49	63	44	55	67	90	95	98	99	103	120	108	991
Basque Country	107	101	103	94	104	146	147	154	136	149	138	132	1,511
La Rioja	45	63	72	60	55	86	80	59	78	67	75	74	814
Total	1,842	2,171	2,072	2,167	2,247	2,335	2,350	2,387	2,395	2,363	2,287	2,217	26,833

Note: Information retrieved from the SHB survey.

### 2.2.1. BAC and SSC Methods

BAC and SSC methods are the most common techniques used in the literature of impact evaluation (Gertler et al., 2017). The BAC method supposes that, in the absence of policy intervention, the value of the variable of interest in the treated group would have been the same as the observed one in the last year before the treatment, and constant during the whole post-intervention period, namely, it uses as counterfactual the value of the variable of interest for the treated group before the policy was launched

$(\hat{Y}_t^1(0) = \bar{Y}_{T_0}^1(0))$  with  $t \geq T_0+1, T_0+2, \dots, T$ . This procedure is based on the *time invariance* assumption, that is, there would be no factors different from the treatment with influence on the variable of interest for the treated group.

In the SSC method the value  $\bar{Y}_t^1(0)$  is estimated by using the observed values of the variable of interest in the untreated group during the post-intervention period, namely,  $\hat{Y}_t^1(0) = \bar{Y}_t^0(0)$  with  $t \geq T_0+1, T_0+2, \dots, T$ . In this case, we would be supposing that the average values observed of the variable of interest in the control group after the treatment implementation would be representing the values of the treated group in the absence of the intervention. If the treatment has been applied by using a randomized control trial method, it is highly likely both groups to have identical observed and unobserved characteristics, thereby the values of the untreated group could be accurately representing the counterfactual. However, when a randomized experiment has not been applied to select the treatment and control groups, we could find two groups with heterogeneous characteristics that could be differently affecting the variable of interest during the post-intervention period. This fact could cause a bias in the estimated effect of the treatment. If the method is used in this last case, in order to assign all the estimated effect to the treatment, we would have to assume that there is no heterogeneity between groups. This assumption is so-called *state invariance*, namely, the variable of interest is affected by the same factors in both groups over time.

### 2.2.2. Difference-in-Differences Method

The DD method tries to overcome the bias generated for the violation of the *state invariance* assumption (Gertler et al., 2017). Unlike the SSC method, it assumes that there exists unobserved heterogeneity between groups. However, it supposes that a part of that heterogeneity is time invariant, so it could be eliminated. In this way, the method tries to estimate the effect of the policy during the post-intervention period by applying the following equation:

$$ATE_t = [\bar{Y}_t^1(1) - \bar{Y}_{T_0}^1(0)] - [\bar{Y}_t^0(0) - \bar{Y}_{T_0}^0(0)] \quad \text{with } t > T_0 \quad (5.2)$$

where  $\bar{Y}_t^1(1)$  is the average value of the variable of interest in the treated group at time  $t$ ;  $\bar{Y}_{T_0}^1(0)$  is the average value of the variable of interest in the treated group at time  $T_0$ ;  $\bar{Y}_t^0(0)$  is the average value of the variable of interest in the control group at time  $t$ ; and  $\bar{Y}_{T_0}^0(0)$  is the average value of the variable of interest in the control group at time  $T_0$ .

The first differences in equation (5.2) (differences between brackets) correspond to the application of the BAC method both for treatment and control group. Its application

allows us to remove the influence of the time invariant characteristics on the variable of interest thereby the potential bias generated by those factors would be deleted. The second difference would correspond to the application of the SSC method but without the influence of the time invariant characteristics on the variable of interest. Therefore, as Gertler et al. (2017, p. 130) states, the difference-in-differences approach «combines the two counterfeit estimates of the counterfactual –BAC and SSC methods– to produce a better estimate of the counterfactual».

However, despite eliminating the effect of time invariant characteristics, the DD method does not allow to remove the time variant heterogeneity between groups. For this reason, if we assign all the estimated impact to the treatment, we would be assuming that there are no time variant differences between treated and untreated units. In this case, the trend of the variable of interest between both groups would have to be parallel in the absence of treatment (*parallel trend* assumption) (Abadie & Cattaneo, 2018).

Apart from the equation (5.2), the DD estimation can also be calculated within a regression framework in order to control by other characteristics that could differently affect each group (Khandker et al., 2010) and to study the significance of the results. In particular, the equation would be the following:

$$Y_{it} = \alpha + \sum_{i=1}^N \beta_i group_{it} + \sum_{t=1}^T \gamma_t time_{it} + \sum_{t=1}^T \delta_{it} group_i \cdot time_{it} + \theta X_{it} + \varepsilon_{it} \quad (5.3)$$

where  $Y_{it}$  is the variable of interest for individual  $i$  at time  $t$ ;  $\beta_i$  and  $\gamma_t$  are regional and year fixed effects. Region fixed effects controls for any unobserved time invariant characteristics, whereas year fixed effects moderate for any factor which may simultaneously influence all the regions;  $\theta$  is a vector of parameters for group characteristics which controls for any other observed factor which can affect the variable of interest;  $\delta_{it}$  is the parameter of interest which identifies the impact of the treatment for each year after its implementation; and  $\varepsilon_{it}$  is a random term assumed to have mean zero.

### 2.2.3. The Synthetic Control Method

When the treatment has not been randomly assigned, the main drawback to estimate an accurate counterfactual with the SSC and DD methods is the difficulty to find a control

group with identical or very similar characteristics to the treatment group. As we saw in chapter 4, the SC method allows to create a *synthetic unit* by using data-driven procedures in order to obtain the most suitable comparison group for the treated unit (Abadie et al., 2010, 2015; Abadie & Gardeazabal, 2003). A synthetic control is a weighted average of untreated units chosen to get the best reproduction of the characteristics of the treated unit before the intervention, thereby overcoming the limitations of the SSC and DD methods related to the heterogeneity between groups.

This methodological technique has been mainly developed to be employed in comparative case studies where interventions affect entire aggregate units, such as regions, companies, schools, or countries (Abadie & Cattaneo, 2018). Any of the above methods tends to use individuals in the treatment and control groups as unit of analysis, so an average of the variable of interest for each group is calculated to estimate the effect of an intervention. However, when the group coincide with a region, the SC method aggregates the variable of interest to regional level by using the regions as the unit of analysis (Abadie et al., 2010). Therefore, in equation (5.1), the value  $\bar{Y}_t^1(1) = Y_{1t}(1)$  represents the average value of the variable of interest in the treated region at time  $t$ , whereas  $\bar{Y}_t^1(0) = Y_{1t}(0)$  is the average counterfactual value of the treated region at time  $t$ . The SC method estimates the counterfactual value in the post-intervention period as of the values of the variable of interest in the control regions (*donor pool*). However, unlike the DD method, it suggests applying an optimal weight to each unit in the donor pool in order to obtain a comparison unit which is the most similar as possible to the treated unit. Thus, the equation (5.1) would be rewritten as follows:

$$ATE_t = Y_{1t}(1) - \sum_{j=2}^J w_j^* Y_{jt}(0) \quad \text{with } t > T_0 \quad (5.4)$$

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. Abadie et al. (2010) prove that  $\sum_{j=2}^J w_j^* Y_{jt}(0)$  could be a good estimator of  $Y_{1t}(0)$  if the number of pre-intervention periods is large relative to the scale of the transitory shocks. The vector  $w^*$  is chosen to minimize  $\|X_1 - X_0 w\|$  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  $(k \times J)$

matrix which contains the same variables for the untreated units. These characteristics should be potential predictors of post-intervention outcomes (Abadie et al., 2015). A weighted Euclidean norm is commonly employed to measure the discrepancy between the characteristics of the treated and synthetic unit:

$$\|X_1 - X_0w\| = \sqrt{(X_1 - X_0w)'V(X_1 - X_0w)} \quad (5.5)$$

where  $V$  is a diagonal matrix with nonnegative elements in the main diagonal that control the relative importance of obtaining a good match between each value in  $X_1$  and the corresponding value in  $X_0w$ .<sup>37</sup>

One of the main limitations of the SC method is the impossibility to carry out statistical inference to check the robustness of the results. The small-sample nature of the data, the absence of randomization, and the fact that probabilistic sampling is not employed to select sample units complicate the application of traditional approaches to statistical inference (Abadie et al., 2015). Therefore, *placebo tests* are conducted as alternative to the traditional statistical inference, specifically, *in-time* and *in-space* placebos (Abadie et al., 2015; Abadie & Gardeazabal, 2003; Bertrand et al., 2004; Cavallo et al., 2013). For instance, the tests based on *in-space* placebos can even generate *p-values* (Abadie et al., 2015; Galiani & Quistorff, 2017) which could be directly interpreted as conventional tests of statistical significance (Abadie et al., 2010). In addition, other tests such as the *leave-one-out* can be also employed to check whether particular regions in the donor pool drive the results (Hernæs, 2018). However, one of the most relevant indicators of the robustness of the estimated counterfactual is its ability to reproduce the average values of the variable of interest of the treated unit during the pre-intervention period.

#### 2.2.4. The Manski and Pepper Method

All of the methods exposed above point-identify the effect of the treatment by invoking strong assumptions which can be violated. The method applied by Manski & Pepper (2013, 2018) relaxes such assumptions and identifies a *bounded* effect instead of

---

<sup>37</sup> There are two approaches to calculate vector  $V$ : nested and regression. The first one selects the weights minimising the mean squared prediction error for the pre-intervention period. The second one divides the pre-intervention period into an initial training period and a subsequent validation period. In this last case, the matrix  $V$  is chosen to minimise the MSPE by the weights  $W^*(V)$  during the validation period. The second strategy is not recommended when the pre-intervention period is not large enough (Abadie et al., 2010; Kaul et al., 2018).

providing a precise effect which may be biased. It is worth pointing out that the boundaries generated by the MP method are not related to the confidence intervals from the classical econometric analysis point of view, but are focused on the identification problem arising from the observability of the counterfactual outcome (Manski & Pepper, 2018, pp. 8–9). In essence, the aim of the MP approach is to estimate the counterfactual value by any of the above methods, and then to yield an interval for that value by using an uncertainty parameter.

The MP method sets that, as the counterfactual value estimated by any of the above methods has been obtained by assuming invariance assumptions potentially violated, there exists a difference between the true and unknown counterfactual value ( $\bar{Y}_t^1(0)$ ) and the counterfactual value estimated by impact evaluation methods ( $\hat{Y}_t^1(0)$ ). However, it assumes that such difference does not exceed a certain amount which is set by the so-called *uncertainty parameter*, namely,  $\left| \bar{Y}_t^1(0) - \hat{Y}_t^1(0) \right| \leq \delta_t^1$ .

Following the MP method, the effect of the intervention on the variable of interest after its implementation would be:

$$\begin{aligned}
 ATE_t &\in [\bar{Y}_t^1(1) - (\hat{Y}_t^1(0) + \delta_t^1); \bar{Y}_t^1(1) - (\hat{Y}_t^1(0) - \delta_t^1)] && \text{with } t > T_0 \\
 ATE_t &\in [\bar{Y}_t^1(1) - \hat{Y}_t^{1,U}(0); \bar{Y}_t^1(1) - \hat{Y}_t^{1,L}(0)] && \text{with } t > T_0 \\
 ATE_t &\in [ATE_t^L; ATE_t^U] && \text{with } t > T_0 \quad (5.6)
 \end{aligned}$$

where the true effect of the treatment is somewhere between  $ATE_t^L$  and  $ATE_t^U$ . Equation (5.6) is the same as equation (1) but now the true effect is supposed to be in a range that is determined by the value of a uncertainty parameter.<sup>38</sup> The larger the uncertainty parameter, the weaker the assumptions and the higher the credibility of results (Manski, 2003).

---

<sup>38</sup> Although equation (5.6) is representing a symmetric interval, the bounded variation does not need to be symmetric, that is,  $\delta_t^{1,L} \leq \bar{Y}_t^1(0) - \hat{Y}_t^1(0) \leq \delta_t^{1,U}$  where  $\delta_t^{1,L} \neq \delta_t^{1,U}$ . However, establishing asymmetry could constrain the spectrum of the possible answers (Depalo, 2019).

Any of the above methods can be used to estimate the counterfactual value ( $\hat{Y}_t^1(0)$ ) when the MP approach is used. However, it is possible to apply all of them jointly to avoid to take a discretionary position about the method to use (Depalo, 2019). In that case, the effect of the intervention would be:

$$ATE_t^L \equiv \bar{Y}_t^1(1) - \min(\hat{Y}_t^1(0)_{BAC} + \delta_{t,BAC}^1; \hat{Y}_t^1(0)_{SSC} + \delta_{t,SSC}^1; \hat{Y}_t^1(0)_{DD} + \delta_{t,DD}^1; \hat{Y}_t^1(0)_{SC} + \delta_{t,SC}^1) \\ \leq ATE_t \leq \text{with } t > T_0 \quad (5.7)$$

$$ATE_t^U \equiv \bar{Y}_t^1(1) - \max(\hat{Y}_t^1(0)_{BAC} - \delta_{t,BAC}^1; \hat{Y}_t^1(0)_{SSC} - \delta_{t,SSC}^1; \hat{Y}_t^1(0)_{DD} - \delta_{t,DD}^1; \hat{Y}_t^1(0)_{SC} - \delta_{t,SC}^1)$$

where  $\hat{Y}_t^1(0)_{BAC}$ ,  $\hat{Y}_t^1(0)_{SSC}$ ,  $\hat{Y}_t^1(0)_{DD}$ ,  $\hat{Y}_t^1(0)_{SC}$  is the counterfactual value of the variable of interest estimated by the methods of before-and-after comparison, self-selected comparison, difference-in-differences, and synthetic control, respectively. This last procedure also provides tighter bounds for the effect (Depalo, 2019). A necessary condition to have  $ATE_t^L \leq ATE_t \leq ATE_t^U$  would be the following:

$$\delta_{t,BAC} + \delta_{t,SSC} \geq |\hat{Y}_t^1(0)_{BAC} - \hat{Y}_t^1(0)_{SSC}|; \quad \delta_{t,BAC} + \delta_{t,DD} \geq |\hat{Y}_t^1(0)_{BAC} - \hat{Y}_t^1(0)_{DD}|; \quad \delta_{t,BAC} + \delta_{t,SC} \geq |\hat{Y}_t^1(0)_{BAC} - \hat{Y}_t^1(0)_{SC}|; \\ \delta_{t,SSC} + \delta_{t,DD} \geq |\hat{Y}_t^1(0)_{SSC} - \hat{Y}_t^1(0)_{DD}|; \quad \delta_{t,SSC} + \delta_{t,SC} \geq |\hat{Y}_t^1(0)_{SSC} - \hat{Y}_t^1(0)_{SC}|; \quad \text{and } \delta_{t,DD} + \delta_{t,SC} \geq |\hat{Y}_t^1(0)_{DD} - \hat{Y}_t^1(0)_{SC}|$$

which are known as *minimum dissimilarity indicators*.

One of the most important issues of the MP method is to establish the optimal value of such uncertainty parameter (Depalo, 2019). That value could be based on the differences that are observed before the implementation of the treatment between the actual outcome in the treated region and the counterfactual that is built with any of the above methods (Manski & Pepper, 2018). For instance, Manski & Pepper (2018) set  $\delta$ s equal to the maximum or the 75<sup>th</sup> quantile prior to the treatment conditioning on the minimum dissimilarity indicator. Depalo (2019) uses the uncertainty parameter with the largest difference between the real and counterfactual units before the treatment without conditioning on the minimum dissimilarity indicator.

One of the great advantage of this estimator over standard approaches is that the reasons why the uncertainty parameter is non-zero need not to be known to obtain consistent estimates of the treatment effect, however the size of uncertainty must be



specified a priori (Depalo, 2019). Furthermore, as well as the SC method, the MP approach can be used to estimate the treatment effects both with micro or macro data.

### 3. Results

Figure 5.2 displays the average waiting times for specialised care service in the Community of Madrid during the period 2004-2015, as well as its counterfactual for the period 2010-2015 calculated by the BAC, SSC, DD and SC methods. Table 5.2 collects the annual impact of the freedom of choice policy implemented in the Community of Madrid on the waiting times for specialised care obtained by the same methods.

Table 5.2. Effects of the freedom of choice policy implemented in Community of Madrid in 2009 on the waiting times for specialised care by method

Year	BAC	SSC	DD		SC	MP <sup>c</sup>	
			Standard <sup>a</sup>	Regression <sup>b</sup>		UB	LB
2010	-4.87	-8.97	-6.01	-3.22	-10.65	-13.97	-4.65
2011	-18.70	-28.88	-25.92	-25.62***	-29.29	-30.70	-23.88
2012	-3.83	-14.27	-11.31	-8.28	-18.34	-15.83	-12.34
2013	-9.45	-17.86	-14.90	-11.83	-21.74	-21.45	-15.74
2014	-9.15	-18.84	-15.88	-12.61	-19.47	-21.15	-13.84
2015	-6.43	-15.00	-12.04	-9.59	-11.44	-17.44	-10.00

Note: \*\*\* $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  (only for DD regression). BAC = Before-and-after comparison; SSC = Self-selection comparison; DD = Difference-in-differences; MP = Manski and Pepper; UB = Upper bound; LB = Lower bound.

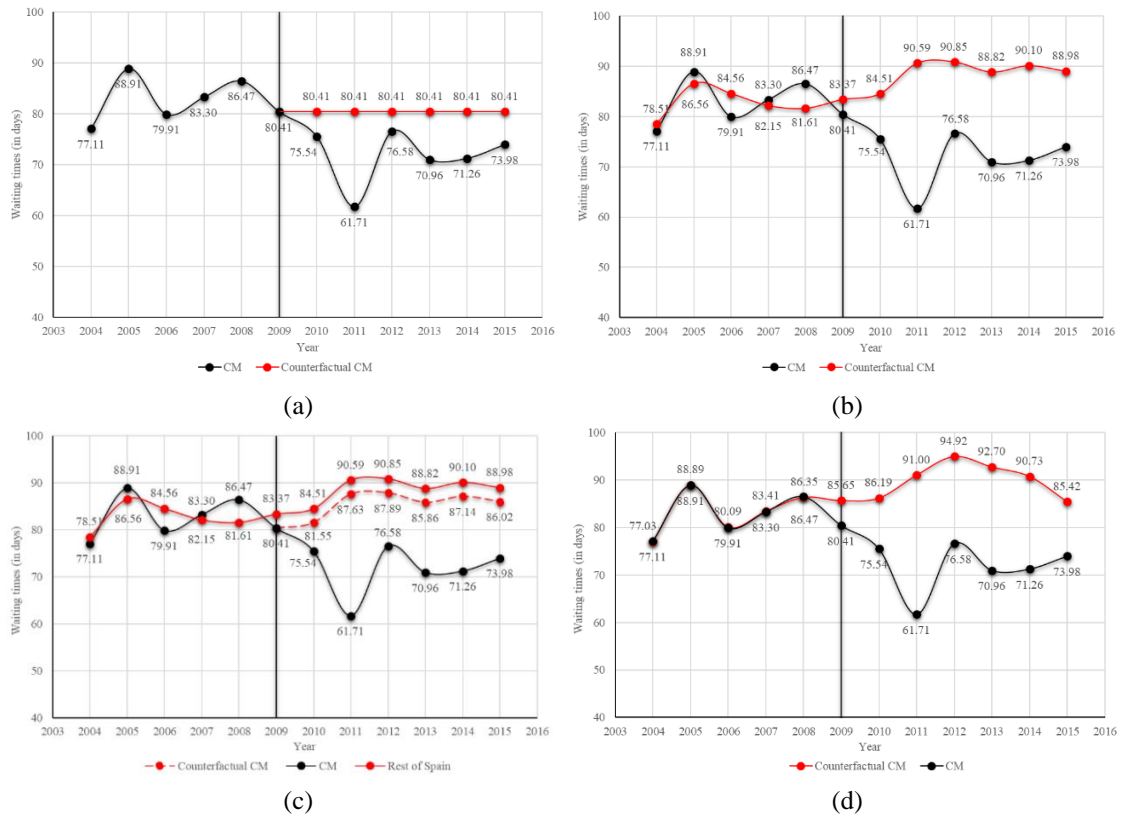
<sup>a</sup> These results are obtained with Equation (5.2)

<sup>b</sup> These results are obtained with Equation (5.3)

<sup>c</sup> These results are obtained with Equation (5.7) by using  $\delta_{BAC} = 12$ ,  $\delta_{SSC} = 5$ ,  $\delta_{DD} = 8$ , and  $\delta_{SC} = 6$  as uncertainty parameter.

## Chapter 5. The Freedom of Choice Policies on Health System Responsiveness: A Methodological Comparison

Figure 5.2. Waiting times for specialised care in the real and counterfactual Community of Madrid by impact method (2004-2015).



Note: (a) BAC method; (b) SSC method; (c) DD method; (d) SC method. BAC = Before-and-After Comparison; SSC = Self-Selected Comparison; DD = Difference-in-Differences; SC = Synthetic Control; CM = Community of Madrid.

The BAC method (see Figure 5.2a) shows that extending the choice possibilities of health provider on the patients' part reduced the average waiting times in specialised care for first visits. The method estimates a drop of about 19 days in waiting times in 2011, and a reduction between 3 and 10 days the remaining years (see Table 5.2). In general, the waiting times have been around 11% shorter than they would have been in the absence of the policy during the period 2010-2015. In the SSC method (see Figure 5.2b), where the counterfactual is composed of the rest of Spanish regions, we observe a roughly constant evolution in the waiting times of the counterfactual unit during the period 2004-2015 contrasting with a clear downward trend in those of the Community of Madrid as of 2009. In this way, we find that the reform achieved to reduce the waiting times around 28 days in 2011 and an average of 19,4% on the whole post-intervention period.

The DD method (see Figure 5.2c) displays that the waiting times were around 26 days shorter than they would have been in the absence of policy in 2011. Likewise, the policy implementation would have reduced by around 17% the average waiting times for specialised care for the period 2010-2015. It is worth pointing out that the effects found with this method are located between the effects estimated by the BAC and SSC methods thereby suggesting that the DD method would be correcting the potential biases generated by the BAC and SSC methods. In order to control by other observed factors, we apply DD estimation by running the equation (5.3) (see Table 5.3). We find that, when we include other controls, the impact of the reform is slightly lower every year. In addition, we see that the only significant effect is that in 2011 which is very close to 26 days.

Table 5.3. Difference-in-differences method: Waiting times for specialised care (2004-2015)

Period	Variable	Estimations		
		(1)	(2)	(3)
<i>Pre-intervention</i>	<i>madridXy2004</i>	Ref.	Ref.	Ref.
	<i>madridXy2005</i>	3.76 (8.98)	4.68 (8.97)	5.05 (8.98)
	<i>madridXy2006</i>	-3.24 (8.30)	-2.60 (8.29)	-1.09 (8.35)
	<i>madridXy2007</i>	2.55 (8.14)	3.83 (8.13)	5.11 (8.17)
	<i>madridXy2008</i>	6.26 (9.46)	7.50 (9.45)	9.22 (9.62)
	<i>madridXy2009</i>	-1.55 (8.74)	-0.42 (8.74)	1.65 (8.95)
<i>Post-intervention</i>	<i>madridXy2010</i>	-7.57 (7.84)	-7.03 (7.83)	-3.22 (8.15)
	<i>madridXy2011</i>	-27.48*** (7.96)	-26.61*** (7.95)	-25.62*** (8.22)
	<i>madridXy2012</i>	-12.86 (8.40)	-11.3 (8.40)	-8.28 (8.69)
	<i>madridXy2013</i>	-16.45* (8.59)	-15.54* (8.59)	-11.83 (9.08)
	<i>madridXy2014</i>	-17.43** (8.14)	-16.62** (8.14)	-12.61 (8.76)
	<i>madridXy2015</i>	-13.60* (8.13)	-13.28 (8.13)	-9.59 (8.76)
	Time FE	Yes	Yes	Yes
	Region FE	No	Yes	Yes
	Other controls	No	No	Yes
	Sample	26,833	26,833	26,833

Note: Standard errors in parenthesis. \*\*\*p < 0.01, \*\* p < 0.05, \* p < 0.1. Other controls: ln(GDP per capita), ln(public health expenditure per capita), ln(public health expenditure in specialised care per capita), ln(number of health staffs in public specialised care per capita), ln(number of non-health in public specialised care per capita).

Figure 5.2d displays the impact of the policy by implementing the SC method. Given that this method requires aggregate units to do the analysis, we have aggregated our data from individual-level to regional-level by taking an arithmetic mean of variable of interest for each year and region. In addition, we have included regional data from external sources to complete the vectors of characteristics of equation (5.5), as well as some regional variables which have been calculated from our sample for each group.<sup>39</sup> All of them could be potential predictors of our variable of interest according to the literature (Ringard & Hagen, 2011; Robone, Rice, et al., 2011; Siciliani & Martin, 2007).<sup>40</sup> We have applied the SC method with several combinations of characteristics, and finally we have selected those with the lowest RMSPE.<sup>41</sup> The characteristics of the synthetic Community of Madrid for the pre-intervention period and the optimal weights calculated by the SC method are collected in Appendix 5.1.

We observe that the values of the average waiting times in the synthetic and real unit are practically the same during the pre-intervention period. This suggests that the synthetic unit created by the SC method would be a control group with very homogeneous characteristics to those of the treated unit. If we use the synthetic unit to compare with the real treated unit during the post-intervention period, we observe positive effects of the reform. Increasing the set of choice of health providers for patients in specialised care caused a reduction of around one month and 22 days in 2011 and 2013, respectively, in average waiting times in that health service in the Community of Madrid. On average for the period 2010-2015, the waiting times were an around 22% shorter than they would have been if the reform had not been implemented. We also

---

<sup>39</sup> The selected characteristics from external sources are GDP per capita (in euros); public health expenditure in specialised care per capita (in euros); and number of health staff in specialised care per 100,000 inhabitants. The factors included from the SHB survey are the ratio of population with aged 65 or more; ratio of female; ratio of population with high education, living in urban areas, and with an experience in the public specialised care in last 12 months, as well as several lagged values of the variable of interest for the intervention period are included (see Table 5.1.1 in Appendix 5.1).

<sup>40</sup> Although some pre-intervention values of the study variables could be included in the  $X_1$  and  $X_0$  vectors as pre-intervention characteristics, we have not included all the years since it could make the remaining covariates irrelevant in the characteristic vector (Kaul et al., 2018).

<sup>41</sup> The RMSPE is the square root of the average of the squared discrepancies of the values of the variables of interest between the real region and its synthetic counterpart. The pre-intervention RMSPE is defined as follows (Abadie et al., 2015):

$$RMSPE = \left( \frac{1}{T_0} \sum_{t=1}^{T_0} \left( Y_{1t} - \sum_{j=2}^J w_j^* Y_{jt} \right)^2 \right)^{1/2} .$$

find that in all years the effects calculated by the SC method are larger than those obtained by the remaining methods mentioned above, with the exception of 2015. The *in-space* placebos and the *leave-one-out* tests suggest that the effects would be significant both individually and jointly, and they would not be driven by any of the regions in the donor pool (see Appendix 5.2).<sup>42</sup>

Figure 5.3 shows the annual ATE by using the equation (5.7) (MP method) for different values of the uncertainty parameter applied in each of the above methods. We find that, irrespective of the method selected, if a bias ( $\delta$ ) of around 15 is set, the effect of the freedom of choice policy in 2011 would be always positive, since it achieves to reduce waiting times in specialised care between 3 (BAC method) and 44 days (SC method). In 2012, 2013, 2014 and 2015, we observe a similar situation except for the BAC method where an uncertainty parameter higher than 9 (3.5 in 2012 and 6.5 in 2015) would not allow us to set whether the true effect of the policy was negative or positive. On the contrary, in 2010 most of methods would not provide a clear effect with a bias higher than 5 or 6, in case of BAC and DD methods, respectively, and around 9 or 11 in case of SSC and SC methods, respectively.

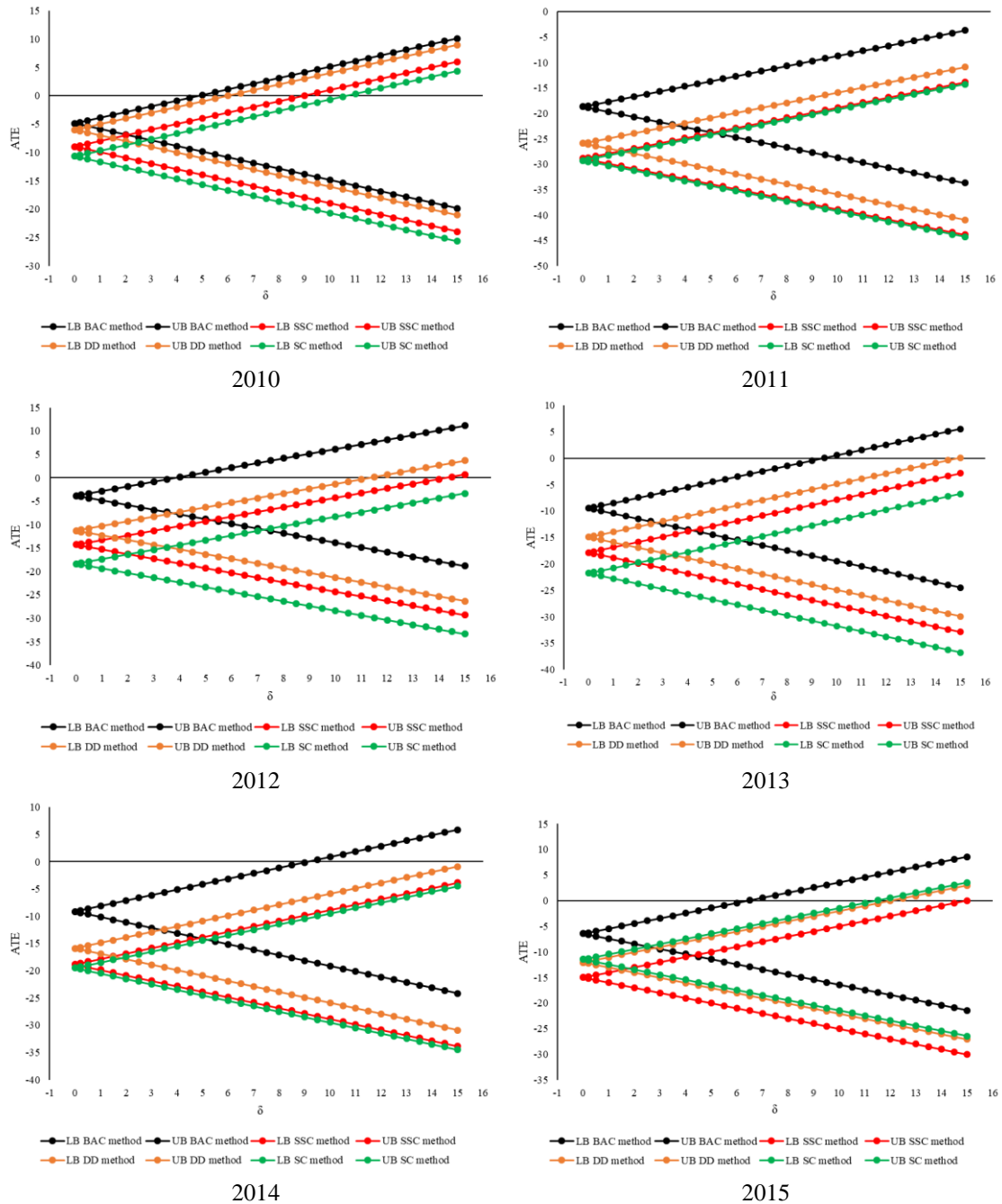
The choice of the 'optimal values' for  $\delta$  in the MP method are drawn on the maximum bias found before the intervention (see Table 5.4). We assume that the potential biases after the reform will be similar or lower than those found during the pre-intervention period. In this way, we select  $\delta_{BAC} = 12$ ,  $\delta_{SSC} = 5$ ,  $\delta_{DD} = 8$ , and  $\delta_{SC} = 6$  as uncertainty parameters and apply equation (5.7). The minimum dissimilarity indicator is hold for these values. Table 5.2 collects the annual interval of the potential effects of the reform with the 'optimal values' of  $\delta$  by applying the MP method (columns 7 and 8), as well as the impact of the reform. We find that the reform always had a positive effect on waiting times in specialised care mainly in 2011 where they were reduced between 23 and 30 days.

---

<sup>42</sup> *In-time* placebos have not been conducted because we count on a very limited number of years in the pre-intervention period.

## Chapter 5. The Freedom of Choice Policies on Health System Responsiveness: A Methodological Comparison

Figure 5.3. Annual average treatment effect calculated by using the Manski and Pepper approach for different values of the uncertainty parameters ( $\delta$ ) (2010-2015). Separate form



Note: LB = Lower bound; UP = Upper bound; BAC = Before-and-After Comparison; SSC = Self-Selected Comparison; DD = Difference-in-Differences; SC = Synthetic Control; ATE = Average Treatment Effect

Table 5.4. Reasonable values of uncertainty parameter ( $\delta$ ) (2004-2009)

Year	Time variance ( $\delta_{BAC}$ )	State variance ( $\delta_{SSC}$ )	DD variance ( $\delta_{DD}$ )	SC variance ( $\delta_{SC}$ )
2004	–	-1.40	1.56	0.08
2005	<b>11.80</b>	2.35	5.31	0.02
2006	-9.00	-4.65	-1.69	-0.18
2007	3.39	1.15	4.11	-0.11
2008	3.17	<b>4.86</b>	<b>7.82</b>	0.12
2009	-6.06	-2.96	0.00	<b>-5.24</b>

Note: BAC = Before-and-After Comparison; SSC = Self-Selected Comparison; DD = Difference-in-Differences; SC = Synthetic Control.

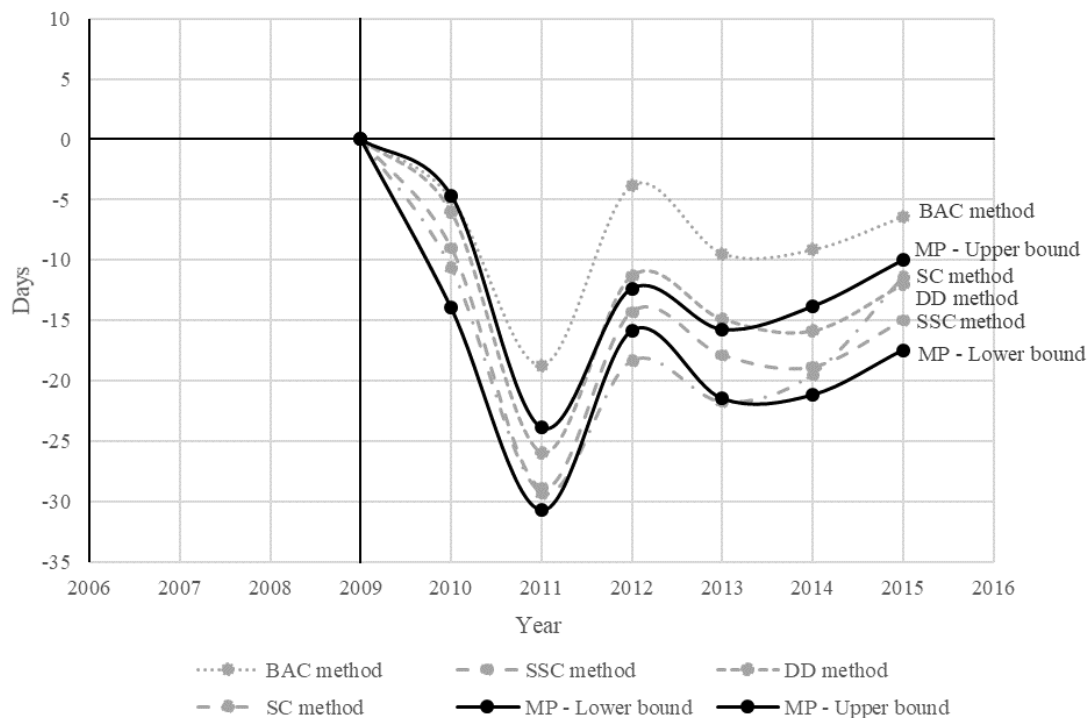
#### 4. Discussion and Conclusions

In this paper we have found that the freedom of choice policy implemented in the Community of Madrid in 2009 had a positive effect in reducing the waiting times in the period 2010-2015. Specifically, extending the set of choice for the patients in specialised care seems to have reduced the waiting times regardless of the impact evaluation method applied. However, the methods point-identifying the effects of the reform provide a slightly different evaluation of the impact of the reform on the waiting times. For instance, the BAC method estimates a reduction of waiting times of around 19 days in 2011 because of the policy, whereas the SC method estimates a drop of around one month. It seems that the SC method estimates the highest effects for the whole period analysed.

We can observe that the BAC and SSC methods seem to violate their identification assumptions, so they could be providing a biased impact of the reform. In Figure 5.2a, we find that the *time invariance* assumption could be violated since the average waiting times in the Community of Madrid before the reform were not constant. A similar situation happens with the *state invariance* assumption. Although we find small differences in some observed characteristics between the treated and control group (see Appendix 5.1), the homogeneity in the unobserved characteristics cannot be ensured since the treatment has not been implemented by using randomized control trial methods. That heterogeneity could be causing the differences in the variable of interest between regions in the pre-intervention period (see Figure 5.2b). For that reason, the effect estimated by the SSC method could be biased by the influence of other factors.

On the contrary, the results provided by the DD, SC and MP methods seem to provide the most robust results. The DD method eliminates the influence of the potential time invariant factors on the variable of interest and also meets the *parallel trends* assumption when the regression is applied (see Table 5.3), although it provides only one significant effect in 2011. The SC method creates a *synthetic unit* which seems to reproduce accurately the values of the variable of interest in the treatment group during the whole pre-intervention period. In addition, the *in-space* placebo and *leave-one-out* tests assure that the overall and individual effects found are significant. The results of the MP method provide further evidence in favour of the positive impact of the policy by relaxing the assumptions of the methods mentioned above. It is worth mentioning that most of annual effects calculated by other methods are almost always within the range generated by the MP approach except for the BAC method (see Figure 5.4). This could be explained by the high bias generated with the BAC method, which would underestimate the effect of the reform. Our findings for waiting times to see a specialist doctor are in line with those of previous studies investigating competitive markets where providers are financially incentivised to treat more patients (such as Norway or the UK) (Siciliani et al., 2017).

Figure 5.4. Annual Average Treatment Effect calculated by each of impact methods (2010-2015).



Note: BAC = Before-and-After Comparison; SSC = Self-Selected Comparison; DD = Difference-in-Differences; SC = Synthetic Control



In conclusion, the results of this chapter allows us to confirm that the freedom of choice policy implemented in the Community of Madrid in 2009 significantly reduced the waiting times for the specialised care service. In this sense, it seems that the impact evaluation method used is not relevant when it comes to estimating the effect of the reform, since all of methods provide positive effect. When we use the MP method and relax the assumptions of the impact evaluation methods, we observe that we never obtain a negative impact. We find the most positive effect in 2011 when the waiting times were reduced between 24 and 31 days. In any case, although the results seem to be positive, it would be relevant to study with more details the potential mechanisms conducting to these results.

## Appendix 5.1. Weights and Characteristics of the Treated and Synthetic Region

Table A5.1.1. Observed characteristics during the pre-intervention period (2004-2008)

	Community of Madrid	Rest of Spain	Synthetic Community of Madrid
Ratio population aged 65 or more	22.17	27.05	26.03
Ratio of female	61.25	57.78	57.70
Ratio of population with high education <sup>a</sup>	22.22	13.16	13.57
Ratio of population living in urban areas <sup>b</sup>	93.92	72.59	76.14
Ratio experience in public specialised care <sup>c</sup>	38.69	36.15	36.86
GDP per capita	34,516.16	24,960.75	24,041.90
Public health expenditure per capita (in euros)	1,046.30	1,192.76	–
Public expenditure in specialised care per capita (in euros)	656.08	646.11	621.57
Number of health staff in public specialised care per 100,000 inhabitants	690.14	643.44	643.47
Number of non-health staff in public specialised care per 100,000 inhabitants	274.96	239.33	–
Waiting times for specialised care	83.26	82.77	83.15

*Note:* All variables are averaged for the pre-intervention period (2004-2008). GDP per capita and public expenditure are measured in 2016 euros.

Table A5.1.2. Regional weights in the synthetic Community of Madrid

Region	Weight
Andalusia	0
Aragon	0.098
Principality of Asturias	0.048
Balearic Islands	0
Canary Islands	0.031
Cantabria	0
Castilla-La Mancha	0
Castile and León	0
Catalonia	0
Valencian Community	0.572
Extremadura	0.154
Galicia	0
Region of Murcia	0
Navarre	0
Basque Country	0.098
La Rioja	0

## Appendix 5.2. Placebo Tests for the Synthetic Control Method

Figure A5.2.1. P-values (pseudo t-stats) obtained from the in-space placebo tests for the synthetic control method

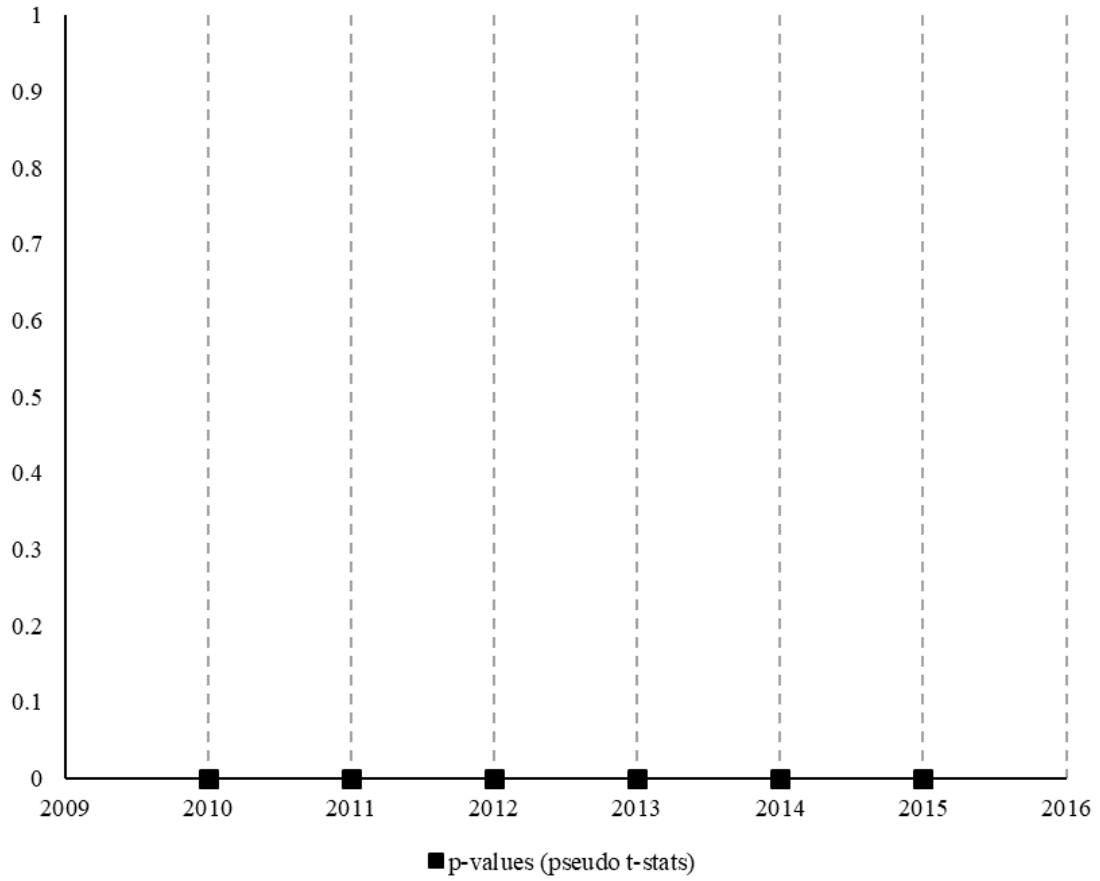


Figure A5.2.2. RMSPE ratio obtained from the in-space placebo tests for the synthetic control method

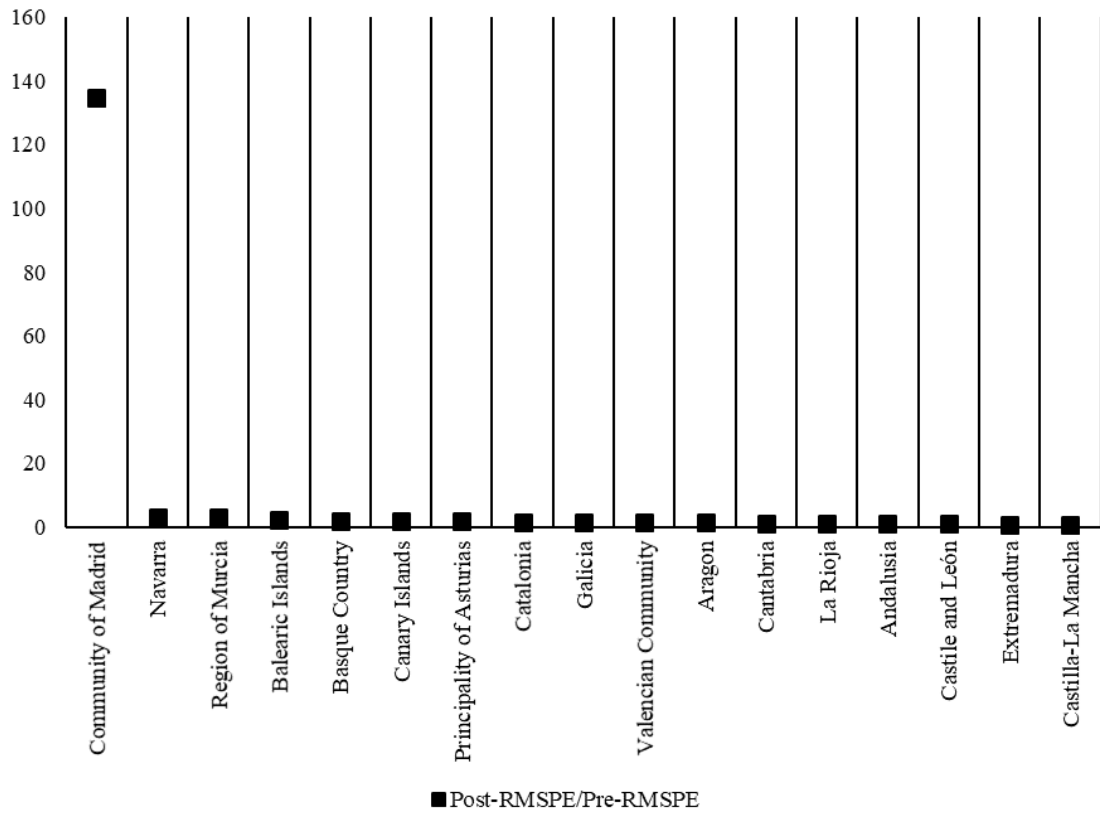
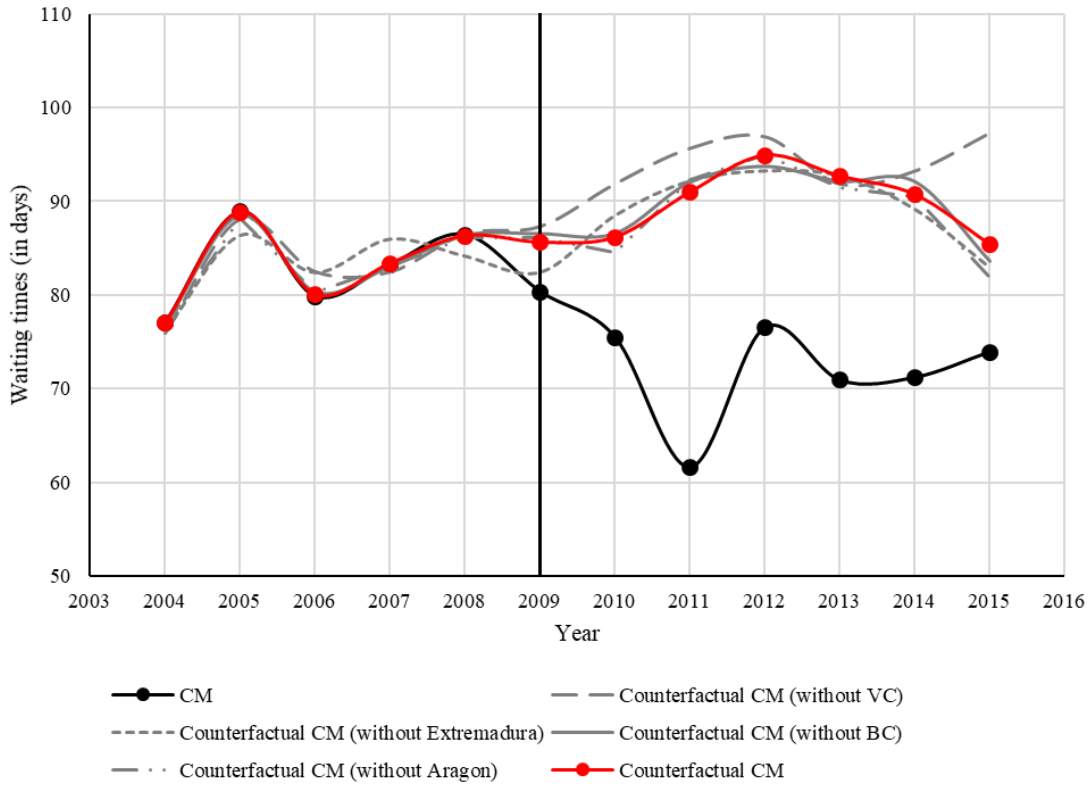


Figure A5.2.3. Leave-one-out test for the synthetic control method.



Note: CM = Community of Madrid; VC = Valencian Community; BC = Basque Country



# Conclusions

This dissertation has focused on analysing health systems' responsiveness. This concept is, along with population health and the fairness in financial contribution of the health systems, one of the intrinsic and main goals of any health system in the world according to the *Health Systems Performance Assessment* framework developed by the WHO. Health systems' responsiveness refers to the ability of the health systems to respond to the legitimate expectations of patients with a series of non-clinical factors with which they interact when they come into contact with the health system. These factors are different from those aspects directly related to health. They include items such as the waiting time to be seen by a health provider; respectful treatment by health providers; medical confidentiality in the management of health information; proper and understandable information about patient's health problems; participation in the making decisions process about the patient's own health; to be able to choose the health provider that you desire; or to have proper amenities (safe water, clean air, enough space in a room, and so on), among other factors. However, it has been argued that these factors are also fundamental to guarantee the population's well-being and health. Some authors have highlighted that having a satisfactory experience with the non-clinical factors could make patients more likely to decide to use the health services when they need them, to be more cooperative with their health problems, to accept treatment procedures or to follow the advice from health staff. Accordingly, guaranteeing a satisfactory response of the health system to the non-clinical factors could indirectly improve the population health.

Given the importance of health system's responsiveness for population health and well-being, it is especially relevant to provide more evidence about aspects which have not been explored in detail in earlier studies. Among the most prominent research lines



in the literature are those analysing the level and distribution of the responsiveness within a country or between countries; those studying the determinants of the level and distribution of the responsiveness of the health system; those focusing on the weight or importance that people attached to the non-clinical factors; or those are aimed at testing whether the responsiveness domains developed by the WHO are suitable for assessing the responsiveness in different contexts or services. In this dissertation, we contribute to the literature by providing empirical evidence about some of the key drivers of health systems' responsiveness and the effectiveness in terms of relevant health policies. Firstly, we analyse whether a high performance of health systems with the non-clinical factors guarantees a more satisfactory overall experience of people with the health system as a whole and its main health services. This analysis allows us to gain a deeper understanding about how and to what extent non-clinical factors contribute the most to have a more satisfactory overall experience with each health service and the health system as a whole. We suggest two models (one for health services and another for the health system as a whole) which are estimated by using the Probit-Adapted Ordinary Least Square method. Secondly, we study whether the policies enabling patients' freedom of choice of health provider, which have been implemented in several European countries, actually contribute to improve health systems' responsiveness. Specifically, we analyse the freedom of choice policy implemented in the Spanish region of the Community of Madrid in 2009. We apply the synthetic control method, an impact evaluation technique which allows us to get causal effects of the policy on certain variables of interest.

We use the cross-sectional microdata of the Spanish Healthcare Barometer survey for the period 2002-2018. This annual survey launched by the Spanish Ministry of Health contains information about the respondent's assessment with a series of non-clinical factors in the context of the Spanish NHS. To the best of our knowledge, this is the only survey in Spain containing national-level information about the responsiveness for all the Spanish health system. Therefore, our analysis focuses on the Spanish NHS.

The empirical analysis of this dissertation corroborates the relationship between non-clinical factors and the overall experience of patients with the health system. We show that those patients who report a more satisfactory experience with the non-clinical factors, on average, tend to report a significantly better satisfactory overall experience with the Spanish health system as a whole and its main health services (primary,

specialised and hospital care services). This suggests that, in addition to the clinical issues, the experience of patients with the non-clinical factors are also relevant to guarantee that patients have a satisfying overall experience with the health system. A similar result was also found by Bleich et al. (2009) on a sample based on 21 European Union countries. By analysing the health services, we find that such positive relationship is not the same across health services. Namely, the treatment received by the health provider, and the confidence and security transmitted by the doctor are the most correlated non-clinical factors with a more satisfying overall experience of patients with the Spanish primary care service. For specialised care service, the most correlated non-clinical factors are the time devoted by the doctor to each patient, the treatment received by the health provider, the confidence and security transmitted by the doctor, and the waiting times for diagnostic tests, whereas for hospital care service, are the waiting times for non-emergency admissions, the information received on your health problems, and care and attention delivered by medical staff.

These findings show that the influence of the non-clinical factors on the overall experience of patients seems to vary by type of health service. This means that, in order to get a more satisfactory overall experience of patients with the primary care service, it is more important to guarantee an environment of respect, confidence and security, whereas for specialised and hospital care, it is more relevant to devote more time to treat patients or to have lower waiting times, respectively. We also observe that those health services with the lowest average overall ratings (specialised and hospital care services) correspond with those whose most correlated non-clinical factors have the lowest average ratings. Likewise, the health service with the highest average rating also corresponds with that whose most correlated non-clinical factors have the highest average rating. For instance, the most relevant non-clinical factors to guarantee a better experience of patients with the primary care service are those with the highest ratings (the treatment received by the health provider with 7.6 over 10; and the confidence and security transmitted by the doctor with 7.7 over 10). On the contrary, the most relevant non-clinical factor to guarantee a better experience of patients with hospital care has the lowest rate (the waiting time for non-emergency admission with 4.9 over 10). Accordingly, the primary care service has a higher average overall rating (7.3 over 10) than the hospital care service (6.5 over 10). A similar situation is observed when analysing the health system as a whole. We see that those non-clinical factors related to

the *Prompt Attention* domain (waiting times for appointments, waiting times for diagnostic tests, or waiting times for non-emergency admissions) are the most correlated factors to guarantee a more satisfactory average overall experience with the Spanish health system as a whole. However, these non-clinical factors show the lowest average rating in all the health services. Therefore, there is still room for improvements in those factors.

These findings could be relevant for policy-makers when it comes to designing the health policies. Firstly, our results show that non-clinical factors are also relevant to guarantee a more satisfactory experience of patients with the health system. This may in turn contribute to improve the health system's performance and possibly the population health. However, the relationship between health system's responsiveness and population health is a challenge for the current research (Kibret, 2020; Valentine & Bonsel, 2016). Likewise, the results of this dissertation also suggest that policy-maker should take into account the health service where they allocate the resources to improve the non-clinical factors in a health system. In case of the Spanish health system, the improvement of those aspects related to a respectful treatment, and an environment of confidence and safety is fundamental to enhance the experience of patients with the primary care service. However, any investment allocated to improve the responsiveness in the specialised and hospital care services should focus on increasing the time devoted by the doctor to each patient, or to reduce the waiting times for non-emergency admissions, respectively.

Our analysis suggests fruitful avenues for future research. For instance, given that the management, organisation and financing in the Spanish NHS is highly decentralised to the regional governments, a regional-level analysis could give policy-makers who are responsible for a regional health service better and specific information about the implications of the responsiveness on their RHSs. Likewise, it would be necessary to take into account the influence of alternative non-clinical factors. While the SHB is the main survey in Spain providing information about the Spanish health system's responsiveness, it provides a limited number of non-clinical factors for each year and health service. Furthermore, in some cases, they are not comparable over time. Another limitation of our dataset which may be addressed in future studies is the lack of anchoring vignettes in the questionnaire to correct for the potential reporting heterogeneity of respondents which could generate a reporting bias (Bago D'Uva et al.,

2008; King et al., 2003; Rice et al., 2012). Accordingly, the incorporation of anchoring vignettes in the SHB survey could be useful for analysing reporting heterogeneity bias. Despite all these limitations, our study is one of the few studies in Spain to analyse health systems' responsiveness in detail.

In this dissertation, we have also provided empirical evidence about the impact of freedom of choice policies to improve health systems' responsiveness. The WHO set in its HSPA framework the need to develop reforms in several functions to enhance the health systems' performance (health, responsiveness, and fair financial contribution). Many European countries have recently implemented freedom of choice policies in order to improve the quality and responsiveness of their health systems. These reforms are mainly based on the extension of the choice set of patients when it comes to choosing health provider both in primary and specialised care services. Specifically, we have focused on analysing the effect of the 2009 reform implemented in the Spanish region of the Community of Madrid on improving the responsiveness of the primary and specialised care services of the region. This reform removed the regional Healthcare Areas, an administrative division of the region which allowed patients to choose among the GPs and specialist doctors of their own referral Healthcare Area only. The reform implemented a Single Healthcare Area by allowing patients to choose among any GP or specialist doctor of the whole Community of Madrid. We have analysed the effect of the reform by applying the synthetic control method, an impact evaluation technique which allows us to get causal effects following the implementation of the reform.

Our findings show that the reform had a negative and significant effect on the response of the primary care service with the non-clinical factors related to the *Communication*, *Dignity* and *Prompt attention* domains. This means that, on average, patients reported a worse experience with those domains in primary care due to the reform. On the contrary, we find a positive and significant effect on specialised care services with respect to non-clinical factors related to the *Communication* and *Prompt attention* domains. However, the reform affected especially the waiting times (in days) to be seen by the specialist doctor since patients make the appointment (*Prompt attention (objective)*). In particular, we observe that after the reform the waiting times in the Community of Madrid were a 22% shorter than they would have been in the absence of the reform.

Our results suggest that the effect of the reform varies with the type of health service. Thus, while some negative effects were found in primary care, a positive impact in specialised care was observed. Our analysis suggests that this might be a result of the different economic incentives linked to providers' activities along with other parallel actions such as facilitating the choice of health providers by patients by implementing easier mechanisms to exercise the choice in both services (the appointment can be obtained by internet, mobile app, digital facilities within the health centre or via the Appointment Management Centre); or publishing a series of performance indicators providing patients with information to make informed decisions. For instance, the presence of private companies managing public hospitals could have generated competition in specialised care. To some extent, these findings may be explained by the reimbursement mechanism of those five hospitals (partly based on the number of patients attracted from other hospitals) which produces strong incentives to attract patients from other hospitals by keeping waiting times short. On the contrary, the negative effects in primary care could be indeed caused by the absence of incentives among the GPs whose remuneration is mainly based on capitation payments. In this way, our results seem to corroborate previous studies by suggesting that the freedom of choice reforms should be accompanied by other measures fostering the choice and the competence among health providers.

Further research is needed about freedom of choice policies in order to understand better their implications, effects, and behaviour mechanisms. In this line, it would be helpful to investigate in more detail how financial incentives affect responsiveness, and to determine whether staff at PFI hospitals have greater workloads than elsewhere. Likewise, it could be interesting to examine whether the ability of PFI 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. 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.

# Conclusiones

Esta tesis doctoral se ha centrado en analizar el concepto de capacidad de respuesta de los sistemas sanitarios (*health systems' responsiveness*). Este concepto es, junto con la salud de la población y la justicia en la contribución financiera de los sistemas sanitarios, uno de los objetivos intrínsecos y principales de cualquier sistema sanitario en el mundo según el marco de Valoración del Rendimiento de los Sistemas Sanitarios desarrollado por la WHO. La capacidad de respuesta de los sistemas sanitarios se refiere a la capacidad de los sistemas de salud para responder a las legítimas expectativas de los pacientes con una serie de factores no clínicos con los que pueden interactuar cuando entran en contacto con el sistema de salud. Estos factores son diferentes de aquellos aspectos relacionados directamente con la salud. Ellos incluyen elementos como el tiempo de espera para ser visto por el proveedor de salud; trato respetuoso por el proveedor de salud; confidencialidad médica en la gestión de la información de salud; adecuada y comprensible información sobre los problemas de salud del paciente; participación en el proceso de toma de decisiones sobre la salud del propio paciente; poder elegir el proveedor de salud que se desee; o tener adecuadas instalaciones (agua potable, aire limpio, suficiente espacio en la habitación, etc.), entre otros factores. Sin embargo, se ha argumentado que estos factores son también fundamentales para el bienestar y la salud de la población. Algunos autores han señalado que tener una experiencia satisfactoria con los factores no clínicos podría hacer más probable que los pacientes decidieran usar los servicios de salud cuando ellos lo necesitan, que sean más cooperativos con sus problemas de salud, que aceptaran el tratamiento recetado o que sigan los consejos del personal sanitario. En consecuencia, garantizar una respuesta satisfactoria del sistema de salud con los factores no clínicos podría indirectamente mejorar la salud de la población.

Dada la importancia de la capacidad de respuesta del sistema de salud para la salud y bienestar de la población, es especialmente relevante proporcionar más evidencia sobre aspectos que no han sido explorados en detalle en estudios anteriores. Entre las más destacadas líneas de investigación en la literatura están aquellas que analizan el nivel y distribución de la capacidad de respuesta dentro de un país o entre países; aquellos que estudian los determinantes del nivel y distribución de la capacidad de respuesta del sistema sanitario; aquellos que se centran en el peso o la importancia que las personas les otorgan a los factores no clínicos; o aquellos destinados a comprobar si los dominios de capacidad de respuesta desarrollados por la WHO son adecuados para valorar la capacidad de respuesta en diferentes contextos o servicios. En esta tesis doctoral, contribuimos a la literatura proporcionando evidencia empírica sobre alguno de los conductores clave de la capacidad de respuesta de los sistemas sanitarios y la efectividad en términos de políticas de salud. En primer lugar, analizamos si un alto rendimiento de los sistemas sanitarios con los factores no clínicos garantiza una más satisfactoria experiencia global de las personas con el sistema sanitario en su conjunto y sus principales servicios de salud. Este análisis nos permite obtener un conocimiento más profundo sobre cómo y en qué grado los factores no clínicos contribuyen a tener una experiencia global más satisfactoria con cada servicio de salud y con el sistema sanitario en su conjunto. Sugerimos dos modelos (uno para servicios de salud y otro para el sistema sanitario en su conjunto) que son estimado utilizando el método *Probit-Adapted Ordinary Least Square*. En segundo lugar, estudiamos si las políticas que permiten a los pacientes elegir libremente al proveedor de salud, las cuales han sido implementadas en varios países europeos, realmente contribuyen a mejorar la capacidad de respuesta de los sistemas sanitarios. En concreto, analizamos la política de libre elección implementada en la región española de la Comunidad de Madrid en 2009. Aplicamos el método de control sintético, una técnica de evaluación de impacto que nos permite obtener efectos causales de la política sobre determinadas variables de interés.

Utilizamos los microdatos de corte transversal de la encuesta del Barómetro Sanitario para el período 2002-2018. Esta encuesta anual realizada por el Ministerio de Sanidad español contiene información sobre la valoración de los encuestados con una serie de factores no clínicos en el contexto del Sistema Nacional de Salud español. Hasta donde sabemos, esta es la única encuesta en España que contienen información a nivel

nacional sobre la capacidad de respuesta para todo el sistema sanitario español. Por tanto, nuestro análisis se centra en el Sistema Nacional de Salud español.

El análisis empírico de esta tesis corrobora la relación que existe entre los factores no clínicos y la experiencia global de los pacientes con el sistema sanitario. Mostramos que aquellos pacientes que reportan una experiencia más satisfactoria con los factores no clínicos, en promedio, tienden a reportar una significativa más satisfactoria experiencia global tanto con el sistema sanitario español en su conjunto como con sus principales servicios de salud (servicios de atención primaria, especializada y hospitalaria). Esto sugiere que, además de las cuestiones clínicas, la experiencia de los pacientes con los factores no clínicos es también relevante para garantizar que los pacientes tienen una experiencia global satisfactoria con el sistema de salud. Un resultado similar fue encontrado por Bleich et al. (2009) en una muestra basada en 21 países de la Unión Europea. Al analizar los servicios de salud, encontramos que tal relación positiva no es la misma a través de los servicios de salud. A saber, el tratamiento recibido por el proveedor de salud, la confianza y seguridad transmitida por el médico son los factores no clínicos más correlacionados con una experiencia global más satisfactoria de los pacientes con el servicio de atención primaria español. Para el servicio de atención especializada, los factores no clínicos más correlacionados son el tiempo dedicado por el médico a cada paciente, el trato recibido por el proveedor de salud, la confianza y seguridad transmitida por el médico y los tiempos de espera para las pruebas diagnósticas, mientras que para el servicio hospitalario son los tiempos de espera para admisiones no urgentes, la información recibida sobre tus problemas de salud, y el cuidado y atención recibida por el personal médico.

Estos resultados muestran que la influencia de los factores no clínicos sobre la experiencia global de los pacientes parece variar por tipo de servicio de salud. Esto significa que, a fin de conseguir una experiencia global más satisfactoria de los pacientes con el servicio de atención primaria, sería más importante garantizar un ambiente de respeto, confianza y seguridad, mientras que para la atención especializada y hospitalaria sería más relevante dedicar más tiempo a tratar a cada paciente o tener tiempos de espera más bajos para admisiones no urgentes, respectivamente. También observamos que aquellos servicios de salud con las valoraciones globales promedio más bajas (servicios de atención especializada y hospitalaria) corresponden con aquellos servicios cuyos factores no clínicos más correlacionados con dicha valoración tienen las



calificaciones promedio más bajas. Asimismo, el servicio de salud con la valoración promedio más alta también corresponde con aquel cuyos factores no clínicos más correlacionados con tal valoración tienen la calificación promedio más alta. Por ejemplo, los factores no clínicos más relevantes para garantizar una experiencia más satisfactoria de los pacientes con el servicio de atención primaria son aquellos con la calificación promedio más alta (trato recibido por el proveedor de salud con 7,6 sobre 10, y la confianza y seguridad transmitida por el médico con 7,7 sobre 10). Por el contrario, el factor no clínico más relevantes para garantizar una experiencia más satisfactoria de los pacientes con la atención hospitalaria tiene la calificación más baja (tiempo de espera para admisión no de urgencia con 4,9 sobre 10). En consecuencia, el servicio de atención primaria tiene una calificación promedio global más alta (7,3 sobre 10) que el servicio de atención hospitalaria (6,5 sobre 10). Una situación similar es observada al analizar el sistema sanitario en su conjunto. Vemos que aquellos factores no clínicos relacionados con el dominio de *Atención rápida* (tiempos de espera para citas, pruebas diagnósticas o admisiones no de urgencia) son los factores más correlacionados para garantizar una experiencia global promedio más satisfactoria con el sistema sanitario español en su conjunto. Sin embargo, estos factores no clínicos muestran las calificaciones promedio más bajas en todos los servicios de salud. Por tanto, hay aún lugar para mejoras en estos factores.

Estos resultados podrían ser relevantes para los formuladores de políticas a la hora de diseñar las políticas de salud. En primer lugar, nuestros resultados muestran que los factores no clínicos son también relevantes para garantizar una experiencia más satisfactoria de los pacientes con el sistema de salud. Esto puede a su vez contribuir a mejorar el rendimiento del sistema sanitario y posiblemente la salud de la población. Sin embargo, la relación entre la capacidad de respuesta del sistema sanitario y la salud de la población es un reto actual de investigación (Kibret, 2020; Valentine & Bonsel, 2016). Asimismo, los resultados de esta tesis doctoral también sugieren que los formuladores de políticas deberían tener en cuenta que el servicio de salud donde ellos asignan los recursos para mejorar los factores no clínicos. En el caso del sistema sanitario español, la mejora de los aspectos relacionados con un trato respetuoso, y un ambiente de confianza y seguridad sería fundamental para mejorar la experiencia de los pacientes con el servicio de atención primaria. Sin embargo, cualquier inversión destinada a mejorar la capacidad de respuesta en los servicios de atención especializada

y hospitalaria debería centrarse en incrementar el tiempo dedicado por el médico a cada paciente, o reducir los tiempos de espera para admisiones no de urgencia, respectivamente.

Nuestro análisis sugiere fructíferas posibilidades para la investigación futura. Por ejemplo, dado que la gestión, organización y financiación en el Sistema Nacional de Salud español está altamente descentralizada a los gobiernos regionales, un análisis a nivel regional podría dar a los formuladores de política que sean responsables del servicio regional de salud mejor y específica información sobre las implicaciones de la capacidad de respuesta en sus respectivo Servicio Regional de Salud. Asimismo, sería necesario tener en cuenta la influencia de factores no clínicos alternativos. Mientras el Barómetro Sanitario español es la principal encuesta en España que proporciona información sobre la capacidad de respuesta del sistema sanitario, proporciona un número limitado de factores no clínicos para cada año y servicio de salud. Además, en algunos casos, ellos no son comparables a lo largo del tiempo. Otra limitación de nuestra base de datos que puede ser abordada en los estudios futuros es la falta de viñetas de anclaje en el cuestionario para corregir por la potencial heterogeneidad de respuesta de los encuestados que podría generar un sesgo de respuesta (Bago D'Uva et al., 2008; King et al., 2003; Rice et al., 2012). En consecuencia, la incorporación de viñetas de anclaje en la encuesta del Barómetro Sanitario español podría ser útil para analizar el sesgo de heterogeneidad de respuesta. A pesar de estas limitaciones, nuestro estudio es uno de las pocas contribuciones en España a analizar la capacidad de respuesta de los sistemas sanitarios en detalle.

En esta tesis doctoral, también hemos proporcionado evidencia empírica sobre el impacto de las políticas de libre elección para mejorar la capacidad de respuesta de los sistemas sanitarios. La WHO estableció en su marco de Valoración del Rendimiento de los Sistemas Sanitarios la necesidad de desarrollar reformas en varias funciones de los sistemas de salud para mejorar su rendimiento (salud, capacidad de respuesta, y contribución financiera justa). Muchos países europeos han implementado recientemente políticas de libre elección a fin de mejorar la calidad y capacidad de respuesta de sus sistemas sanitarios. Estas reformas están basadas principalmente en la ampliación del conjunto de elección de los pacientes a la hora de elegir el proveedor de salud tanto en los servicios de atención primaria como especializada. En concreto, nos hemos centrado en analizar el efecto de la reforma implementada en 2009 en la región

española de la Comunidad de Madrid sobre mejora de la capacidad de respuesta de los servicios de atención primaria y especializada de la región. Esta reforma eliminó las áreas de salud regionales, una división administrativa de la región que permitía a los pacientes elegir sólo entre los médicos de atención especializada y primaria de su propia área de salud de referencia. La reforma implementó un Área Única de Salud permitiendo a los pacientes elegir entre cualquier médico de cabecera o especialista de toda la Comunidad de Madrid. Hemos analizado el efecto de la reforma aplicando el método de control sintético, una técnica de evaluación de impacto que nos permite obtener efectos causales que siguen a la implementación de la reforma.

Nuestros resultados muestran que la reforma tuvo un efecto negativo y significativo sobre la respuesta de la respuesta del servicio de atención primaria con los factores no clínicos relacionados con los dominios de *Comunicación, Dignidad y Atención rápida*. Esto significa que, en promedio, los pacientes reportaron una experiencia peor con esos dominios en atención primaria debido a la reforma. Por el contrario, encontramos un efecto positivo y significativo sobre el servicio de atención especializada con respecto a los factores no clínicos relacionados con los dominios de *Comunicación y Atención rápida*. Sin embargo, la reforma afectó especialmente a los tiempos de espera (en días) para ser visto por el médico especialista desde que los pacientes piden la cita (*Atención rápida (objetiva)*). En particular, observamos que después de la reforma los tiempos de espera en la Comunidad de Madrid fueron un 22% más cortos de lo que ellos habrían sido en ausencia de reforma.

Nuestros resultados sugieren que el efecto de la reforma varía con el tipo de servicio de salud. Por tanto, mientras que se encontraron algunos efectos negativos en atención primaria, se observó un impacto positivo en atención especializada. Nuestro análisis sugiere que este puede ser un resultado de los diferentes incentivos económico relacionados con las actividades de los proveedores junto con otras acciones paralelas tales como facilitar la elección de los proveedores de salud por paciente implementando mecanismos más sencillos para ejercer la elección en ambos servicios (la cita puede ser obtenida por internet, aplicación móvil, instalación digital dentro del centro de salud o vía Centro de Gestión de Citas); o publicando una serie de indicadores de rendimiento que proporcionan información a los pacientes para tomar decisiones informadas. Por ejemplo, la presencia de compañías privadas que gestionan hospitales públicos podría haber generado competencia en el servicio de atención especializada. En grado alguno,

estos resultados pueden ser explicados por los mecanismos de financiación de cinco hospitales (parcialmente basada en el número de pacientes atraídos de otros hospitales) que produce fuertes incentivos para atraer paciente de otros hospitales manteniendo cortos tiempos de espera. Por el contrario, los efectos negativos en atención primaria podrían ser, de hecho, causados por la ausencia de incentivos entre los médicos de cabecera cuya remuneración está principalmente basada en pagos de capitación. De esta forma, nuestros resultados parecen corroborar estudios previos sugiriendo que las reformas de libre elección deberían ser acompañadas por otras medidas que fomentan la elección y la competencia entre proveedores de salud.

Más investigación es necesaria sobre las políticas de libre elección a fin de comprender mejor las implicaciones, efectos y mecanismos de comportamiento. En esta línea, sería útil investigar más en detalle cómo los incentivos financieros afectan a la capacidad de respuesta, y determinar si el personal de los hospitales públicos gestionados por empresas privadas tiene mayor sobrecarga de trabajo que otros. Asimismo, podría ser interesante examinar si la capacidad de los hospitales públicos gestionados por empresas privadas para absorber pacientes de otros centros manteniendo los tiempos de espera cortos es alcanzado a expensas de la salud de los pacientes o, de hecho, si ellos están implicados en una selección del riesgo. Finalmente, más investigación es necesaria sobre si la mejora de la elección del paciente contribuye a reducir las desigualdades en los tiempos de espera, como ha sido sugerido por la literatura.



# References

- Abadie, A., & Cattaneo, M. D. (2018). Econometric Methods for Program Evaluation. *Annual Review of Economics*, *10*, 465–503. <https://doi.org/10.1146/annurev-economics>
- Abadie, A., Diamond, A., & Hainmueller, J. (2010). Synthetic Control methods for comparative case studies: Estimating the effect of California’s tobacco control program. *Journal of the American Statistical Association*, *105*(490), 493–505. <https://doi.org/10.1198/jasa.2009.ap08746>
- Abadie, A., Diamond, A., & Hainmueller, J. (2015). Comparative politics and the Synthetic Control method. *American Journal of Political Science*, *59*(2), 495–510. <https://doi.org/10.1111/ajps.12116>
- Abadie, A., & Gardeazabal, J. (2003). The economic costs of conflict: A case study of the Basque Country. *The American Economic Review*, *93*(1), 113–132.
- Aday, L. A., Begley, C. E., Lairson, D. R., & Slater, C. H. (1993). *Evaluating the Medical Care System: Effectiveness, Efficiency and Equity*. Health Administration Press.
- Ali, F. M. H., Nikoloski, Z., & Reka, H. (2015). Satisfaction and responsiveness with health-care services in Qatar-evidence from a survey. *Health Policy*, *119*(11), 1499–1505. <https://doi.org/10.1016/j.healthpol.2015.09.012>
- Allison, R. A., & Foster, J. E. (2004). Measuring health inequality using qualitative data. *Journal of Health Economics*, *23*(3), 505–524. <https://doi.org/10.1016/j.jhealeco.2003.10.006>
- Almeida, C., Braveman, P., Gold, M. R., Szwarcwald, C. L., Mendes Ribeiro, J., Miglionico, A., Millar, J. S., Porto, S., do Rosario Costa, N., Ortun Rubio, V., Segall, M., Starfield, B., Travessos, C., Uga, A., Valente, J., & Viacava, F. (2001). Methodological concerns and recommendations on policy consequences of the World Health Report 2000. *The Lancet*, *357*, 1692–1697. <https://doi.org/10.1080/13504851.2016.1248280>
- Anderson, G., & Hussey, P. S. (2001). Comparing Health System Performance in OECD countries. *Health Affairs*, *20*(3), 219–232. <https://doi.org/10.1377/hlthaff.20.3.219>
- Armocida, B., Formenti, B., Ussai, S., Palestra, F., & Missoni, E. (2020). The Italian health system and the COVID-19 challenge. *The Lancet Public Health*, *5*(5), e253.

[https://doi.org/10.1016/S2468-2667\(20\)30074-8](https://doi.org/10.1016/S2468-2667(20)30074-8)

- Askari, R., Rafiei, S., Montazerolfaraj, R., Sepaseh, F., Tafti, A. D., & Irany Nasab, M. (2017). Evaluation of non-medical services' responsiveness using a national model: Patients' viewpoint. *Biotechnology and Health Sciences*, 4(1), e41830. <https://doi.org/10.17795/bhs-41830>
- Athey, S., & Imbens, G. W. (2017). The state of applied econometrics: Causality and policy evaluation. *Journal of Economic Perspectives*, 31(2), 3–32. <https://doi.org/10.1257/jep.31.2.3>
- Ayanian, J. Z., Markel, H., & Ph, D. (2016). Donabedian's Lasting Framework for Health Care Quality. *The New England Journal of Medicine*, 205–207. <https://doi.org/10.1056/NEJMp1605101>
- Azfar, O., & Gurgur, T. (2008). Does corruption affect health outcomes in the Philippines? *Economics of Governance*, 9(3), 197–244. <https://doi.org/10.1007/s10101-006-0031-y>
- Bago D'Uva, T., Van Doorslaer, E., Lindeboom, M., & O'Donnell, O. (2008). Does reporting heterogeneity bias the measurement of health disparities? *Health Economics*, 17(3), 351–375. <https://doi.org/10.1002/hec>
- Baharvand, P. (2019). Responsiveness of the health system towards patients admitted to west of Iran hospitals. *Electronic Journal of General Medicine*, 16(2). <https://doi.org/10.29333/ejgm/93481>
- Banerjee, A. V., & Duflo, E. (2011). *Poor economics: A radical rethinking of the way to fight global poverty*. PublicAffairs.
- Bárcena-Martín, E., Cortés-Aguilar, A., & Moro-Egido, A. I. (2017). Social comparisons on subjective well-being: The role of social and cultural capital. *Journal of Happiness Studies*, 18(4), 1121–1145. <https://doi.org/10.1007/s10902-016-9768-3>
- Barros, P., Brouwer, W., De Maeseneer, J., Jönsson, B., Lamata, F., Lehtonen, L., Marušič, D., Thomson, S., & Varkevisser, M. (2015). *Competition among health care providers. Investigating policy options in the European Union*. <https://doi.org/10.2875/867590>
- Barros, P. P., Brouwer, W. B. F., Thomson, S., & Varkevisser, M. (2016). Competition among health care providers: helpful or harmful? *European Journal of Health Economics*, 17(3), 229–233. <https://doi.org/10.1007/s10198-015-0736-3>
- Bazzaz, M. M., Taghvaei, M. R. E., Salehi, M., Bakhtiari, M., & Shaye, Z. A. (2015). Health system's responsiveness of inpatients: Hospitals of Iran. *Global Journal of Health Science*, 7(7), 106–113. <https://doi.org/10.5539/gjhs.v7n7p106>
- Bernal-Delgado, E., García-Armesto, S., Oliva, J., Sánchez Martínez, F. I., Repullo, J. R., Peña-Longobardo, L. M., Ridaio-López, M., & Hernández-Quevedo, C. (2018). Spain: Health system review. In *European Observatory on Health Systems and Policies* (Vol. 20, Issue 2).
- Bertrand, M., Duflo, E., & Mullainathan, S. (2004). How much should we trust differences-in-differences estimates? *The Quarterly Journal of Economics*, 249–275.
- Beukers, P. D. C., Kemp, R. G. M., & Varkevisser, M. (2014). Patient hospital choice

- for hip replacement: Empirical evidence from the Netherlands. *European Journal of Health Economics*, 15(9), 927–936. <https://doi.org/10.1007/s10198-013-0535-7>
- Bjertnaes, O. A., Sjetne, I. S., & Iversen, H. H. (2012). Overall patient satisfaction with hospitals: Effects of patient-reported experiences and fulfilment of expectations. *BMJ Quality and Safety*, 21(1), 39–46. <https://doi.org/10.1136/bmjqs-2011-000137>
- Blanco-Abril, S., Sánchez-Vicario, F., Chinchilla-Nevado, M. A., Cobrero-Jimenez, E. M., Mediavilla-Durango, M., Rodríguez-Gonzalo, A., & Cuñado-Barrio, A. (2010). Satisfacción de los pacientes de urgencias con los cuidados enfermeros. *Enfermería Clínica*, 20(1), 23–31. <https://doi.org/10.1016/j.enfcli.2009.08.005>
- Blázquez Cuesta, M., & Budría, S. (2014). Deprivation and Subjective Well-Being: Evidence from Panel Data. *Review of Income and Wealth*, 60(4), 655–682. <https://doi.org/10.1111/roiw.12003>
- Bleich, S. N., Özaltin, E., & Murray, C. J. L. (2009). How does satisfaction with the health-care system relate to patient experience? *Bulletin of the World Health Organization*, 87(4), 271–278. <https://doi.org/10.2471/BLT.07.050401>
- Blendon, R. J., Kim, M., & Benson, J. M. (2001). The public versus the World Health Organization on health system performance. *Health Affairs*, 20(3), 10–20. <https://doi.org/10.1377/hlthaff.20.3.10>
- BOA. (2007). *Decreto 57/2007, de 17 de abril, por el que se regula el procedimiento para la libre elección de Médico Especialista y de Hospital en el Sistema Sanitario Público de Aragón* (pp. 6749–6750). <http://www.boa.aragon.es/cgi-bin/EBOA/BRSCGI?CMD=VEROBJ&MLKOB=194550374242>
- BOCM. (2009). *Ley 6/2009, de 16 de noviembre, de libertad de elección en la sanidad de la Comunidad de Madrid* (pp. 5–6). <https://www.boe.es/buscar/pdf/2010/BOE-A-2010-2187-consolidado.pdf>
- BOCM. (2010). *Decreto 51/2010, de 29 de julio, por el que se regula el ejercicio de la libertad de elección de médico de familia, pediatra y enfermero en Atención Primaria, y de hospital y médico en Atención Especializada en el Sistema Sanitario Público de la Comunidad* (pp. 25–27). [http://www.madrid.org/wleg\\_pub/secure/normativas/contenidoNormativa.jsf?opcion=VerHtml&nmnorma=6640&cdestado=P#no-back-button](http://www.madrid.org/wleg_pub/secure/normativas/contenidoNormativa.jsf?opcion=VerHtml&nmnorma=6640&cdestado=P#no-back-button)
- BOE. (1986a). *Ley 14/1986 de 25 de abril, General de Sanidad* (pp. 1–24). <https://www.boe.es/buscar/pdf/1986/BOE-A-1986-10499-consolidado.pdf>
- BOE. (1986b). *Ley Orgánica 3/1986, de 14 de abril, de Medidas Especiales en Materia de Salud Pública*. Jefatura del Estado. <https://www.boe.es/buscar/act.php?id=BOE-A-1986-10498>
- BOE. (1993). *Real Decreto 1575/1993, de 10 de septiembre, por el que se regula la libre elección de médico en los servicios de atención primaria del Instituto Nacional de Salud* (pp. 28396–28397). <https://www.boe.es/buscar/doc.php?id=BOE-A-1993-24302>
- BOE. (1996). *Real Decreto 8/1996, de 15 de enero, sobre libre elección de médico en los servicios de atención especializada del Instituto Nacional de Salud* (pp. 2903–2904). <https://www.boe.es/buscar/doc.php?id=BOE-A-1996-1927>
- BOE. (2003). *Ley 16/2003 de 28 de mayo de Cohesión y Calidad del Sistema Nacional de Salud* (pp. 1–47). <https://www.boe.es/buscar/act.php?id=BOE-A-2003-10715>



- BOE. (2011). *Ley 33/2011, de 4 de octubre, General de Salud Pública* (pp. 104593–104626). <https://doi.org/10.2307/j.ctv153k4jj>
- BOE. (2014). *Ley 3/2014, de 21 de julio, de garantía de la atención sanitaria y del ejercicio de la libre elección en las prestaciones del Servicio de Salud de Castilla-La Mancha* (pp. 85231–85235). <https://www.boe.es/buscar/pdf/2014/BOE-A-2014-10666-consolidado.pdf>
- BOE. (2016). *Real Decreto 410/2016, de 31 de octubre, por el que se aprueba el Plan Estadístico Nacional 2017-2020*. <http://www.boe.es>
- BOE. (2018). *Real Decreto-ley 7/2018, de 27 de julio, sobre el acceso universal al Sistema Nacional de Salud*. <https://www.boe.es/buscar/act.php?id=BOE-A-2018-10752#ap>
- BOJA. (1997). *Decreto 128/1997, de 6 de mayo, por el que se regula la libre elección de Médico Especialista y de Hospital en el Sistema Sanitario Público de Andalucía* (pp. 6253–6254). <https://www.juntadeandalucia.es/boja/1997/60/4>
- BOJA. (1999). *Decreto 60/1999, de 9 de marzo, por el que se regula la libre elección de médico general y pediatra en la Comunidad Autónoma de Andalucía* (pp. 4338–4339). <https://www.juntadeandalucia.es/boja/1999/43/5>
- Bolibar, I. (1999). Determinantes poblacionales de la satisfacción con el médico de atención primaria. *Gaceta Sanitaria*, 13(5), 371–383. [https://doi.org/10.1016/s0213-9111\(99\)71388-9](https://doi.org/10.1016/s0213-9111(99)71388-9)
- BON. (1994). *Decreto Foral 244/1994, de 28 de noviembre, por el que se regula el derecho de libre elección de médico general y médico pediatra en atención primaria*. <http://www.lexnavarra.navarra.es/detalle.asp?r=28087>
- BOPV. (1990). *Orden de 25 de Enero de 1990, del Consejero de Sanidad y Consumo, por la que se regula la elección de Hospital y de Servicio Especializado en el Servicio Vasco de Salud/Osakidetza* (pp. 692–694). [https://www.legegunea.euskadi.eus/x59-preview/es/contenidos/orden/bopv199000349/es\\_def/index.shtml](https://www.legegunea.euskadi.eus/x59-preview/es/contenidos/orden/bopv199000349/es_def/index.shtml)
- BOR. (2016). *Decreto 48/2016, de 25 de noviembre, por el que se establece la libre elección de profesional sanitario y de centro en los ámbitos de Atención Primaria y Atención Especializada en el Sistema Público de Salud de La Rioja* (pp. 15950–15957). [https://ias1.larioja.org/boletin/Bor\\_BoletinvisorServlet?referencia=4166428-1-PDF-505697-X](https://ias1.larioja.org/boletin/Bor_BoletinvisorServlet?referencia=4166428-1-PDF-505697-X)
- Bramesfeld, A., Klippel, U., Seidel, G., Schwartz, F. W., & Dierks, M. L. (2007). How do patients expect the mental health service system to act? Testing the WHO responsiveness concept for its appropriateness in mental health care. *Social Science & Medicine*, 65(5), 880–889. <https://doi.org/10.1016/j.socscimed.2007.03.056>
- Bramesfeld, A., Wedegärtner, F., Elgeti, H., & Bisson, S. (2007). How does mental health care perform in respect to service users' expectations? Evaluating inpatient and outpatient care in Germany with the WHO responsiveness concept. *BMC Health Services Research*, 7, 1–12. <https://doi.org/10.1186/1472-6963-7-99>
- Braveman, P., Starfield, B., & Geiger, H. J. (2001). World Health Report 2000: how it removes equity from the agenda for public health monitoring and policy. *BMJ*, 678–681.

- Budria, S., & Ferrer-i-Carbonell, A. (2012). Income comparisons and non-cognitive skills. In *SOEP papers on Multidisciplinary Panel Data Research*.
- Butler, R. (2020). *Vaccine Hesitancy: What it means and what we need to know in order to tackle it*. [https://www.who.int/immunization/research/forums\\_and\\_initiatives/1\\_RButler\\_VH\\_Threat\\_Child\\_Health\\_gvirf16.pdf?ua=1](https://www.who.int/immunization/research/forums_and_initiatives/1_RButler_VH_Threat_Child_Health_gvirf16.pdf?ua=1)
- Carr-Hill, R. A. (1992). The measurement of patient satisfaction. *Journal of Public Health Medicine, 14*(3), 236–249. <https://doi.org/10.1097/00001786-200207000-00005>
- Cavallo, E., Galiani, S., Noy, I., & Pantano, J. (2013). Catastrophic natural disasters and economic growth. *The Review of Economics and Statistics, 95*(5), 1549–1561. [https://doi.org/10.1162/REST\\_a\\_00413](https://doi.org/10.1162/REST_a_00413)
- Chao, J., Lu, B., Zhang, H., Zhu, L., Jin, H., & Liu, P. (2017). Healthcare system responsiveness in Jiangsu Province, China. *BMC Health Services Research, 17*(1), 1–7. <https://doi.org/10.1186/s12913-017-1980-2>
- Cleary, P. D., Edgman-Levitan, S., Roberts, M., Moloney, T. W., McMullen, W., Walker, J. D., & Delbanco, T. L. (1991). Patients evaluate their hospital care: A national survey. *Health Affairs, 10*(4), 254–267. <https://doi.org/10.1377/hlthaff.10.4.254>
- Contoyannis, P., & Rice, N. (2001). The impact of health on wages: Evidence from the British Household Panel Survey. *Empirical Economics, 26*(4), 599–622. <https://doi.org/10.1007/s001810000073>
- Cookson, R., Propper, C., Asaria, M., & Raine, R. (2016). Socio-Economic Inequalities in Health Care in England. *Fiscal Studies, 37*(3–4), 371–403. <https://doi.org/10.1111/j.1475-5890.2016.12109>
- Cooper, Z., Gibbons, S., Jones, S., & McGuire, A. (2011). Does competition save lives? Evidence from the English NHS patient choice reform. *The Economic Journal, 121*, 228–260. <https://doi.org/10.1111/j.1468-0297.2011.02449.x>
- Coulter, A. (2010). Do patients want a choice and does it work? *BMJ, 341*(7780), 973–975. <https://doi.org/10.1136/bmj.c4989>
- Coulter, A., & Cleary, P. D. (2001). Patients' experiences with hospital care in five countries. *Health Affairs, 20*(3), 244–252.
- Coulter, A., & Jenkinson, C. (2005). European patients' views on the responsiveness of health systems and healthcare providers. *European Journal of Public Health, 15*(4), 355–360. <https://doi.org/10.1093/eurpub/cki004>
- Coyne, J. S., & Hilsenrath, P. (2002). The World Health Report 2000. *American Journal of Public Health, 92*(1), 30–32.
- Crow, R., Gage, H., Hampson, S., Hart, J., Kimber, A., Storey, L., & Thomas, H. (2002). The measurement of satisfaction with healthcare: Implications for practice from a systematic review of the literature. *Health Technology Assessment, 6*(32), 1–243.
- Darby, C., Valentine, N., Murray, C. J. L., & De Silva, A. (2000). World Health Organization: Strategy on measuring responsiveness. In *GPE Discussion Paper* (Vol. 23). <https://doi.org/10.1002/ejoc.201200111>

- Dawson, D., Gravelle, H., Jacobs, R., Martin, S., & Smith, P. C. (2007). The effects of expanding patient choice of provider on waiting times: Evidence from a policy experiment. *Health Economics*, *16*, 113–128. <https://doi.org/10.1002/hec>
- De Silva, A. (2000). A framework for measuring responsiveness. *World Health Organisation*, *32*(32), 1–42.
- De Silva, A., & Valentine, N. (2000). Measuring responsiveness: Results of a key informants survey in 35 countries. In *GPE Discussion Paper* (No. 21; GPE Discussion Paper, Issue 21).
- Deckovic-Vukres, V., Hrkal, J., Zach, H., Németh, R., & Vitrai, J. (2007). *Inequalities in health system responsiveness. Joint world health survey report based on data from selected central European countries* (Issue June 2015).
- Depalo, D. (2019). The side effects on health of a recovery plan in Italy: A nonparametric bounding approach. *Regional Science and Urban Economics*, *78*(December 2018), 103466. <https://doi.org/10.1016/j.regsciurbeco.2019.103466>
- Dietrichson, J., Ellegård, L. M., & Kjellsson, G. (2020). Patient choice, entry, and the quality of primary Care: Evidence from Swedish reforms. *Health Economics*, 1–15. <https://doi.org/10.1002/hec.4015>
- Dixon, A., Robertson, R., Appleby, J., Burge, P., Devlin, N., & Magee, H. (2010). Patient Choice. *The Kings Fund*, 215. <https://doi.org/10.1046/j.1525-1497.2003.20145.x>
- Dixon, A., Robertson, R., & Bal, R. (2010). The experience of implementing choice at point of referral: A comparison of the Netherlands and England. *Health Economics, Policy and Law*, *5*(3), 295–317. <https://doi.org/10.1017/S1744133110000058>
- DOCV. (2015). *Decreto 74/2015, de 15 de mayo, del Consell, por el que se regula la libre elección en el ámbito de la atención primaria y especializada del Sistema Valenciano de Salud, así como la creación de su registro autonómico* (pp. 14973–14978). [http://www.dogv.gva.es/portal/ficha\\_disposicion\\_pc.jsp?sig=004428/2015&L=1](http://www.dogv.gva.es/portal/ficha_disposicion_pc.jsp?sig=004428/2015&L=1)
- DOE. (2006). *Decreto 15/2006, de 24 de enero, por el que se regula la libre elección de médico, servicio y centro en Atención Primaria de Salud del Sistema Sanitario Público de Extremadura* (pp. 1540–1542). <http://doe.gobex.es/pdfs/doe/2006/130o/06040016.pdf>
- DOG. (2015). *Decreto 55/2015, de 26 de marzo, por el que se regula el ejercicio del derecho a la libre elección de personal médico de familia, pediatra y personal de enfermería en atención primaria, y de centro o complejo hospitalario por un problema de salud nuevo, e* (pp. 14952–14962). [https://www.xunta.gal/dog/Publicados/2015/20150420/AnuncioC3K1-100415-0001\\_es.pdf](https://www.xunta.gal/dog/Publicados/2015/20150420/AnuncioC3K1-100415-0001_es.pdf)
- Donabedian, A. (1966). Evaluating the quality of medical care. *Milbank Memorial Fund Quarterly*, *44*(3).
- Donabedian, A. (1980). *Explorations in Quality Assessment and Monitoring. Vol I. The definition of quality and approaches to its assessment: Vol. I.* Health Administration Press. <https://philpapers.org/rec/DONEIQ>
- Donabedian, A. (1982). *Explorations in Quality Assessment and Monitoring. Vol II. The*

*criteria and standards of quality*. Health Administration Press.

- Donabedian, A. (1985). *Explorations in Quality Assessment and Monitoring. Vol III. The methods and findings of quality assessment and monitoring: An illustrated analysis*. Health Administration Press.
- Farahbakhsh, M., Bazargani, H. S., Saadati, M., Tabrizi, J. S., Golestani, M., & Zakery, A. (2019). Health services utilisation and responsiveness profiles in Iran: A provincial household study. *Family Medicine and Community Health*, 7, 1–7. <https://doi.org/10.1136/fmch-2018-000007>
- Fenny, A. P., Enemark, U., Asante, F. A., & Hansen, K. S. (2014). Patient satisfaction with primary health care - a comparison between the insured and non-insured under the National Health Insurance Policy in Ghana. *Global Journal of Health Science*, 6(4), 9–21. <https://doi.org/10.5539/gjhs.v6n4p9>
- Fernández-Pérez, Á., Jiménez-Rubio, D., & Robone, S. (2019). The effect of freedom of choice on health system responsiveness. Evidence from Spain. In *Health, Econometrics and Data Group (HEDG) - Working Papers* (Issue 19/21).
- Fernández-Pérez, Á., & Sánchez, Á. (2020). Improving people's self-reported experience with the health services: The role of non-clinical factors. *International Journal of Environmental Research and Public Health*, 17, 1–12. <https://doi.org/10.3390/ijerph17010178>
- Fiorentini, G., Ragazzi, G., & Robone, S. (2015). Are bad health and pain making us grumpy? An empirical evaluation of reporting heterogeneity in rating health system responsiveness. *Social Science & Medicine*, 144, 48–58. <https://doi.org/10.1016/j.socscimed.2015.09.009>
- Fiorentini, G., Robone, S., & Verzulli, R. (2018). How do hospital-specialty characteristics influence health system responsiveness? An empirical evaluation of in-patient care in the Italian region of Emilia-Romagna. *Health Economics*, 27, 266–281. <https://doi.org/10.1002/hec.3540>
- Fitzpatrick, R. (2009). Patient-reported outcome measures and performance measurement. In P. C. Smith, E. Mossialos, I. Papanicolas, & S. Leatherman (Eds.), *Performance measurement for health system improvement: experiences, challenges and prospects* (pp. 63–86). Cambridge University Press.
- Fontova-Almató, A., Juvinyà-Canal, D., & Suñer-Soler, R. (2015). Influencia del tiempo de espera en la satisfacción de pacientes y acompañantes. *Revista de Calidad Asistencial*, 30(1), 10–16. <https://doi.org/10.1016/j.cali.2014.12.009>
- Footman, K., Roberts, B., Mills, A., Richardson, E., & McKee, M. (2013). Public satisfaction as a measure of health system performance: A study of nine countries in the former Soviet Union. *Health Policy*, 112(1–2), 62–69. <https://doi.org/10.1016/j.healthpol.2013.03.004>
- Forouzan, A., Ghazinour, M., Dejman, M., Rafeiey, H., & Sebastian, M. (2011). Testing the WHO responsiveness concept in the Iranian mental healthcare system: A qualitative study of service users. *BMC Health Services Research*, 11. <https://doi.org/10.1186/1472-6963-11-325>
- Frenk, J. (2000). Avedis Donabedian. *Bulletin of the World Health Organization*, 78(12), 2000.
- Gakidou, E., Murray, C. J., & Frenk, J. (2000). *Measuring preferences on health system*

*performance assessment* (No. 20; GPE Discussion Paper Series).

- Galiani, S., & Quistorff, B. (2017). The synth\_runner package: Utilities to automate synthetic control estimation using synth. *The Stata Journal*, 17(4), 834–849. [https://doi.org/The Stata Journal](https://doi.org/The%20Stata%20Journal)
- García-Armesto, S., Abadía-Taira, M. B., Durán, A., Hernández-Quevedo, C., & Bernal-Delgado, E. (2010). Spain: Health system review. In *Health Systems in Transition* (Vol. 12, Issue 4).
- García-Basteiro, A. L., Legido-Quigley, H., Álvarez-Dardet, C., Arenas, A., Bengoa, R., Borrell, C., Del Val, M., Franco, M., Gea-Sánchez, M., Gestal, J., González López-Valcárcel, B., Hernández-Aguado, I., March, J. C., Martín-Moreno, J., Menéndez, C., Minué, S., Muntaner, C., Porta, M., Prieto-Alhambra, D., ... Legido-Quigley, H. (2020). Evaluation of the COVID-19 response in Spain: principles and requirements. *The Lancet Public Health*, 2667(20), 30208. [https://doi.org/10.1016/S2468-2667\(20\)30208-5](https://doi.org/10.1016/S2468-2667(20)30208-5)
- García-Lacalle, J. (2008). A bed too far. The implementation of freedom of choice policy in the NHS. *Health Policy*, 87(1), 31–40. <https://doi.org/10.1016/j.healthpol.2007.10.014>
- Garrett, P. W., Dickson, H. G., Young, L., & Whelan, A. K. (2008). “The Happy Migrant Effect”: Perceptions of negative experiences of healthcare by patients with little or no English. A qualitative study across seven language groups. *Quality & Safety in Health Care*, 17, 101–103. <https://doi.org/10.1136/qshc.2007.022426>
- Gaughan, J., Gutacker, N., Grašič, K., Kreif, N., Siciliani, L., & Street, A. (2019). Paying for efficiency: Incentivising same-day discharges in the English NHS. *Journal of Health Economics*, 68. <https://doi.org/10.1016/j.jhealeco.2019.102226>
- Gaynor, M., Moreno-Serra, R., & Propper, C. (2013). Death by market power: Reform, competition, and patient outcomes in the national health service. *American Economic Journal: Economic Policy*, 5(4), 134–166. <https://doi.org/10.1257/pol.5.4.134>
- Gaynor, M., Propper, C., & Seiler, S. (2016). Free to choose? Reform, choice and consideration sets in the English National Health Service. *American Economic Review*, 106(11), 3521–3557. <https://doi.org/10.3386/w18574>
- Gaynor, M., & Town, R. (2012). Competition in Health Market. In M. V. Pauly McGuire & P. P. Barros (Eds.), *Handbook of Health Economics* (pp. 499–637). Elsevier. <http://www.nber.org/papers/w17208>
- Gertler, P. J., Martínez, S., Premand, P., Rawlings, L. B., & Vermeersch, C. M. J. (2017). *Impact evaluation in practice* (2nd ed.). Banco Iberoamericano de Desarrollo y Banco Mundial. <https://doi.org/10.1109/WI-IATW.2006.145>
- Gilson, L., Alilio, M., & Heggenhougen, K. (1994). Community satisfaction with primary health care services: An evaluation undertaken in the Morogoro region of Tanzania. *Social Science and Medicine*, 39(6), 767–780. [https://doi.org/10.1016/0277-9536\(94\)90038-8](https://doi.org/10.1016/0277-9536(94)90038-8)
- Gostin, L., Hodge, J. G., Valentine, N., & Nygren-Krug, H. (2003). The domains of health responsiveness. A Human Rights analysis. *Health and Human Rights Working Paper Series*, 2(2), 1–12.
- Gravelle, H., Liu, D., Propper, C., & Santos, R. (2019). Spatial competition and quality:

- Evidence from the English family doctor market. *Journal of Health Economics*, 68, 102249. <https://doi.org/10.1016/j.jhealeco.2019.102249>
- Grol, R., Wensing, M., Mainz, J., Ferreira, P., Hearnshaw, H., Hjortdahl, P., Olesen, F., Ribacke, M., Spenser, T., & Szécsényi, J. (1999). Patients' priorities with respect to general practice care: an international comparison. *Family Practice*, 16(1), 4–11. <https://academic.oup.com/fampra/article-abstract/16/1/4/587237>
- Gurdasani, D., Bear, L., Bogaert, D., Burgess, R. A., Busse, R., Cacciola, R., Charpak, Y., Colbourn, T., Drury, J., Friston, K., Gallo, V., Goldman, L. R., Greenhalgh, T., Hyde, Z., Kuppalli, K., Majumder, M. S., Martin-Moreno, J. M., McKee, M., Michie, S., ... Ziauddeen, H. (2020). The UK needs a sustainable strategy for COVID-19. *The Lancet*, 396, 1800–1801. [https://doi.org/10.1016/s0140-6736\(20\)32350-3](https://doi.org/10.1016/s0140-6736(20)32350-3)
- Gutacker, N., Siciliani, L., Moscelli, G., & Gravelle, H. (2016). Choice of hospital: Which type of quality matters? *Journal of Health Economics*, 50, 230–246. <https://doi.org/10.1016/j.jhealeco.2016.08.001>
- Hamid, S. A., & Begum, A. (2018). Responsiveness of the urban primary health care delivery system in Bangladesh: A comparative analysis. *The International Journal of Health Planning and Management*, 1–12. <https://doi.org/10.1002/hpm.2626>
- Hernæs, Ø. (2018). Activation against absenteeism – Evidence from a sickness insurance reform in Norway. *Journal of Health Economics*, 62, 60–68. <https://doi.org/10.1016/j.jhealeco.2018.09.007>
- Hoffmeyer, U. D., & McCarthy, T. R. (1994). *Financing health care*. Kluwer Academic Publishers.
- Hsiao, C. W. (1995). A framework for assessing health financing strategies and the role of health insurance. In D. Dunlop & J. Martins (Eds.), *An International assessment of health care financing. Lessons for developing countries* (pp. 15–29). The World Bank. [http://www-wds.worldbank.org/servlet/WDSContentServer/IW3P/IB/1995/11/01/000009265\\_3961214152642/Rendered/PDF/multi0page.pdf#page=25](http://www-wds.worldbank.org/servlet/WDSContentServer/IW3P/IB/1995/11/01/000009265_3961214152642/Rendered/PDF/multi0page.pdf#page=25)
- Hsu, C. C., Chen, L., Hu, Y. W., Yip, W., & Shu, C. C. (2006). The dimensions of responsiveness of a health system: A Taiwanese perspective. *BMC Public Health*, 6(72), 1–7. <https://doi.org/10.1186/1471-2458-6-72>
- Hussain, A., Sial, M. S., Usman, S. M., Hwang, J., Jiang, Y., & Shafiq, A. (2019). What factors affect patient satisfaction in public sector hospitals: Evidence from an emerging economy. *International Journal of Environmental Research and Public Health*, 16(6), 1–14. <https://doi.org/10.3390/ijerph16060994>
- Hussin, A. H., Ali, F. M. H., Reka, H., & Gjebrea, O. (2015). Tracking access, utilization and health system responsiveness to inform evidence-based health care policy: The case of Qatar. *Journal of Local and Global Health Perspectives*, 2015(2), 1–16. <https://doi.org/10.5339/jlghp.2015.2>
- Jee, M., & Or, Z. (1999). *Health outcome measurement in OECD countries: Toward outcomes-oriented policy making* (Organization for Economic Co-operation and Development (ed.)). [https://scholar.google.es/scholar?hl=es&as\\_sdt=0%2C5&q=Health+outcome+measurement+in+OECD+countries%3A+toward+outcome-](https://scholar.google.es/scholar?hl=es&as_sdt=0%2C5&q=Health+outcome+measurement+in+OECD+countries%3A+toward+outcome-)

oriented+policy+making.&btnG=

- Jones, A. M., Rice, N., Robone, S., & Dias, P. R. (2011). Inequality and polarisation in health systems' responsiveness: A cross-country analysis. *Journal of Health Economics*, 30(4), 616–625. <https://doi.org/10.1016/j.jhealeco.2011.05.003>
- Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika*, 39(1), 31–36. <https://doi.org/10.1007/BF02291575>
- Kamra, V., Singh, H., & Kumar De, K. (2016). Factors affecting patient satisfaction: An exploratory study for quality management in the health-care sector. *Total Quality Management & Business Excellence*, 27(9–10), 1013–1027. <https://doi.org/10.1080/14783363.2015.1057488>
- Kapologwe, N. A., Kibusi, S. M., Borghi, J., Gwajima, D. O., & Kalolo, A. (2020). Assessing health system responsiveness in primary health care facilities in Tanzania. *BMC Health Services Research*, 20(1), 1–10. <https://doi.org/10.1186/s12913-020-4961-9>
- Karami-Tanha, F., Moradi-Lakeh, M., Fallah-Abadi, H., & Nojomi, M. (2014). Health system responsiveness for care of patients with heart failure: Evidence form a university hospital. *Archives of Iranian Medicine*, 17(11), 736–740. <https://doi.org/0141711/AIM.003>
- Kaul, A., Klößner, S., Pfeifer, G., & Schieler, M. (2018). Synthetic control methods: Never use all Pre-intervention outcomes together with covariates. *Working Paper*, 1–20.
- Kerssens, J. J., Groenewegen, P. P., Sixma, H. J., Boerma, W. G. W., & Van Der Eijk, I. (2004). Comparison of patient evaluations of health care quality in relation to WHO measures of achievement in 12 European countries. *Bulletin of the World Health Organization*, 82(2), 106–114. <https://doi.org/S0042-96862004000200007> [pii]
- Khandker, S. R., Koolwal, G. B., & Samad, H. A. (2010). *Handbook on impact evaluation: quantitative methods and practices*. The International Bank for Reconstruction and Development and World Bank.
- Kibret, S. (2020). *The effect of health system responsiveness on health outcome: Evidence from Spain. February*. <https://doi.org/10.21203/rs.2.20759/v1>
- King, G., Murray, C. J. L., Salomon, J. A., & Tandon, A. (2003). Enhancing the validity and cross-cultural comparability of measurement in survey research. *American Political Science Review*, 97(4), 567–583. <https://doi.org/10.1017/S0003055403000881>
- Kleefstra, S. M., Zandbelt, L. C., de Haes, H. J., & Kool, R. B. (2015). Trends in patient satisfaction in Dutch university medical centers: Room for improvement for all. *BMC Health Services Research*, 15(112), 1–9. <https://doi.org/10.1186/s12913-015-0766-7>
- Knowles, J. C., Leighton, C., & Stinson, W. (1997). Measuring results of health sector reform for system performance: A handbook of indicators. In *Special Initiative: Report* (Issue 1). Partnerships for Health Reform.
- Kowal, P. (2011). Performance of the health system in China and Asia as measured by responsiveness. *Health*, 3(10), 638–646. <https://doi.org/10.4236/health.2011.310108>

- Latkin, C., Dayton, L., Yi, G., Konstantopoulos, A., & Boodram, B. (2020). Trust in a COVID-19 vaccine in the U.S.: A social-ecological perspective. *Social Science & Medicine*, 104743. <https://doi.org/10.1016/j.socscimed.2021.113684>
- Legido-Quigley, H., Asgari, N., Teo, Y. Y., Leung, G. M., Oshitani, H., Fukuda, K., Cook, A. R., Hsu, L. Y., Shibuya, K., & Heymann, D. (2020). Are high-performing health systems resilient against the COVID-19 epidemic? *The Lancet*, 395(10227), 848–850. [https://doi.org/10.1016/S0140-6736\(20\)30551-1](https://doi.org/10.1016/S0140-6736(20)30551-1)
- Legido-Quigley, H., Mateos-García, J. T., Campos, V. R., Gea-Sánchez, M., Muntaner, C., & McKee, M. (2020). The resilience of the Spanish health system against the COVID-19 pandemic. *The Lancet Public Health*, 5(5), e251–e252. [https://doi.org/10.1016/S2468-2667\(20\)30060-8](https://doi.org/10.1016/S2468-2667(20)30060-8)
- Lépine, A., Lagarde, M., & Le Nestour, A. (2018). How effective and fair is user fee removal? Evidence from Zambia using a pooled synthetic control. *Health Economics*, 27(3), 493–508. <https://doi.org/10.1002/hec.3589>
- Letskovicova, H., Prasad, A., La Vallée, R., & Valentine, N. (2005). *The Health Systems Responsiveness Analytical Guidelines for Surveys in the Multi-country Survey Study*.
- Linder-Pelz, S. (1982). Toward a theory of patient satisfaction. *Social Science & Medicine*, 16(5), 577–582. [https://doi.org/10.1016/0277-9536\(82\)90311-2](https://doi.org/10.1016/0277-9536(82)90311-2)
- Longo, F., Siciliani, L., Gravelle, H., & Santos, R. (2017). Do hospitals respond to rivals' quality and efficiency? A spatial panel econometric analysis. *Health Economics*, 26(November 2016), 38–62. <https://doi.org/10.1002/hec.3569>
- Longo, F., Siciliani, L., Moscelli, G., & Gravelle, H. (2017). Does hospital competition improve efficiency? The effect of the patient choice reform in England. In *CHE Research Paper* (Issue 149).
- Luo, Q., Wang, Q., Lu, Z., & Liu, J. (2013). Evaluation of responsiveness of community health services in urban China: A quantitative study in Wuhan City. *PLoS ONE*, 8(5), 1–8. <https://doi.org/10.1371/journal.pone.0062923>
- Malhotra, C., & Do, Y. K. (2017). Public health expenditure and health system responsiveness for low-income individuals: Results from 63 countries. *Health Policy and Planning*, 32(3), 314–319. <https://doi.org/10.1093/heapol/czw127>
- Manski, C. F. (2003). Partial identification of probability distributions. In *Journal of the American Statistical Association* (Vol. 102, Issue 477). Springer. <https://doi.org/10.1198/jasa.2007.s169>
- Manski, C. F., & Pepper, J. V. (2013). Deterrence and the Death Penalty: Partial Identification Analysis Using Repeated Cross Sections. *Journal of Quantitative Criminology*, 29(1), 123–141. <https://doi.org/10.1007/s10940-012-9172-z>
- Manski, C. F., & Pepper, J. V. (2018). How do right-to-carry laws affect crime rates? *Review of Economics and Statistics*, 100(2), 232–244. [https://doi.org/https://doi.org/10.1162/REST\\_a\\_00689](https://doi.org/https://doi.org/10.1162/REST_a_00689)
- Martín-Martín, J. J., López del Amo González, M. P., & Cabasés Hita, J. M. (2016). La empresa pública en la sanidad. Prestación de sanidad pública por hospitales y ambulatorios privados. *Presupuesto y Gasto Público*, 83, 81–104.
- Martín Martín, J. J., & López del Amo González, M. del P. (2011). La sostenibilidad del



Sistema Nacional de Salud en España. *Ciência & Saúde Colective*, 16(6), 2773–2782.

- Más, A., Parra, P., Bermejo, R. M., Hidalgo, M. D., & Calle, J. E. (2016). Improving quality in healthcare: What makes a satisfied patient? *Revista de Calidad Asistencial*, 31(4), 196–203. <https://doi.org/10.1016/j.cali.2015.11.006>
- Meyer, G. (1999). *Quality measurement initiatives in the US Federal Government*. [https://scholar.google.es/scholar?hl=es&as\\_sdt=0%2C5&q=Quality+measurement+initiatives+in+the+US+Federal+Government&btnG=](https://scholar.google.es/scholar?hl=es&as_sdt=0%2C5&q=Quality+measurement+initiatives+in+the+US+Federal+Government&btnG=)
- Miani, C., Pitchforth, E., & Nolte, E. (2013). Choice of primary care provider: A review of experiences in three countries. *Policy Innovation and Research Unit*. <https://doi.org/10.17037/PUBS.02478791>
- Mohammed, S., Bermejo, J. L., Soares, A., Sauerborn, R., & Dong, H. (2013). Assessing responsiveness of health care services within a health insurance scheme in Nigeria: Users' perspectives. *BMC Health Services Research*, 13(502), 1–13. <https://doi.org/10.1186/1472-6963-13-502>
- Möller, J., Laaser, U., & Güntert, B. (2002). Evaluation of health care systems. *Zeitschrift Für Gesundheitswissenschaften*, 10(4), 316–325.
- Morgan, M. W., Salzman, J. G., LeFevre, R. C., Thomas, A. J., & Isenberger, K. M. (2015). Demographic, operational, and healthcare utilization factors associated with emergency department patient satisfaction. *Western Journal of Emergency Medicine*, 16(4), 516–526. <https://doi.org/http://dx.doi.org/10.5811/westjem.2015.4.25074>
- Moscelli, G., Siciliani, L., Gutacker, N., & Cookson, R. (2018). Socioeconomic inequality of access to healthcare: Does choice explain the gradient? *Journal of Health Economics*, 57, 290–314. <https://doi.org/10.1016/j.jhealeco.2017.06.005>
- Moscelli, G., Siciliani, L., Gutacker, N., & Gravelle, H. (2016). Location, quality and choice of hospital: Evidence from England 2002–2013. *Regional Science and Urban Economics*, 60, 112–124. <https://doi.org/10.1016/j.regsciurbeco.2016.07.001>
- MSSSI, (Ministerio de Sanidad Servicios Sociales e Igualdad). (2018). *Ficha técnica. Barómetro sanitario 2018*. [https://www.mscbs.gob.es/estadEstudios/estadisticas/BarometroSanitario/Barom\\_Sanit\\_2018/BS2018\\_FT.pdf](https://www.mscbs.gob.es/estadEstudios/estadisticas/BarometroSanitario/Barom_Sanit_2018/BS2018_FT.pdf)
- Mulligan, J. (2000). Measuring the performance of health systems. *BMJ*, 321(7255), 191–192. <https://doi.org/10.1136/bmj.321.7255.191>
- Mulyanto, J., Kringos, D. S., & Kunst, A. E. (2019). Measuring socioeconomic inequalities in Health in Indonesia: Subjective vs. Objective Health Indicators. *KnE Life Sciences*, 4(10), 1. <https://doi.org/10.18502/cls.v4i10.3718>
- Muntlin, Å. M.-Y., Gunningberg, L. A.-C., & Carlsson, M. A. (2008). Different patient groups request different emergency care - A survey in a Swedish emergency department. *International Emergency Nursing*, 16(4), 223–232. <https://doi.org/10.1016/j.ienj.2008.07.006>
- Murante, A. M., Seghieri, C., Vainieri, M., & Schäfer, W. L. A. (2017). Patient-perceived responsiveness of primary care systems across Europe and the relationship with the health expenditure and remuneration systems of primary care

- doctors. *Social Science & Medicine*, 186, 139–147. <https://doi.org/10.1016/j.socscimed.2017.06.005>
- Murray, C., & Frenk, J. (2001). World Health Report 2000: A step towards evidence-based health policy. In *The Lancet* (Vol. 357, pp. 1698–1700). [https://doi.org/10.1016/S0140-6736\(00\)04826-1](https://doi.org/10.1016/S0140-6736(00)04826-1)
- Murray, C. J., & Frenk, J. (1999). A WHO framework for health system performance assessment. In *Evidence and Information for Policy*. <https://doi.org/10.1016/j.isatra.2011.11.007>
- Murray, C. J. L., & Evans, D. B. (2003). Health systems performance assessment: Goals, framework and overview. In C. J. L. Murray & D. B. Evans (Eds.), *Health systems performance assessment: Debates, methods and empiricism* (pp. 3–18). World Health Organization.
- Murray, C. J. L., & Frenk, J. (2000). A framework for assessing the performance of health systems. *World Health Organization*, 78(6), 717–731.
- Naidu, A. (2009). Factors affecting patient satisfaction and healthcare quality. *International Journal of Health Care Quality Assurance*, 22(4), 366–381. <https://doi.org/10.1108/09526860910964834>
- Navarro, M., & Salverda, W. (2019). Earner position and job and life satisfaction: Do contributions to the household income have the same effect by gender and occupations? *Journal of Happiness Studies*, 20(7), 2227–2250. <https://doi.org/10.1007/s10902-018-0045-5>
- Navarro, V. (2000). Assessment of the World Health Report 2000. *The Lancet*, 356, 3. <https://doi.org/10.1007/BFb0115973>
- Navarro, V. (2001). World Health Report 2000: Responses to Murray and Frenk. *Lancet*, 357(9269), 1701–1702. [https://doi.org/10.1016/S0140-6736\(00\)04827-3](https://doi.org/10.1016/S0140-6736(00)04827-3)
- Navarro, V. (2002). The World Health Report 2000: Can health care systems be compared using a single measure of performance? *American Journal of Public Health*, 92(1), 30–34. <https://doi.org/10.2105/AJPH.92.1.31>
- NHS. (2016). *Indicadores clave del Sistema Nacional de Salud*.
- Njeru, M. K., Blystad, A., Nyamongo, I. K., & Fylkesnes, K. (2009). A critical assessment of the WHO responsiveness tool: Lessons from voluntary HIV testing and counselling services in Kenya. *BMC Health Services Research*, 9, 1–11. <https://doi.org/10.1186/1472-6963-9-243>
- Nunu, W. N., & Munyewende, P. O. (2017). Patient satisfaction with nurse-delivery primary health care services in Free State and Gauteng provinces, South Africa: A comparative study. *African Journal of Primary Health Care & Family Medicine*, 9(1), 1–8. <https://doi.org/10.4102/phcfm.v9i1.1262>
- Olding, M., Hayashi, K., Pearce, L., Bingham, B., Buchholz, M., Gregg, D., Hamm, D., Shaver, L., McKendry, R., Barrios, R., & Nosyk, B. (2018). Developing a patient-reported experience questionnaire with and for people who use drugs: A community engagement process in Vancouver’s Downtown Eastside. *International Journal of Drug Policy*, 59, 16–23. <https://doi.org/10.1016/j.drugpo.2018.06.003>
- Ortiz, J. P., Valentine, N. B., Gakidou, E., Tandon, A., Kawabata, K., Evans, D. B., & Murray, C. J. L. (2003). Inequality in responsiveness: Population surveys from 16

- OECD countries. In C. J. L. Murray & D. B. Evans (Eds.), *Health System Performance: Debates, methods and empiricism*. World Health Organization.
- Park, K., Park, J., Kwon, Y. D., Kang, Y., & Noh, J.-W. (2016). Public satisfaction with the healthcare system performance in South Korea: Universal healthcare system. *Health Policy*, *120*(6), 621–629. <https://doi.org/10.1016/j.healthpol.2016.01.017>
- Patricio Bustamante, P., Avendaño Cañas, D., Camacho Martín, B., Ochoa Alvarado, E., Alemany González, F. X., Asenjo Romero, M., Mohammad Tariq, K., & Sánchez Sánchez, M. (2013). Evaluación de la satisfacción del paciente con la atención recibida en un servicio de urgencias hospitalario y sus factores asociados. *Emergencias*, *25*(3), 171–176.
- Peltzer, K. (2009). Patient experiences and health system responsiveness in South Africa. *BMC Health Services Research*, *9*, 1–12. <https://doi.org/10.1186/1472-6963-9-117>
- Peltzer, K., & Phaswana-Mafuya, N. (2012). Patient experiences and health system responsiveness among older adults in South Africa. *Global Health Action*, *5*, 1–11. <https://doi.org/10.3402/gha.v5i0.18545>
- Propper, C. (2012). Competition, incentives and the English NHS. *Health Economics*, *21*, 33–40. <https://doi.org/10.1002/hec>
- Propper, C. (2018). Competition in health care: Lessons from the English experience. *Health Economics, Policy and Law*, *13*(3–4), 492–508. <https://doi.org/10.1017/S1744133117000494>
- Puentes-Rosas, E., Ruelas, E., Martínez-Monroy, T., & Garrido-Latorre, F. (2005). Trato adecuado: Respuesta del sistema mexicano de salud a las expectativas no médicas de sus usuarios. *Salud Pública de México*, *47*(Suplemento 1), S12–S21.
- Puentes Rosas, E., Gómez Dantés, O., & Garrido Latorre, F. (2006). Trato a los usuarios en los servicios públicos de salud en México. *Revista Panamericana de Salud Pública*, *19*(6), 394–402. <https://doi.org/10.1590/S1020-49892006000600005>
- Quintana, J. M., Gonzalez, N., Bilbao, A., Aizpuru, F., Escobar, A., Esteban, C., San-Sebastian, J. A., De-la-Sierra, E., & Thompson, A. (2006). Predictors of patient satisfaction with hospital health care. *BMC Health Services Research*, *6*, 102. <https://doi.org/10.1186/1472-6963-6-102>
- Rahman, M. H. U., Singh, A., & Madhavan, H. (2019). Disability-based disparity in outpatient health system responsiveness among the older adults in low- to upper-middle-income countries. *Health Policy and Planning*, *34*(2), 141–150. <https://doi.org/10.1093/heapol/czz013>
- Rice, N., Robone, S., & Smith, P. (2011). Analysis of the validity of the vignette approach to correct for heterogeneity in reporting health system responsiveness. *European Journal of Health Economics*, *12*(2), 141–162. <https://doi.org/10.1007/s10198-010-0235-5>
- Rice, N., Robone, S., & Smith, P. C. (2008). The measurement and comparison of health system responsiveness. In *Health, Econometrics and Data Group (HEDG) - Working Papers*.
- Rice, N., Robone, S., & Smith, P. C. (2010a). Health systems performance: how can we secure robust international comparison? In *Centre for Health Economics* (Issue July).

- Rice, N., Robone, S., & Smith, P. C. (2010b). International comparison of Public Sector performance: The use of anchoring vignettes to adjust self-reported data. *Evaluation*, 16(1), 81–101. <https://doi.org/http://dx.doi.org/10.1177/1356389009350127>
- Rice, N., Robone, S., & Smith, P. C. (2012). Vignettes and health systems responsiveness in cross-country comparative analyses. *Journal of the Royal Statistical Society Serie A*, 175(2), 337–369.
- Ringard, Å., & Hagen, T. P. (2011). Are waiting times for hospital admissions affected by patients' choices and mobility? *BMC Health Services Research*, 11(1), 170. <https://doi.org/10.1186/1472-6963-11-170>
- Ristea, A.-L., Stegrouiu, I., Ioan-Franc, V., & Dinu, V. (2009). Responsiveness of health systems: A barometer of quality of health services. *Amfiteatru Economic*, 11(26), 277–286. <https://core.ac.uk/download/pdf/6486868.pdf>
- Robone, S., Jones, A. M., & Rice, N. (2011). Contractual conditions, working conditions and their impact on health and well-being. *European Journal of Health Economics*, 12(5), 429–444. <https://doi.org/10.1007/s10198-010-0256-0>
- Robone, S., Rice, N., & Smith, P. C. (2011). Health systems' responsiveness and its characteristics: A cross-country comparative analysis. *Health Services Research*, 46(6), 2079–2100. <https://doi.org/10.1111/j.1475-6773.2011.01291.x>
- Rossouw, L., & Smith, A. (2017). A comparable yardstick: Adjusting for education bias in South African health system responsiveness ratings. *Health Policy and Planning*, 32, iii67–iii74. <https://doi.org/10.1093/heapol/czx107>
- Röttger, J., Blümel, M., Fuchs, S., & Busse, R. (2014). Assessing the responsiveness of chronic disease care - Is the World Health Organization's concept of health system responsiveness applicable? *Social Science & Medicine*, 113, 87–94. <https://doi.org/10.1016/j.socscimed.2014.05.009>
- Röttger, J., Blümel, M., Linder, R., & Busse, R. (2017). Health system responsiveness and chronic disease care – What is the role of disease management programs? An analysis based on cross-sectional survey and administrative claims data. *Social Science & Medicine*, 185, 54–62. <https://doi.org/10.1016/j.socscimed.2017.05.034>
- Sabatini, F. (2009). Social capital as social networks: A new framework for measurement and an empirical analysis of its determinants and consequences. *Journal of Socio-Economics*, 38(3), 429–442. <https://doi.org/10.1016/j.socec.2008.06.001>
- Sánchez-Martínez, F. I., Abellán-Perpiñán, J. M., & Oliva-Moreno, J. (2014). La privatización de la gestión sanitaria: Efecto secundario de la crisis y síntoma de mal gobierno. Informe SESPAS 2014. *Gaceta Sanitaria*, 28(S1), 75–80. <https://doi.org/10.1016/j.gaceta.2014.02.019>
- Santos, R., Gravelle, H., & Propper, C. (2017). Does quality affect patients' choice of doctor? Evidence from England. *The Economic Journal*, 127(600), 445–494. <https://doi.org/10.1111/eoj.12282>
- Schoenfelder, T., Klewer, J., & Kugler, J. (2011). Determinants of patient satisfaction: A study among 39 hospitals in an in-patient setting in Germany. *International Journal for Quality in Health Care*, 23(5), 503–509. <https://doi.org/10.1093/intqhc/mzr038>

- Senic, V., & Marinkovic, V. (2013). Patient care, satisfaction and service quality in health care. *International Journal of Consumer Studies*, 37(3), 312–319. <https://doi.org/10.1111/j.1470-6431.2012.01132.x>
- SERMAS. (2020). *Memorias e informes del Servicio Madrileño de Salud*. Memorias e Informes Del Servicio Madrileño de Salud. <https://www.comunidad.madrid/servicios/salud/memorias-e-informes-servicio-madrileno-salud>
- Serrano-del-Rosal, R., & Loriente-Arín, N. (2008). La anatomía de la satisfacción del paciente. *Salud Pública de México*, 50(2), 162–172.
- Sevillano, E. G. (2012). Who owns the Madrid's region hospitals? *El País*. [https://english.elpais.com/elpais/2012/03/22/inenglish/1332423616\\_936270.html](https://english.elpais.com/elpais/2012/03/22/inenglish/1332423616_936270.html)
- SIAE, (Sistema de Información de Atención Especializada). (2019). Serie histórica ESCRI-SIAE. Hospitales Agudos. Desde 1997. Personal y formación. Total de personal. *SIAE (Sistema de Información de Atención Especializada)*.
- Siciliani, L., Chalkley, M., & Gravelle, H. (2017). Policies towards hospital and GP competition in five European countries. *Health Policy*, 121(2), 103–110. <https://doi.org/10.1016/j.healthpol.2016.11.011>
- Siciliani, L., & Martin, S. (2007). An empirical analysis of the impact of choice on waiting times. *Health Economics*, 16, 763–779. <https://doi.org/10.1002/hec>
- Simões, J., Augusto, G. F., & Fronteira, I. (2017). Introduction of freedom of choice for hospital outpatient care in Portugal: Implications and results of the 2016 reform. *Health Policy*, 121(12), 1203–1207. <https://doi.org/10.1016/j.healthpol.2017.09.010>
- Sirven, N., Santos-Eggimann, B., & Spagnoli, J. (2008). Comparability of Health Care Responsiveness in Europe Using anchoring vignettes from SHARE. In *IRDES Working Paper* (Issue 15).
- Sirven, N., Santos-Eggimann, B., & Spagnoli, J. (2012). Comparability of health care responsiveness in Europe. *Social Indicators Research*, 105(2), 255–271. <https://doi.org/10.1007/s11205-011-9880-z>
- Sitzia, J., & Wood, N. (1997). Patient satisfaction: A review of issues and concepts. *Social Science & Medicine*, 45(12), 1829–1843.
- Smith, P. C. (2002). Measuring health system performance. *European Journal of Health Economics*, 3(3), 145–148. <https://doi.org/10.1007/s10198-002-0138-1>
- Sofaer, S., & Firminger, K. (2005). Patient perceptions of the quality of health services. *Annual Review of Public Health*, 26(1), 513–559. <https://doi.org/10.1146/annurev.publhealth.25.050503.153958>
- Świątoniowska-Lonc, N., Polański, J., Tański, W., & Jankowska-Polańska, B. (2020). Impact of satisfaction with physician–patient communication on self-care and adherence in patients with hypertension: cross-sectional study. *BMC Health Services Research*, 20(1), 1–9. <https://doi.org/10.1186/s12913-020-05912-0>
- The Lancet Public Health. (2020). Will the COVID-19 pandemic threaten the SDGs? *The Lancet Public Health*, 5(9), e460. [https://doi.org/10.1016/S2468-2667\(20\)30189-4](https://doi.org/10.1016/S2468-2667(20)30189-4)
- Tinelli, M., Nikoloski, Z., Kumpunen, S., Knai, C., Brinovec, R. P., Warren, E.,

- Wittgens, K., & Dickmann, P. (2015). Decision-making criteria among European patients: Exploring patient preferences for primary care services. *European Journal of Public Health*, 25(1), 3–9. <https://doi.org/10.1093/eurpub/cku082>
- Truesdale, B. C., & Jencks, C. (2016). The health effects of income Inequality: Averages and disparities. *Annual Review of Public Health*, 37, 413–430. <https://doi.org/10.1146/annurev-publhealth-032315-021606>
- Ugurluoglu, O., & Celik, Y. (2006). How responsive Turkish health care system is to its citizens: The views of hospital managers. *Journal of Medical Systems*, 30(6), 421–428. <https://doi.org/10.1007/s10916-005-9006-8>
- UN. (2020). *Health - United Nations Sustainable Development*. <http://www.un.org/sustainabledevelopment/health/>
- Üstün, T. B., Chatterji, S., Villanueva, M., Bendib, L., Çelik, C., Sadana, R., Valentine, N. B., Ortiz, J. P., Tandon, A., Salomon, J. A., Cao, Y., Xie, W. J., Özaltin, E., Mathers, C. D., & Murray, C. J. L. (2003). WHO Multi-country Survey Study on Health and Responsiveness 2000–2001. In C. J. L. Murray & D. B. Evans (Eds.), *Health System Performance: Debates, methods and empiricism* (pp. 761–796). World Health Organization. <http://www.who.int/entity/healthinfo/survey/HSPA58.pdf>
- Üstün, T. B., Chatterji, S., Villanueva, M., Benib, L., Çelik, C., Sadana, R., Valentine, N., Ortiz, J., Tandon, A., Salomon, J., Cao, Y., Wan Jun, X., Özaltin, E., Mathers, C., & Murray, C. J. L. (2003). WHO Multi-Country Survey Study on health and responsiveness 2000-2001. In *GPE Discussion Paper* (Issue 37).
- Valentine, N. B., Bonsel, G. J., & Murray, C. J. L. (2007). Measuring quality of health care from the user's perspective in 41 countries: Psychometric properties of WHO's questions on health systems responsiveness. *Quality of Life Research*, 16(7), 1107–1125. <https://doi.org/10.1007/s11136-007-9189-1>
- Valentine, N., Darby, C., & Bonsel, G. J. (2008). Which aspects of non-clinical quality of care are most important? Results from WHO's general population surveys of "health systems responsiveness" in 41 countries. *Social Science & Medicine*, 66(9), 1939–1950. <https://doi.org/10.1016/j.socscimed.2007.12.002>
- Valentine, N., Prasad, A., Nigel, R., Robone, S., & Chatterji, S. (2009). Health systems responsiveness: A measure of the acceptability of health-care processes and systems from the user's perspective. In P. C. Smith, E. Mossialos, I. Papanicolas, & S. Leatherman (Eds.), *Performance measurement for health system improvement: experiences, challenges and prospects* (pp. 138–186). Cambridge University Press.
- Valentine, Nicole B., De Silva, A., Kawabata, K., Darby, C., Murray, C. J. L., & Evans, D. B. (2003). Health system responsiveness: Concepts, domains and operationalization. In C. J. L. Murray & D. B. Evans (Eds.), *Health Systems Performance Assessment: Debates, Methods and Empiricism* (pp. 573–596). World Health Organization.
- Valentine, Nicole B., De Silva, A., & Murray, C. J. L. (2000). Estimating responsiveness levels and distribution in 191 countries: Methods and results. *World Health Organization*.
- Valentine, Nicole B., Ortiz, J. P., Tandon, A., Kawabata, K., Evans, D. B., & Murray,

- C. J. L. (2003). Patient experiences with health services: Population surveys from 16 OECD countries. In C. J. L. Murray & D. B. Evans (Eds.), *Health System Performance: Debates, methods and empiricism*. World Health Organization.
- Valentine, Nicole B., & Salomon, J. A. (2003). Weights for responsiveness domains: Analysis of country variation in 65 national sample surveys. In C. J. L. Murray & D. B. Evans (Eds.), *Health System Performance: Debates, methods and empiricism* (pp. 631–642). World Health Organization.
- Valentine, Nicole Britt, & Bonsel, G. J. (2016). Exploring models for the roles of health systems' responsiveness and social determinants in explaining universal health coverage and health outcomes. *Global Health Action*, 9(1), 1–19. <https://doi.org/10.3402/gha.v9.29329>
- Valls Martínez, M. D. C., & Abad Segur, E. (2018). Patient satisfaction in the Spanish National Health System. *Anales Del Sistema Sanitario de Navarra*, 41(3), 309–320. <https://doi.org/10.23938/ASSN.0315>
- van der Kooy, J., Birnie, E., Valentine, N. B., da Graaf, J. P., Denktas, S., Steegers, E. A. P., & Bonsel, G. J. (2017). Quality of perinatal care services from the user's perspective: A Dutch study applies the World Health Organization's responsiveness concept. *BMC Pregnancy and Childbirth*, 17(327), 1–11. <https://doi.org/10.1186/s12884-017-1464-8>
- Van Der Kooy, J., Valentine, N. B., Birnie, E., Vujkovic, M., De Graaf, J. P., Denktas, S., Steegers, E. A. P., & Bonsel, G. J. (2014). Validity of a questionnaire measuring the world health organization concept of health system responsiveness with respect to perinatal services in the Dutch obstetric care system. *BMC Health Services Research*, 14(622), 1–13. <https://doi.org/10.1186/s12913-014-0622-1>
- Van der Stuyft, P., & Unger, J. P. (2000). Editorial: Improving the performance of health systems: The World Health Report as go-between for scientific evidence and ideological discourse. *Tropical Medicine and International Health*, 5(10), 675–677. <https://doi.org/10.1046/j.1365-3156.2000.00635.x>
- van Praag, B., & Ferrer-i-Carbonell, A. (2008). *Happiness quantified: A satisfaction calculus approach*. Oxford University Press.
- Vandan, N., Wong, J. Y., Gong, W., Yip, P. S., & Fong, D. Y. (2020). Health system responsiveness in Hong Kong: A comparison between South Asian and Chinese patients' experiences. *Public Health*, 182, 81–87. <https://doi.org/10.1016/j.puhe.2020.01.019>
- Varkevisser, M., van der Geest, S. A., & Schut, F. T. (2012). Do patients choose hospitals with high quality ratings? Empirical evidence from the market for angioplasty in the Netherlands. *Journal of Health Economics*, 31(2), 371–378. <https://doi.org/10.1016/j.jhealeco.2012.02.001>
- Vengberg, S., Fredriksson, M., & Winblad, U. (2019). Patient choice and provider competition – Quality enhancing drivers in primary care? *Social Science and Medicine*, 226(September 2018), 217–224. <https://doi.org/10.1016/j.socscimed.2019.01.042>
- Vogus, T. J., & McClelland, L. E. (2016). When the customer is the patient: Lessons from healthcare research on patient satisfaction and service quality ratings. *Human Resource Management Review*, 26(1), 37–49.

<https://doi.org/10.1016/j.hrmr.2015.09.005>

- Vrangbæk, K., Østergren, K., Birk, H. O., & Winblad, U. (2007). Patient reactions to hospital choice in Norway, Denmark, and Sweden. *Health Economics, Policy and Law*, 2(2), 125–152. <https://doi.org/10.1017/S174413310700401X>
- Wang, W., Katya Loban, E., & Dionne, E. (2019). Public hospitals in China: Is there a variation in patient experience with inpatient care. *International Journal of Environmental Research and Public Health*, 16(2). <https://doi.org/10.3390/ijerph16020193>
- Wang, W., Maitland, E., Nicholas, S., Loban, E., & Haggerty, J. (2017). Comparison of patient perceived primary care quality in public clinics, public hospitals and private clinics in rural China. *International Journal for Equity in Health*, 16(176), 1–9. <https://doi.org/10.1186/s12939-017-0672-1>
- Ware, J. E., Snyder, M. K., Wright, W. R., & Davies, A. R. (1983). Defining and measuring patient satisfaction with medical care. *Evaluation and Program Planning*, 6(3–4), 247–263. [https://doi.org/10.1016/0149-7189\(83\)90005-8](https://doi.org/10.1016/0149-7189(83)90005-8)
- WHO. (2000a). *Strengthening health systems in developing countries* (Issue A53/9). [http://apps.who.int/gb/archive/pdf\\_files/WHA54/ea54r13.pdf](http://apps.who.int/gb/archive/pdf_files/WHA54/ea54r13.pdf)
- WHO. (2000b). *The World Health Report 2000. Health systems: Improving performance.*
- WHO. (2003). *Health systems performance assessment: debates, methods and empiricism* (C. J. L. Murray & D. Evans (eds.)). World Health Organization.
- WHO. (2020a). *Global Health Expenditure Database*. <https://apps.who.int/nha/database>
- WHO. (2020b). *Responsiveness Questionnaires*. <https://www.who.int/responsiveness/surveys/en/>
- WHO. (2020c). *WHO Coronavirus Disease (COVID-19) Dashboard*. <https://covid19.who.int/>
- Yakob, B., & Ncama, B. P. (2017). Measuring health system responsiveness at facility level in Ethiopia: Performance, correlates and implications. *BMC Health Services Research*, 17(1), 1–12. <https://doi.org/10.1186/s12913-017-2224-1>