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**HEALTHCARE SYSTEMS: ORGANIZATION
AND RESPONSE TO COVID-19**

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Healthcare systems: organization and response to COVID-19

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ABSTRACT

This paper offers an overview of defining traits of national healthcare systems, and remarks on how to evaluate their performance in the current COVID-19 crisis. Beyond a description of the different healthcare provision schemes, we offer a critical review of some of the key considerations to account for in evaluating the performance of national healthcare systems during the pandemic.

The text is organized in three parts. Part 1 provides an overview of the classification of international healthcare systems, and the role of the public sector in healthcare provision. These features condition the varying approaches taken to the pandemic and their relative effectiveness. Exploration of the particularities of the decentralized Spanish system concludes the part. Part 2 presents a snapshot of the financial situation of the systems before the impact of the pandemic. Part 3 reviews a set of factors that ought to be considered in performance evaluations of the COVID-19 response, with emphasis on the Spanish case as an illustrative example. These factors include caution in evaluating outcomes (cases, deaths), and the importance of accounting for the political and baseline demographic and socioeconomic factors that have shaped the severity of the pandemic in each country, among others.

Part 1. The organization of healthcare provision

Public intervention in healthcare in Western countries can be divided into two broad organizational forms: National Health Services (NHS), under which healthcare provision is a service provided by the public sector, and National Health Insurance Systems (NHIS), which are conceived as a publicly regulated health insurance primarily for workers.

The main traits of NHS can be found in the concepts included in its name: national, since it seeks to provide a homogeneous service within the national territory; a service, among the list of publicly provided services, such as education; health, and not only health services, denoting the ambition to encompass the different sectors needed to promote health. Among the countries that have adopted NHS are the United Kingdom, Scandinavian countries, and some Southern European Countries, including Spain (López-Casasnovas & Pifarré i Arolas, 2020).

Other European countries, such as Austria, Holland, Germany, France, and Belgium have opted for a NHIS, in which the system focuses instead on regulating the degree of insurance or coverage, and introducing a social component to the contracts offered by the health providers, such as setting limits to the degree to which payments can be tied to individuals based on actuarial criteria, or limiting the extent to which the funding of services falls on the patient alone and not all users.

Following this classification, these two organizational schemes assign to the agents in the system different responsibilities in the main areas necessary for a well-functioning healthcare system. Those areas include planning, funding, and the provision of services. In addition, for each of these areas of governance, healthcare systems assign a relative weight to the influence of political and technical considerations. Planning and funding are typically heavily influenced by political criteria, and provision often is founded on economic evaluation approaches closer to the practices in the private sector. This disparity in the criteria utilized often leads to a clash between the

traditionally more expansive political approach and the cost-conscious recommendations of economic evaluations.

The role of the public sector in healthcare provision

Out of the institutional settings for NHS and NHIS, a defining trait of a healthcare system is the role that the public sector takes in the regulation, funding and provision of services. This has taken three main approaches: i) based on regulation, with public provision limited to a safety net for the elderly and economically disadvantaged; ii) systems with a dominant role for public provision and production, organized in NHS; iii) publicly intervention through social insurance mechanisms, combined with private production, as is common in Western Europe.

Regulated systems (RS)

A regulated system is founded on the premise that an optimal system is one where individuals bear the brunt of the responsibility healthcare and it is based on private provision. The system is based on belief that: i) private production is more efficient than public production, and ii) tampering with individual responsibility opens the door to malign individual incentives in the form of moral hazard. Thus, oftentimes the centerpiece of a RS is enforcing compulsory individual private insurance schemes. Such insurances are commonly enforced through employers and may have a public cost if they are publicly subsidized.

In addition, RS also recognize the existence of certain market failures associated to private provision, and consequently public regulation frequently also covers other aspects of health provision, such as the accreditation of the medical professionals, health providers, and medical equipment and drugs. There is the risk, however, that an extensive regulation of the health production inputs (such as maximum prices or labor conditions) could limit the autonomy of healthcare providers and thus hurt its efficiency.

Typically, the compulsory individual insurance schemes are not heavily regulated. The compulsory component may include only a basic package of services and contingencies, which may have supplements at free prices. A common global insurance pool is not necessarily enforced, but it is commonly set at a company or corporate level. In the occasions in which the public sector intervenes to protect vulnerable populations, such as the elderly or low-income groups, it does so via direct provision. In that case, the cost of access is completely covered, with possible copayments on certain services. Aside from this public intervention, RS are characterized by having a diversity of healthcare providers and the option to choose among them. Whether this is an individual or collective decision depends on whether the regulator deems individual choice to be reasonably informed.

In RS equity considerations are limited to three elements: i) publicly supporting certain services (those more efficient); ii) the provision of healthcare for vulnerable individuals such as the elderly, disabled, war veterans, or the lowest income groups; iii) the provision of care for life-threatening emergencies. Even then, this does not always imply public provision, and may be privately provided under public funding either directly to the provider or via monetary transfers to the citizen. Despite these mechanisms, RS still emphasize individual responsibility over equity considerations, and, as a result, often display inequities in health access, consumption, and outcomes.

While pro-egalitarian public interventions might be limited, they may still generate perverse incentives. The rules governing public provision may generate “poverty trap”-like situations arising from discontinuities around cut offs, which may be based on ages, income, or on whether a particular condition is covered by the system. At an aggregate level, RS are often considered to be less cost-efficient, although part of this depends on the valuation that a particular society makes of the freedom to choose coverage and provider, as well as the role of individual responsibility. In any case, RS often suffer from inefficiencies in the provision of care stemming from duplicities in healthcare provision capacity, and ineffective coordination between levels of care (primary and specialized), as well as relatively high costs of services. However, that

does not imply that SR are inherently worse than alternatives as they carry legitimacy via social backing to their design.

Systems of public provision and production (SPP)

Public provision and production systems (SPP) establish that both the provision (responsibility and funding) and production elements are taken over by the public sector. Therefore, the entire chain of value overseen by the public sector, from planning to defining the portfolio of services, and its implementation over the national territory. Much like an administrative service, a variety of public departments manage the priority setting of the system, the health care workers, budgets, and the evaluation protocols. This task is undertaken by civil servants, organized in a hierarchical manner, with salaries and responsibilities that are not directly decided by the healthcare authorities but instead by the legislative power.

The efficiency gains of this system hinges on the integration of healthcare provision levels, only limited by the organizational capacity of the system itself. Both centralized purchases and uniform provision of services (with limited individual choice) are intrinsic to such systems. The prioritization of services and the planning of provision for vulnerable groups, however, are not always resolved in a coherent and consistent manner despite its centralized organization. Unnecessarily rigid structures, and the lack of incentives to efficiently manage the programs, together with the pressure of lobbies on vulnerable political and managerial positions are major weaknesses of this type of organizational scheme. While, in principle, the planning and allocation of health services is based on objective health outcomes targets, in practice funding is often governed by past allocations and is then updated incrementally.

In SPP egalitarian considerations play a central role, and oftentimes they are used to justify inefficient provision schemes, restrictions on the service coverage, waiting times, and other deficiencies of the system. The fact that most funding is not related to payments by users (copayments) and instead depends on taxes is often cited as a strength, in terms of the equity elements of the system. At the same time, however,

the reticence to introduce copayments may lead to an inefficient use of the services, with serious risk of overuse. Despite their shortcomings, SPP systems are often among the most cost-effective, even though this is not the only criterion we may wish to use to assess them.

Public provision and private production systems (SI)

Social insurance systems (SI) are molded from aspects of both public provision and private production systems. They combine, with varying importance, public provision via regulatory frameworks as well as private production schemes, with healthcare providers that may include both for profit and non-for-profit organizations. Often, this is simply the result of integrating historical SIs providers from prior to the creation of the public system.

Much like in RS, insurance is compulsory and enforced through the employers. However, benefits are not tied to specific jobs but rather become lifelong entitlements. Over time, the choice of a healthcare provider or insurer becomes disentangled from the specific employer, which become intermediaries, but may also complement the funding and coverage of the insurance schemes. In these systems, there is universal coverage and the public sector guarantees access. Funding is based on a per capita basis, and as is expected from an insurance scheme, is also based on individual based risk factors.

Healthcare providers, on account of their interests, play a fundamental role in the design of the system, which is no longer fully determined by political considerations. Moral hazard issues and overuse are kept at bay with a system of copayments, uncommon in systems of public production. The introduction of healthcare provision efficiency considerations may result in better planning and provision than in SPP. At the same time, a major weakness of SI systems is that it may result in greater inequity due to schemes that discriminate against riskier (and more vulnerable) groups, as is common in insurance design, if appropriate public compensation is not implemented.

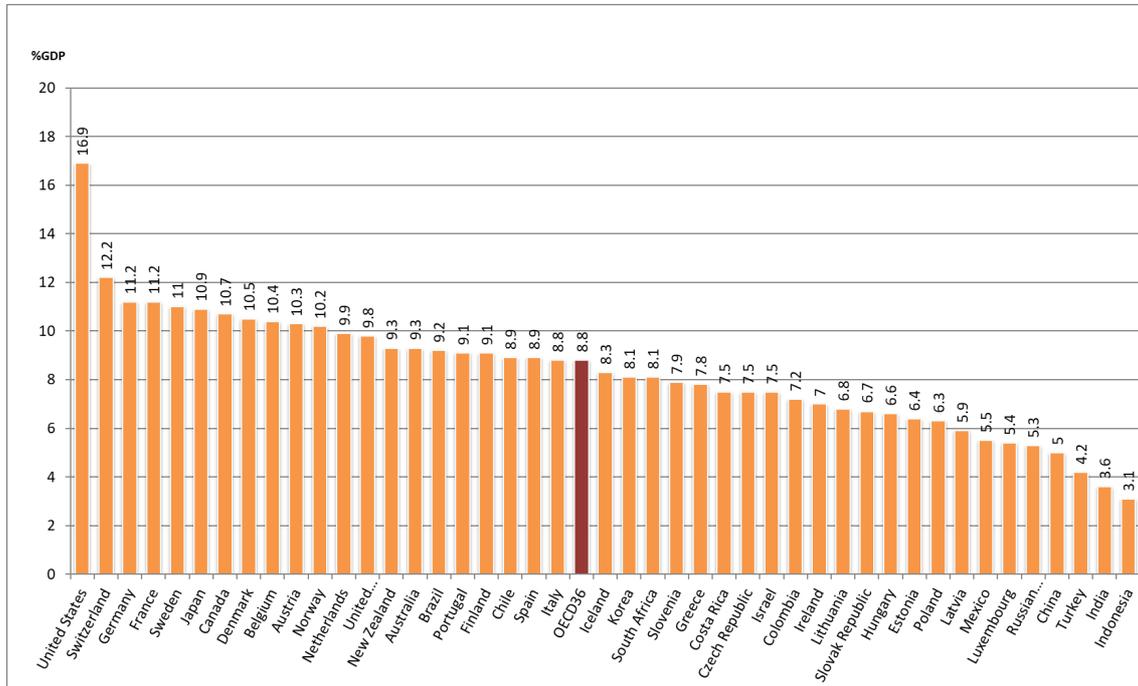
To avoid these shortcomings, SI may include additional provisions, outside of the common insurance schemes, to compensate vulnerable groups.

Part 2. The evaluation of the health systems in response to health challenges: do we spend enough?

A recurrent debate exists on whether countries spend enough or too much in healthcare. This is the case in Spain, where there is a popular perception that healthcare is underfunded. As a result, interest groups from the healthcare sector have argued that public spending in healthcare is desirable and have accordingly advocated against spending control mechanisms, such as budget capping (Wolfe & Moran, 1993; Kanovos & López-Casasnovas, 2020). Given the context, a discussion arises on how to measure healthcare spending.

The first consideration is whether we ought to consider total healthcare spending or only the public component. This is relevant given that the way public and non-public spending are funded and allocated differ. Figure 1 displays the composition of healthcare spending by financing for OECD countries; public spending accounts for about two thirds of total healthcare spending in Spain, in line with other NHS based countries. A possible comparison variable we can utilize here is per capita spending, appropriately adjusted by price differences across countries (purchasing power parity). If we compare public healthcare spending per capita after these adjustments, the differences would be smaller than what the unadjusted measures would suggest.

Figure 1. Public health expenditure as a share of GDP (2018)



Source: Created by the authors with OECD (2019) data.

A key determinant of the healthcare spending of a country is per capita income. After all, the wealth of a country places an upper limit to its spending capacity, which in turn limits the extent of the services provided by the healthcare system. As a result, the ratio of spending over GDP can vary due to differences in both the denominator and the moderator. During recessions, we often see an increasing importance of social and healthcare spending over GDP; GDP decreases and social spending increases (unemployment insurance and other social protection spending), while healthcare spending does not diminish at the same rate as GDP. However, few would argue that families are better off in this scenario. Pure increases in healthcare spending do not always denote higher welfare either. Such increases might be due, for example, to an inadequate control of the growth pharmaceutical spending, or an overuse of emergency health services.

The choice of benchmark also matters. Comparing healthcare spending to the mean in Western countries is not very informative. While the OECD average is commonly used,

this comparison can be misleading. This is because the OECD average is heavily influenced by the weight of countries with private systems, such as the US or Japan, as can be seen in Figure 1 (health expenditure as share of GDP). It is thus misleading to attempt to politically distance from these models to then take advantage of their contribution to raising average spending to support the claim that higher healthcare spending is needed. We ought to compare, instead, to the systems that we seek to emulate. For Spain, this means comparing the system's spending to other systems with large public components. As such, the European Union (EU) average is often taken as the appropriate reference, with the caveat of considering whether newer members of the EU, with lower levels of development and fewer years under should be considered. In addition, weighting by population will also matter for the benchmark, given the disparity in sizes between EU members. Furthermore, a further complication arises when comparing NHS and NHIS based systems, given their inherent differences. NHIS tend to be more expensive, but also tend to be more highly rated by citizens. According to the Eurobarometer, 92% of the population of countries under NHIS healthcare systems favorably value their system, compared to 82% for countries with an NHS. (Eurobarometers and for an explanation of caveats and limitations see Mossialos, 1997)

Short waiting lists, more choices for users, and other advantages of NHIS seem to compensate for the higher cost in the eyes of the citizens. As we have discussed, NHS tend to have higher waiting lists, more restricted coverage, and higher administrative burdens but are also cheaper due to the centralization of its organization; overall, this leads to lower rating.

Accounting for all these considerations, the Spanish system is best compared to other countries with NHS. In the European context, this includes countries such as the UK, Italy, Finland, Norway, Denmark, or Sweden. In doing so, we find that while healthcare spending per capita is lower than those in NHIS based countries, it is in fact closer to the average of countries with an NHS (López-Casasnovas & Pifarré i Arolas, 2020). After further refining the benchmark controlling by demographic factors, and adjusting for income per capita, we can conclude that Spain has a level of spending that is

comparable to the average of other NHS countries (for a detailed analysis of the topic, see López-Casasnovas & Maynou & Saez, 2015).

Ultimately, even such refined comparisons mask substantial heterogeneity at similar levels of spending in healthcare. It is also important to consider the funding sources, since public spending financed via taxes ought to be considered differently than the resources collected via copayments. The same level of spending might also reflect different choices in coverage, both in the services included and the special considerations for more vulnerable groups.

More recent trends in the policy debate have moved away from discussions about how much to how are systems spending. Traditionally, healthcare spending has allocated more in a retrospective than prospective manner. In RS, through the repayment schemes, in SI systems, via the funding of the service providers, and in SPPs according to the outputs of the system. All systems are transitioning to payments focused on results: patients for RS, at a population level for SIs, and based on coverage for SPPs. The regulation of the processes and procedures is also moving away from establishing quality and safety controls (on professionals and products) to focusing more on scientifically demonstrated clinical effectiveness. This allows for ease of comparing treatments based on cost or cost effectiveness. To better support this trends, currently healthcare systems have been reformulated so that their evaluation processes better reflect current trends in policy impact evaluation.

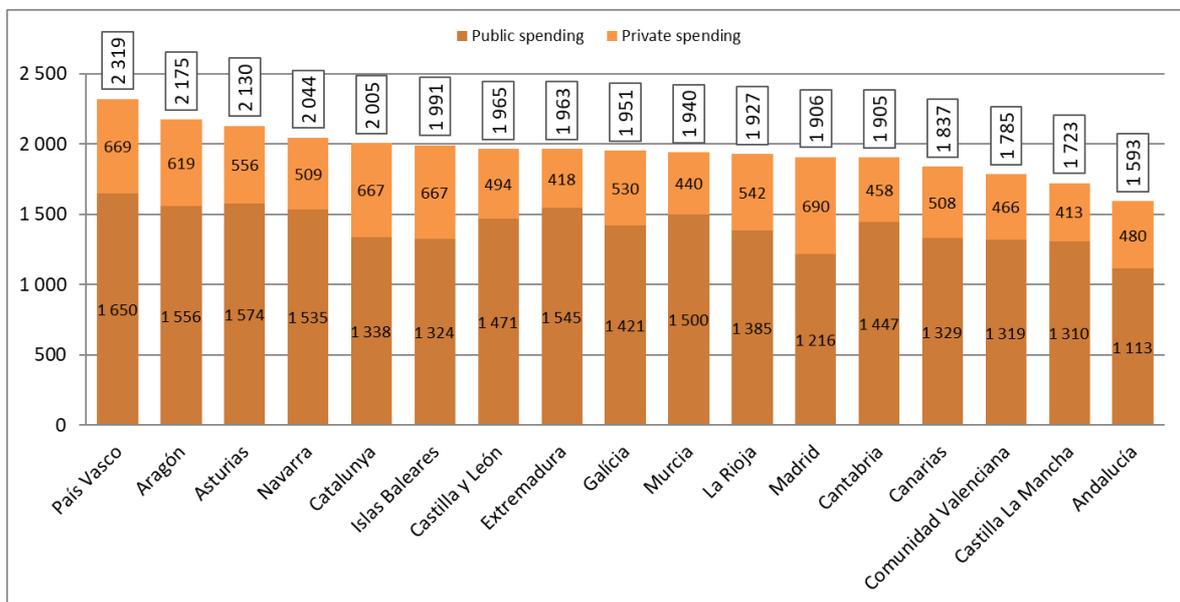
Specifics on the Spanish case: the Spanish decentralized system

A major defining trait of the Spanish healthcare system is its high degree of regional decentralization. For this reason, it is necessary to also report its regional spending figures beyond the country average and to acknowledge its institutional deviations from more centralized NHS in its organization practices.

The reorganization of the Spanish public sector after the country's democratic transition resulted in the decentralization of many public services, a long-term organizational choice cemented in the VIII Title of the Spanish Constitution of 1978. Transfer of healthcare spending powers to lower levels of government began in 1982,

starting with the Catalan autonomous region case, expanding to the rest of the Spanish regions over the course of the latter three decades. As a result of the decentralization process, both the level and composition of public spending varies across regions (see Figure 2). This has not resulted, however, in worse interregional equity; on the contrary, decentralization has been accompanied by improvements in interregional health equity (López-Casasnovas, 2011).

Figure 2: Public and private per capita spending – Spanish regions



Source: IDIS report (2019)

A negative consequence of decentralization is that regions now compete for allocations of funds for healthcare from the central government. This has created, to an extent, some perverse incentives for regions to allow for higher levels of deficit in their health systems budgets to signal need —a logic in line with the evidence from existing literature that shows that untying spending and taxation puts upwards pressure on spending (Banta, 2004). For a more detailed analysis of the Spanish Regional finance organization, see (Lago-Penas & Fernández-Leiceaga & Vaquero-García, 2017).

Part 3. Evaluating the healthcare’s systems response to covid-19: caution is needed

At first sight, RS seem to have had a poor response to the pandemic, especially as seen in the US case. Perhaps more surprisingly, countries with NHS do not seem to have outperformed NHIS systems in terms of number of deaths, despite the more centralized way they are organized (Table 1). This would suggest a greater capacity to respond to the pandemic, given the larger degree of control over capabilities of the system, though there has not been overwhelming evidence that this has been the case.

Table 1. The Beveridge (NHS) and Bismarck (NHIS) COVID-19 cases and deaths

Beveridge			Bismarck		
	<i>Cases</i>	<i>Deaths</i>		<i>Cases</i>	<i>Deaths</i>
<i>Denmark</i>	316.7	10.8	<i>Austria</i>	339.2	8.3
<i>Finland</i>	152.1	6.1	<i>Belgium</i>	768.5	85.5
<i>Greece</i>	113.6	2.8	<i>Chile</i>	2,222.5	61
<i>Iceland</i>	629.3	2.9	<i>Czech Republic</i>	278.9	4.1
<i>Ireland</i>	607.9	35.9	<i>Estonia</i>	194.8	4.8
<i>Italy</i>	463.5	55.8	<i>France</i>	513.8	47.1
<i>Korea</i>	42.1	0.7	<i>Germany</i>	304.1	11.2
<i>Mexico</i>	497.6	53	<i>Hungary</i>	100.6	6.5
<i>New Zealand</i>	35.7	0.5	<i>Israel</i>	1,511.4	11.4
<i>Norway</i>	214.1	4.9	<i>Japan</i>	57.1	1.1
<i>Poland</i>	190.1	5.7	<i>Netherlands</i>	446.5	36.4
<i>Portugal</i>	597.5	18.1	<i>Slovakia</i>	89.5	0.7
<i>Spain</i>	1,143.1	63.3	<i>Slovenia</i>	159.3	6.5
<i>Sweden</i>	847.6	55.7	<i>Switzerland</i>	522.8	23.3
<i>UK</i>	518.8	61.2	<i>Average</i>	536	22
<i>Average</i>	425	25			

Cases and deaths per 100.000 inhabitants September 10th, 2020.
Source: Worldometer (2020).

Partially, this may be due to political influence over NHS, exacerbated in the response to the pandemic. Perhaps the exception among NHS is the UK, whose managers may have, to a certain extent, ignored the official stance of its government and pre-

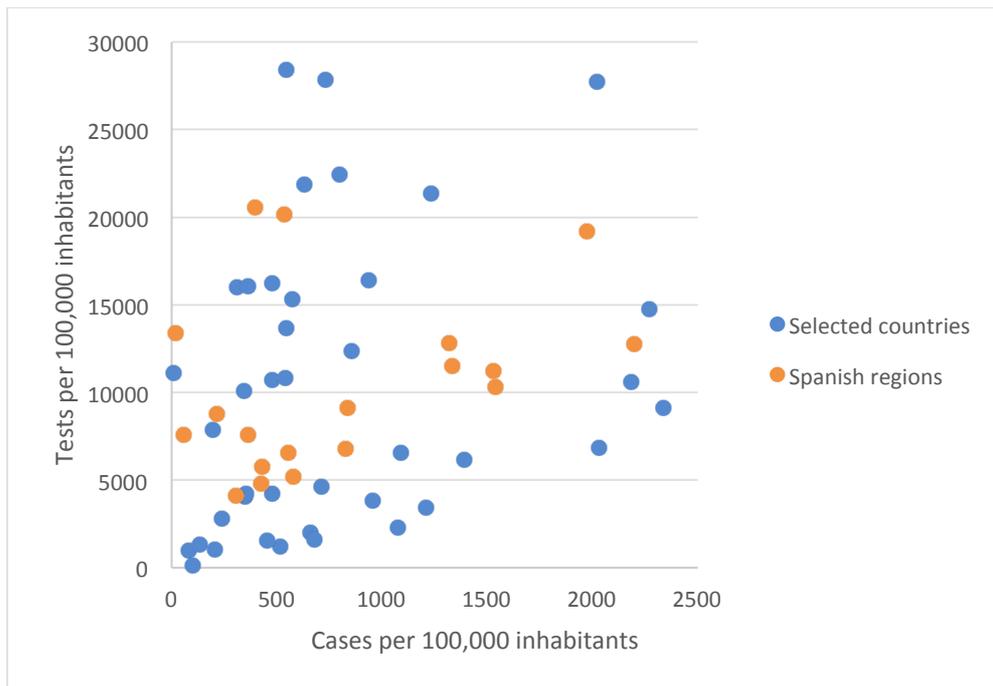
emptively hoarded stocks and other resources. In Spain and Italy, the response of the healthcare system to the pandemic has had a stronger political component. In Spain, managers of the health system may be unduly influenced by the political powers that appointed them, as is in the case of the committees of experts appointed to aid in crafting the response to the pandemic. In practice, a further difficulty has been the decentralized nature of the healthcare system in Spain, which is to a large extent managed by each regional government (López-Casasnovas & Pifarré i Arolas, 2020). A more centralized response is thus required for the design of new protocols to coordinate the response across regions and institutions. Finally, the overly regulated and bureaucratic administration of the system has made it more difficult to handle urgent centralized purchases of medical supplies.

Moving past a first qualitative assessment of the relative performance healthcare systems requires addressing several important issues. Here, we focus on three key considerations: i) difficulties in assessing incidence and deaths; ii) the central role of policy responses; and iii) the need to account for the differential baseline vulnerability to the pandemic across territories.

Cases and deaths

Performance evaluation exercises find its first difficulty in the evaluation of the basic outcomes, the number of cases and deaths from the pandemic. Initial attempts to assess the spread of the pandemic were hindered by the shortage of tests, and international comparisons are limited due to the differences in the extent and the targets of testing policies. Figure 3 displays the cases and tests for the forty countries with the highest number of deaths as of September 13th. Tests per 100,000 inhabitants range from 6 to over 2000, and while there seems to be a positive association between tests and cases, some countries appear to be conducting more extensive testing campaigns. The difficulty in assessing and comparing cases has led to the development of alternative methodologies to assess the spread of the pandemic (Bohk-Ewald & Dudel & Myrskylä, 2020). Similar patterns can be observed for the Spanish regions (Figure 3).

Figure 3. Covid-19 cases and tests – selected countries and Spanish Regions



Source: Forty countries with the highest number of deaths on September, 13th (Woldometers, 2020); data for Spanish regions from the Spanish Ministry of Health.

There is also substantial controversy regarding official death counts. Early on, policy makers and researchers alike recognized that COVID-19 attributable deaths likely underestimate the true number of deaths (Leon et al., 2020). Excess mortality approaches have emerged as a complement to official deaths counts. Although excess mortality counts depend on correctly estimating the mortality baseline, the general finding with this approach is that there is substantial undercounting of deaths (Wu et al., 2020). Based on a comparison of official deaths to the excess mortality deaths estimated for selected countries and reported in Table 2 (Pifarré i Arolas et al., 2020), we find we may on average underestimate death counts by a factor of 2.

Table 2. Covid-19 death counts and excess deaths – selected countries

<i>Country</i>	<i>Covid-19 Deaths</i>	<i>Excess Deaths</i>	<i>Ratio</i>	<i>Date</i>
<i>Austria</i>	638	1,925	3.0	01/06/2020
<i>Belgium</i>	9,524	10,516	1.1	01/06/2020
<i>England</i>	27,834	62,088	2.2	08/06/2020
<i>Finland</i>	318	1,137	3.6	01/06/2020
<i>France</i>	15,850	26,216	1.7	04/05/2020
<i>Germany</i>	8,772	12,390	1.4	18/05/2020
<i>Israel</i>	236	618	2.6	11/05/2020
<i>Italy</i>	21,551	44,884	2.1	20/04/2020
<i>Netherlands</i>	6,002	8,715	1.5	01/06/2020
<i>Norway</i>	239	811	3.4	08/06/2020
<i>Portugal</i>	1,436	3,714	2.6	01/06/2020
<i>Sweden</i>	4,694	6,157	1.3	08/06/2020
<i>Switzerland</i>	1,657	2,382	1.4	01/06/2020
<i>USA</i>	103,343	121,772	1.2	01/06/2020
<i>Average</i>	14,435	21,666	2.1	-

Source: Global years of life lost to COVID-19 (Pifarré i Arolas et al. 2020)

Moreover, given the variability across countries in the magnitude of undercounting, cross country comparison based on official death counts could be misleading. Data for the different Spanish regions, in Table 3, also suggest there is misclassification of deaths (Euromomo 2020). In the case of Spain, the largest deviations seem to take place in the regions with the highest official death counts, and the median ratio of official to excess death counts is smaller in the cross-country data.

Table 3. Covid-19 death counts and excess deaths – Spanish regions

Region	<i>Covid-19 Deaths</i>	<i>Excess Deaths</i>	<i>Ratio</i>	<i>Date</i>
<i>Andalucía</i>	1,404	1,478	1.0	01/06/2020
<i>Aragón</i>	826	842	1.0	01/06/2020
<i>Asturias</i>	310	331	1.1	01/06/2020
<i>Baleares</i>	209	178	0.9	01/06/2020
<i>Canarias</i>	151	116	0.8	01/06/2020
<i>Cantabria</i>	202	210	1.0	01/06/2020
<i>Castilla La Mancha</i>	2,945	5,121	1.7	01/06/2020
<i>Castilla y León</i>	1,924	3,540	1.8	01/06/2020
<i>Cataluña</i>	5,587	11,644	2.1	01/06/2020
<i>Ceuta</i>	4	11	2.8	01/06/2020
<i>C. Valenciana</i>	1,332	1,633	1.2	01/06/2020
<i>Extremadura</i>	508	686	1.4	01/06/2020
<i>Galicia</i>	609	538	0.9	01/06/2020
<i>Madrid</i>	8,691	14,168	1.6	01/06/2020
<i>Melilla</i>	2	-	-	01/06/2020
<i>Murcia</i>	148	210	1.4	01/06/2020
<i>Navarra</i>	490	610	1.2	01/06/2020
<i>País Vasco</i>	1,424	1,590	1.1	01/06/2020
<i>La Rioja</i>	361	256	0.7	01/06/2020
<i>Average</i>	1,428	2,398	1.3	-

Source: Carlos III MoMo and Spanish Ministry of Health (2020).

Policy responses

As a response to the pandemic, governments around the world have adopted policies that balance the health impact of the pandemic and the economic and social costs of containment. Due to the infectious nature of the pandemic, government policies have played a major role in affecting the spread of the virus. Recent evidence has highlighted the pivotal role that policies such as social distancing measures or travel bans (Walker et al., 2020; Flaxman et al., 2020) have had in the impact of the earlier months of the pandemic. Current work along these lines suggests that specific public events (so called ‘super-spreader events’) may have contributed heavily to the spread of the pandemic (Dave et al., 2020). Other direct policy measures, such as extraordinary purchases of medical material, have also played a role in the

preparedness of the national healthcare systems. Thus, any attempt to evaluate the performance of healthcare systems must account for the joint responsibility of policy makers.

In Spain, the politically driven policy response has not always been homogenous across regions. In the earlier months of the onset of the pandemic, some regional governments demanded the implementation of strict containment measures, prior to the central government decision to raise the state of alert on March 14th, 2020 (El Diario, 2020). In an attempt to better coordinate the response to the pandemic, the central government has regulated automatic response mechanisms based on epidemiological information. Since May 3rd, decisions on the degree severity of the social distancing and related preventive measures are based on information provided by the regional governments (COVID-19 HSRM, 2020), but ultimately responsibility of the central government. This has created situations in which regions have been accused of delaying the transmission of information to the central government (Europa Press, 2020). The conflict between regional and central governments is not unique to Spain and has been a central theme in other decentralized countries such as the US (Hale et al., 2020).

Baseline vulnerability

As much as policy responses have been fundamental in curbing the spread of the pandemic, country and region-specific baseline socio-demographic factors have also played a role. We may classify these factors in two types: i) factors related to the vulnerability to the disease itself; ii) and factors associated with the spread of the pandemic and the likelihood of transmission and infection. Regarding the first type, existing literature on the factors influencing the severity of the disease for COVID-19 patients have established the importance of age and preexisting conditions (Sun et al., 2020). Consequently, countries with older populations (Dudel et al., 2020), such as Spain, and/or with higher burden of morbidity (Neponucemo et al., 2020), often middle- and low-income countries, have suffered more severely from the pandemic.

Among the second type of factors, those related to the transmission of the disease, research has identified certain socioeconomic variables. This is exacerbated by evidence suggesting the extent to which social distancing guidelines have been followed is heterogeneous across different socioeconomic groups.

Several reports and articles have found that (Weill et al., 2020; Durante & Guiso & Gulino, 2020) areas with higher income and social capital follow more closely social distancing recommendations. The hypothesized channels include factors ranging from the ability to assess risk to the economic limitations that certain household could face in maintaining social distancing. A key factor may have been the ability to switch to remote work, which correlates with occupational categories. Thus, different countries and regions may have varying baseline levels of vulnerability to the pandemic stemming from their socio-demographic composition.

The economic impact of COVID-19

In addition to its major public health consequences, the pandemic has had a major economic impact. In part, the economic effect can be attributed to the influence of the policies adopted to curtail the spread of the pandemic, and more broadly, the result of a complex interaction of consumer behavior changes, and the ripples across countries of the poor economic performance. Hence, governments have had to allocate resources to both strengthen their healthcare systems and to support citizens and businesses struggling with economic hardship.

Yet, the effect of the pandemic across the economic and health dimensions has been uneven across countries (Fernández-Villaverde & Jones, 2020). In some, such as Spain, there has been both a relatively high death count and GDP loss (over 600 deaths per million inhabitants as of October 2020, and an 8% GDP loss, with estimates placing the upper bound of the latter at over 15%), while in other, like Greece, loss of life has been far smaller, while the economic impact has been severe (under 50 deaths per million inhabitants and close to a 4% GDP loss). Even among those countries with relatively high COVID-19 related deaths the impact on GDP has differed substantially, indicating

that there are other major factors at play, such as the relative importance of the different economic sectors in the countries' economies (Gottlieb et al., 2020). For example, in Spain, tourism-related activities account for a relatively large fraction of the GDP, and the sector has been heavily affected by both travel bans and cancellations.

The differential negative effect on GDP of the pandemic can be considered a determinant of the composition and size of the governments' policy responses. A greater GDP loss may limit the capacity to allocate additional resources to the healthcare system (initiatives such as the Next Generation funding program by the European Union, focused on the worst hit by the pandemic, might help alleviate some of this pressure). In addition, GDP losses result in economic hardship that governments need to alleviate through public transfers in the form of extended unemployment subsidies or poverty relief. For this reason, public policy responses to the pandemic ought to be evaluated as a bundle, and in the context of the existing economic and public health situation of each country. The demonstrated relationship between adequate and timely health policies in the impact of the pandemic (Walker et al., 2020; Flaxman et al., 2020) further complicates the evaluation of the public policy interventions.

A growing economic literature tackles the negative effects of the pandemic, with a strand that focuses on the modeling of the macro-level effects (Eichenbaum et al., 2020), and another that attempts to capture the individual level consequences. At the individual level, research has measured the effects of the pandemic in labor outcomes, consumption, and income losses. An interesting development of this literature is the utilization of "high frequency" measures. Typically, government sponsored labor and consumption statistics are collected in quarterly surveys; to better capture the impact of the pandemic in shorter time horizons, researchers have been resorting to a variety of alternative data sources. From fielding additional survey to collect labor data, such as the Real Time Population Survey (Bick & Blandin, 2020), to data on consumption and income from commercial banks, using credit card (Carvalho et al., 2020) and bank account (Andersen et al., 2020; Aspachs et al., 2020) data.

Recent evidence from Spain is in line with existing papers from other countries, such as the US, that find that lower income individuals have suffered disproportionately from the pandemic (see Bassett et al., 2020 for the US). In the city of Barcelona, Spain, the lowest income district of the city had over twice as much incidence as the richest (Baena-Díez et al., 2020). Not only have lower income groups experienced worse health-related outcomes, but they have also suffered relatively larger income losses. In the case of Spain, Aspachs et al. (2020) report a substantial increase in individuals with no income in the first months of the pandemic (April-May), with lower income individuals (pre-COVID-19) having relatively higher odds of losing their jobs. The income shock is also stronger for immigrants, and not surprisingly in regions like the Balearic Islands with a relatively higher share of tourism in the local economy.

The authors investigate the role of unemployment benefits in attenuating private income losses. They do so by comparing the Gini index for pre- and post-transfers income. Before the start of the pandemic, the income-based Gini coefficient for pre transfers income was around 0.45, and transfers brought it down by 0.05 to 0.40. By April, the Gini index had increased to over 0.55 and pre-transfers had more than doubled their contribution to the reduction of inequality by reducing the final Gini index to 0.45. That is, government transfers have become crucial for many low-income families and heavily contributed to curtailing the highly unequal economic impact of the pandemic.

In conclusion, the government response to the pandemic is a balancing act between alleviating economic hardship and controlling the health impact. This tradeoff is present in the decision to establish lockdowns, travel bans, and other social distancing measures; it is also a consideration when deciding the government budget allocations towards economic relief and additional healthcare resources.

Conclusion

Any evaluation of the relative performance of the different healthcare systems organization schemes is likely to be controversial, even more so in the current emergency context of the COVID-19. Some may argue that recent healthcare spending cuts in Spain, an outcome of the recent crisis, may have resulted in an insufficient level of public healthcare spending. This would be incorrect, as the spending cuts were temporary measures of fiscal consolidation; overall, Spain maintains a level of spending similar to comparable healthcare systems. More than a lack of resources, the deficiencies of the system are related to its organizational rigidity. This has become readily apparent in the relatively slow response to the pandemic. Recognizing the central role of the government led policies in the pandemic consequences, there are voices that call for an independent evaluation of both the government and the healthcare system responses (García-Basteiro et al., 2020). Strengthening pandemic preparedness will require both understanding the shortcomings and the determinants of the political response (Sebhatu et al., 2020), as well as those of the limitations of the healthcare system. The conclusion should not be to dismiss the role of the pandemic responses; flawed as they might be, a growing body of evidence tells us that without the policy response the projected impact of the pandemic may have been several orders of magnitude higher (Walker et al., 2020).

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