

Governance and state capacities against COVID-19 in Germany and Spain: national responses and health systems from a comparative perspective

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Abstract *This study aimed to analyze comparatively strategies and political actions adopted in response to the COVID-19 pandemic in Germany and Spain in 2020. Based on historical institutionalism, we focused on the institutionality of government action in five work dimensions. The results showed different state capacities in coordination, implementation, and effectiveness of strategies. Crisis management and governance strengths are related to recognizing its severity and negotiation skills; national production capacity of supplies and equipment; and broad targeting of fiscal and financial resources from central government to health, social, and economic areas. These aspects varied between cases, acting as a relevant differential in governmental response. Other differentials were health system's structure; availability of workers; and national science and technology system, highlighting the importance of medium and long-term investments.*

Key words *Coronavirus infections, COVID-19 pandemic, Health systems, Governance, Contextual effects of health Disparities*

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Introduction

The COVID-19 pandemic is one of the global health concerns today, affecting more than 200 countries, with millions of cases and deaths worldwide¹. Mortality rates are higher over 60 years and in the presence of cardiovascular, respiratory, and immunological diseases, but there are also severe cases and deaths in the absence of these risk factors² and in young patients^{3,4}.

The impacts of COVID-19 are expressed on health systems, with overload and risk of service collapse, especially hospitals and diagnostics, due to the high transmissibility and the need for hospital care for about 20% of cases and critical care for about 5%⁵. The pandemic also increased demand for PHC services, affecting the work and monitoring of chronic conditions.

Repercussions on social and economic dynamics are also significant. The health, social, and economic impacts have produced a humanitarian crisis⁶, affecting socially vulnerable populations and territories unevenly. Higher levels of unemployment and poverty tend to deepen inequalities and challenge governments and societies globally.

The State's role in formulating and implementing social, economic, and health policies is essential to address the multidimensional crisis. However, these policies can be influenced by several factors: characteristics of (financialized and globalized) 21st - century capitalism and inequalities; configuration of State institutions and their relationships with society; distribution of political-territorial power in States and political regimes; historical trajectory and policy context; and disputes between interest groups. The effective action of the National States in fighting the pandemic depends on the capacity for intersectoral and intergovernmental articulation and the compensation of inequalities in living conditions, productive inclusion, and access to the health system.

This paper presents the results of research that aimed to analyze comparatively the strategies adopted by Germany and Spain in response to the COVID-19 pandemic. An attempt was made to explore the governance and capacity of state action of these two European countries in face of this global crisis to extract lessons that could strengthen the response to health emergencies in other countries, including Brazil.

Methods

The study was based on historical institutionalism⁷, assuming that States' acting capacity⁸ is conditioned by historical-structural, institutional, and situational factors⁹.

This study focused on the institutionality of government action in face of the crisis generated by the COVID-19 pandemic. Within the scope of this study, institutionality corresponds to the state's capacities to plan, formulate, and implement actions and strategies in five work dimensions: Governance and national coordination; Epidemic spread control; Strengthening the health system; Social and economic support; and Communication with society. Chart 1 presents the analysis matrix, which combines political-institutional and historical-structural elements.

A cross-sectional comparative analysis¹⁰ was carried out, in which each case was analyzed in depth from its context. The criteria for selecting the countries considered elements that make them interesting cases for analyzing similarities and differences in national responses to the pandemic. Germany and Spain are populous European countries with a political-territorial organization that combines national articulation with decentralized policies (Germany is a federation while Spain is a quasi-federation). Both have robust health systems with broad population coverage (in Germany, under the social insurance model, and in Spain, under the universal system), and both were hit by the pandemic in close periods but showed differences in their capacity for governance and response. Spain is among the countries with the highest number of deaths/million inhabitants while Germany is the lowest. Despite variations between the waves, the COVID-19 lethality in Spain ranged between 10% to 2.6% in 2020 and 4% to 1.5% in Germany (lowest rate among most affected European countries by December 2020)¹.

The research strategies and techniques included the survey and analysis of: 1) scientific publications available in the repository of PubMed and Web of Science; 2) legislation, documents, and official reports (with emphasis on the Ministries of Health and Economy); 3) secondary data available in databases from international (OECD Stat and WHO) and national agencies. The collection occurred from March to December 2020, which were response periods during the first and second waves of the pandemic in both countries.

The results address the social, economic, and health context before the pandemic in both

Chart 1. Institutionality, governance and political strategies in response to the crisis generated by COVID-19 in a context of inequalities.

Institutionality of governmental response to COVID-19 (State capacities to develop strategies and actions in following dimensions)	
Governance and national coordination	Strategies and actions to promote governance and national coordination of public policies to cope with the crisis generated by COVID-19, developing instruments such as national norms (laws, decrees, and resolutions) and intergovernmental and intersectoral forums with participation of experts, productive sectors and society
Epidemic spread control	Strategies and actions to reduce transmission of infection in territories by restricting mobility and physical distancing
Strengthening the health system	Strategies and actions to expand health system's capacity concerning care and surveillance, including assistance capacity at different levels of care, surveillance capacity (active/passive, articulated with health services and laboratory/genomics), and technological development and production of supplies and equipment
Social and economic support	Strategies and actions to guarantee social protection to the population, with particular attention to the most vulnerable and favor resumption of productive, commercial and financial activities
Communication with society	Strategies and actions to give transparency to decisions taken at the government level so that society can be informed and can participate in the process. They are facilitated by national governance and coordination and can increase generation of trust and social engagement

Political, socioeconomic and health context

Source: Author's elaboration.

countries and the strategies and actions developed in response to COVID-19 in each case. The discussion includes comparative analysis and lessons learned.

Results

Social, economic, and health context

Germany has the largest population in the European Union (EU) and Spain the fifth-largest¹¹. They have a similar age structure, with a proportion of older adults of around 20%¹¹. However, social, economic, and health system structure indicators before the pandemic indicate historical-structural differences between the countries analyzed (Table 1).

Measured by the human development index (HDI), living conditions are very high in Germany and high in Spain, with variations between the two countries. Inequalities in life expectancy are similar, but those in education are much more pronounced in Spain than in Germany. Income inequality is moderate in both countries¹².

There are significant internal inequalities expressed in the dynamics of distribution and con-

centration of national wealth. The Gini Coefficient in Germany is 31.7 and in Spain 36.2¹¹; and the concentration of national income in the hands of the wealthiest 10% is 36.7% in Germany and 34.9% in Spain¹³ (values above the EU average).

The main differences between these countries refer to productive structure and employment. Germany has the fourth-largest GDP globally and a stable, productive structure, with a significant share of industry and an unemployment rate of 3.4% of the workforce in 2018¹⁴. Spain has a more vulnerable productive structure and employment with a high dependence on the service sector's GDP (mainly tourism) and a workforce unemployment rate of 15.5% in 2018¹⁴.

Germany and Spain differ in organization and structure of their health systems, although both are characterized by broad coverage of the population and scope of actions. Germany has a social insurance-type system (*Gesetzlicher Krankenversicherung*) whose governance is organized into three levels (federal, state, and self-managed corporations) and covers 87% of the population¹⁵. It sustains high health expenditure (11.2% of GDP, with only 15% corresponding to direct disbursement)¹⁴ and a high level of service provision, based on a robust hospital structure (82.8

Table 1. Selected indicators from the social, economic and health context. Germany and Spain, 2017-2020.

		Germany	Spain
	Population (million) (2019) ¹¹	83.1	47.0
	Aged 65 years and over (% total pop) (2019) ¹¹	21.6	19.6
Inequalities in living conditions	Inequality-adjusted HDI (2018) ¹²	0.861	0.765
	Life expectancy inequality (%) (2018) ¹²	3.8	3.0
	Education inequality (%) (2018) ¹²	2.7	17.1
	Income inequality (%) (2018) ¹²	17.7	21.9
Inequalities in dynamics of distribution and concentration of national wealth	Gini coefficient (2017) ¹¹	31.7	36.2
	Share of the wealthiest 10% in national income (2015-2017) ¹³	36.7	34.9
	Per capita GDP (PPP, current dollar) (2018) ¹⁴	54,456	40,483
Productive structure and employment	% of the agriculture in total GDP (2018) ¹⁴	1	3
	% of the industry in total GDP (2018) ¹⁴	27	20
	% of the manufacturing in total GDP (2018) ¹⁴	20	11
	% of the service in total GDP (2018) ¹⁴	61.8	67.7
Health system structure	Unemployment rate (% of the workforce) (2018) ¹⁴	3.4	15.5
	Health expenditure (% of GDP) (2017-2018) ¹⁴	11.2	9
	Hospital beds (per 10,000 inhabitants) (2018) ¹⁴	82.8	29.6
	Doctors (per 10,000 inhabitants) (2018) ¹⁶	42.5	38.7
		132.3	57.3

Source: World Bank¹¹, UNDP¹², WID¹³, OECD Stat¹⁴, and WHO¹⁶.

beds and 2.92 ICU beds/10,000 inhabitants, one of the highest figures in the EU)¹⁴ and among the highest workforce availability in the EU (42.5 doctors and 132.3 nursing workers/10,000 inhabitants)¹⁶.

Meanwhile, Spain has a universal health system (*Sistema Nacional de Salud*, SNS), whose governance is organized in two levels (national and regional), regionalized from the Primary Health Care (PHC), and which has suffered financial constraints¹⁷. While health expenditure in Spain stands at 9% of GDP, on par with OECD countries average (8.8%) in 2018, around 30% of it corresponds to direct disbursement¹⁴. The hospital structure is one of the least robust in the EU (29.6 beds and 0.97 ICU beds/10,000 inhabitants)¹⁴, and the availability of the workforce is moderate (38.7 doctors and only 57.3 nursing workers/10,000 inhabitants)¹⁶.

Three key factors were considered concerning the responsiveness and resilience of health systems in coping with COVID-19: public spending on health¹⁴, hospital structure¹⁴, and availability of the health workforce¹⁶. All were strongly identified in the German case and were weaker in the Spanish case (especially in the hospital structure), as shown in Chart 1.

Strategies and actions developed in response to COVID-19

Germany

In Germany, the response to COVID-19 was organized from strong federative governance with national coordination of surveillance and health care, whose capacities were already powerful and were expanded through investments by the federal government in the health sector and socioeconomic area.

Governance, national coordination, and communication with society

German federal governance is characterized by the activation of the Federal Executive and Legislative structures as national governance and coordination instruments. A national plan was agreed between the federal and state governments through regular meetings of the *Bundesrat* (the federal body representing the states) with the support of the Parliament (*Bundestag*) and with the leadership of the Federal Chancellor standing out. Specific forums for crisis management have been created at the federal level based on this federative governance structure since March 2020 involving different sectors (including national industry) and specialists¹⁸.

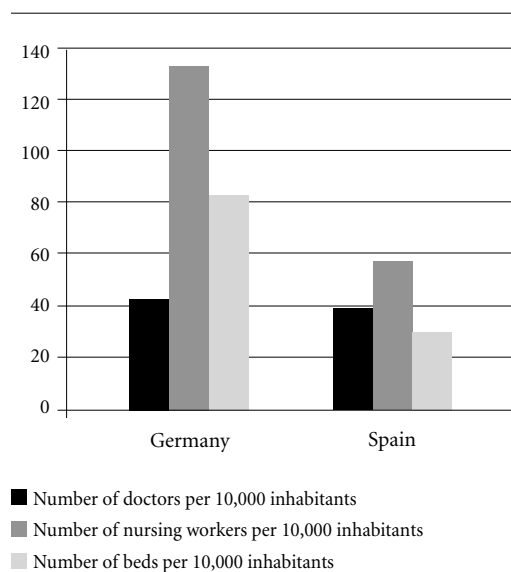


Figure 1. Structure of health system: number of doctors, nursing workers and hospital beds per 10,000 inhabitants. Germany and Spain. 2018.

Source: WHO¹⁶ and OECD Stat¹⁴. Last data available (2018).

Within health governance, we highlight the role of the Federal and Regional Ministries of Health; the Robert Koch Institute (IRK); and district/local Public Health Services. The Ministry of Health powers were expanded through federal laws¹⁹ to coordinate actions to fight the epidemic and strengthen the health system's capacity. The IRK is an essential German public health institute with experience managing health emergencies which assumed a strategic role in coordinating surveillance actions between national/state/district-local health authorities⁴.

The federative governance and coordination favored the generation of trust in society. Communication actions were developed within the scope of informative governance: official statements by heads of government; an online panel with information on the epidemiological situation and hospital capacity; and health education actions, with an essential role for the Federal Center for Health Education, especially on vaccination²⁰.

Epidemic spread control

A differential aspect in the German response is due to the early start of epidemiological investigation, viral mapping, national production

of reagents and preparation of laboratory testing capacity – from the first confirmed case on January 27, 2020. Community transmission was confirmed on February 27, with the registration of the first deaths on March 9¹. At that time, the health emergencies management strategy was activated as previously defined in the National Plan for the Influenza Pandemic in 2005 and supported by the 2001 German Infection Protection Act. Both were updated throughout the pandemic²⁰.

The IRK monitored epidemiological risk indicators and the capacity of health system in each state (*Länder*)⁴. Upon assessing increased risk, all states implemented measures to promote physical distancing, stricter during the first wave and less ostentatious during the second. Such measures were regulated by joint resolutions of the federal and state governments involving: case isolation and contact quarantine; physical distancing and community confinement (*lockdown*) with the suspension of non-essential activities, depending on the epidemiological situation; suspension of significant events; border controls with restricted domestic and international travel. Businesses in operation should maintain regular disinfection and measures to protect workers and consumers. Care measures for vulnerable groups were also regulated, including institutionalized older adults¹⁹.

Temporally, it can be said that the first wave of the epidemic took place between mid-March and the end of April, with the highest daily mean of new cases on April 2 and deaths on April 21. At the end of the lockdown performed during the first wave, Germany showed a substantial reduction in the daily increment of cases and a reproduction number of less than 1 ($R=0.71^4$), which means that one case infected less than one individual. A gradual resumption of social and economic activities was allowed as of May 4.

Some stability was observed between May and September related to control measures adopted in the first wave. During the European summer, the incentive to tourism and circulation is related to the second wave, which extended from October 2020 to February 2021, with the highest daily mean of new cases on December 23 and deaths on January 13. Although the second wave was higher than the first in number of cases, lethality remained at lower levels (between 3% and 1.5%) (Table 2)¹.

Vaccination is one of the control strategies in preparation since the second half of 2020. It started on December 27 and 39.41 million doses were applied¹ as of May 14.

Strengthening the health system

After the legal recognition of COVID-19 as an epidemic situation of national importance, federal laws gave the Ministry of Health powers over regulation: of compulsory notification and epidemiological investigation; measures of primary supply of medicines, personal protective equipment (PPE), and diagnostic tests; regulations for the operation of medical and care facilities, including legal flexibilities for short-term expansion, if necessary; border health controls; measures to contain the spread of COVID-19 at the federal and state levels; and vaccine pharmacovigilance¹⁹.

The Ministry of Health was fundamental to ensuring access for coordination within the health system as it regulated the supply of beds and expanded federal funding mechanisms for hospitals and other services. Actions included incentives and financial compensation to hospitals to reprogram interventions and keep their beds available for COVID-19; allocation of 6.3 billion euros to expand the capacity of ICU beds, PPEs, and workforce; and expansion of outpatient care capacity¹⁹. The health system was strengthened, increasing public funding and hospital beds (expanded by about 40%) and maintaining a nationally unified digital hospital bed system²⁰.

Within health surveillance, the main actions were improving previous surveillance systems; the legal definition of the registration and automated submission of RT-PCR results from public and private laboratories directly to the IRK; and federative coordination between national (through the IRK) and district/local (decentralized public health services in the territory) levels in close relationship with health services⁴.

Surveillance actions also benefited from high national capacity for producing and performing diagnostic tests. The RT-PCR capacity was expanded to 650 thousand weekly tests and more than 3 million serological tests produced nationally were made available to the public health system²⁰. In science and technology, the German government has invested in national companies and international organizations to support development of tests and vaccines. It also worked with state governments in conducting epidemiological surveys¹⁸.

Socioeconomic support measures

Concerning social and economic support actions, Germany stands out for establishing a Program and an Economic Stabilization Fund in an explicit federative agreement involving federal

and state governments and the Parliament. The measures totaled more than 650 billion euros including donations to small companies and the self-employed, variable according to the number of workers; liquidity support for medium and large companies, with credit lines through the German National Development Bank (KfW); and the Economic Stabilization Fund consisting of state guarantees for liabilities, direct state investments and refinancing of large loans by KfW. Ten billion were earmarked for expanding unemployment insurance schemes and 7.7 billion for social assistance, including child support and income support²¹.

Spain

Spain organized its response to COVID-19 based on intergovernmental and intersectoral governance articulated with strategies for controlling the spread of the epidemic, strengthening the health system, social and economic support, and communication with society.

Governance, national coordination, and communication with society

The central and regional governments decreed a State of Alarm on March 14 on recognizing the severity of the crisis. It is a legal instrument that granted the central government powers for national coordination of the response to COVID-19²². The centralization of these competencies was strategic to minimize the competition for resources in the Spanish crisis and political polarization context.

Intergovernmental and intersectoral governance was established through three forums: Meeting of the president of the central government with the presidents of the Autonomous Communities (CCAA) to agree on measures between levels of government; the Council of Ministers for crisis management at the central level; and the Interterritorial Council (regular body of the National Health System-SNS) for joint decisions between the Ministry of Health and regional health authorities. Health sector and intersectoral strategies were regulated by national regulations with important leadership from the Central Executive branch.

The Ministry of Health assumed the national coordination of care and surveillance within the scope of health governance, highlighting the role of the Center for the Coordination of Health Alerts and Emergencies before the pandemic²³. This was an important milestone given the decentralized organization of the Spanish National Health System (SNS) for the CCAAs¹⁷.

Information governance included official pronouncements and advertising campaigns in online media. After the weekly meetings of the forums mentioned above, press conferences were held to publicize proposed actions and assess current strategies, working as an additional communication channel with society²³.

Controlling the spread of the epidemic

The first COVID-19 case was confirmed on January 31, community transmission on February 26, and the first death on March 4. Strategies to control the spread of the epidemic were implemented late. The lockdown began with the State of Alarm decree (March 14 to May 3) and restricted circulation on public roads to essential activities (health, safety, and food, except for civil construction and industrial activities, which were interrupted for only 15 days) and established border controls, restricting domestic and international travel^{22,24}. The first wave (March and April) caused substantial impacts on mortality and mortality by COVID-19 (over 10% as shown in Table 2)¹, which may be related to the collapse of the health system in some CCAAs and a few outbreaks in older adults' households.

The lockdown achieved a substantial reduction in daily increment of cases and a reproduction number of less than 1 ($R=0.70^{25}$). A decontamination plan began on May 4 with some stability until July. During summer, the resumption of tourist activities may have influenced the second wave (August to December), with a higher daily mean of new cases and deaths in November. Less restrictive community confinement measures were adopted²⁴ during the second wave, which was higher than the first in the number of cases, but lethality remained at lower levels (Table 2)¹.

Vaccination is part of the control measures adopted. A national vaccination plan was agreed upon and the Ministry of Health was responsible for purchasing and distributing vaccines, while the CCAAs were in charge of its application in SNS PHC centers. Vaccination began on December 27 and 21.68 million doses were applied¹ until May 13.

Strengthening the health system

For the national coordination of the health sector response, national regulations gave the Ministry of Health powers to proceed with national standardization of registration, investigation and notification of cases; sanitary control and tracking; expansion of the SNS workforce; price regulation and supply of inputs and med-

icines for the SNS. The Ministry of Health assumed the temporary management of logistical resources, facilities and professionals linked to the Ministry of Defense^{22,24}.

The Ministry of Health increased public funding with resources from central government to strengthen the care capacity of the Spanish SNS, which was essential since its hospital capacity was among the lowest in the EU¹⁴. The number of general and ICU beds in existing and field hospitals was increased from an analysis of each CCAA situation. Rearguard beds were prepared in convention centers and hotels for light cases or those in recovery. Royal Decree 463 placed general beds and private ICU beds in its territories^{22,24} at the disposal of the public system.

There was a 75% increase in the number of ICU beds in Spain with variations among the CCAAs (highest increases in the Basque Country, Murcia, Catalonia, and Madrid). After this expansion, 70% of the ICU beds corresponded to the public sector²³: it is worth assessing whether they will be kept as a legacy. The governance developed could not widely promote the transfer of patients between CCAAs, which led to inequalities in access to beds. All CCAAs set up Telephone Service Centers within the universal system, recommended as the first point of contact and link to the mobile emergency service. However, it is necessary to recognize different experiences on the role of PHC. At the CCAA in Madrid, one of the primary outbreaks of the epidemic, PHC was reduced and its personnel moved to the field hospital. Exclusive centers for respiratory symptoms were defined in the Basque Country. In Balears, PHC centers organized the flow in a double circuit and implemented telehealth service for monitoring patients with respiratory and chronic conditions. In this last CCAA, we highlight the establishment of COVID-19 Mobile Care Units and a PHC Emergency Service availability, which acted in home care²³.

A shared governance strategy was established between the Ministry of Health and the health authorities of the CCAAs to coordinate surveillance, defining national criteria for monitoring the territories regarding the risk of transmission, early detection capacity (a PHC-linked surveillance system) and treatment (hospital capacity). As of May, the PHC was strengthened to test, diagnose and screen new cases²³.

Socioeconomic support measures

Social and economic support strategies began to be implemented in Spain a few days be-

Table 2. Epidemiological situation coping with COVID-19. Germany and Spain, 2020.

		Germany	Spain
		January 27, 2020	January 31, 2020
		March 9, 2020	March 4, 2020
		First case confirmed	First death confirmed
First wave	Period	Mid-March to April 2020	March and April 2020
	Highest daily average of new cases	69.66 cases/million inhabitants (02/04/2020)	171.22 cases/million inhabitants (31/03/2020)
	Highest daily average of new deaths	2.97 deaths/million inhabitants (21/04/20)	18.52 deaths/million inhabitants (03/04/20)
	Lethality rate*	Around 4%	Around 10%
Second wave	Period	October 2020 to February 2021	August to December 2020
	Highest daily average of new cases	307.42 cases/million inhabitants (23/12/2020)	451.92 cases/million inhabitants (04/11/20)
	Highest daily average of new deaths	10.68 deaths/million inhabitants (13/01/21)	9.44 deaths/million inhabitants (09/11/20)
	Lethality rate*	Between 3% and 1.5%	Between 9% and 2.6%
Situation at 31/12/2020	Total cases	1.76 million	1.93 million
	Cases per one million inhabitants	21,012.62	41,242.09
	Total deaths	33,791	50,837
	Deaths per one million inhabitants	403.31	1,087.31
	Lethality rate*	1.9%	2.6%
	Total tests	35.17 million	22.69 million
	Tests per one thousand inhabitants	419.77	485.27

Source: Our World In Data¹.

*Obs: Lethality expresses the relationship between total number of deaths and total number of confirmed cases, which can be affected by underreporting both in numerator and denominator. The death counting criteria and strategies may vary between countries.

for the lockdown, setting up a “Social Shield” for which around 200 billion euros were mobilized with EU support. These actions involved measures to protect citizens: guaranteeing housing, prohibiting the interruption of essential services and social assistance to vulnerable families and populations; promoting equality and protecting victims of macho violence; protecting workers and the self-employed, expanding and relaxing access to unemployment insurance; and measures to protect economic activity: credit lines and tax reductions, especially for small and medium-sized companies (75% of resources) to guarantee liquidity and reduce costs^{26,27}.

Also, at the end of May, the government approved the minimum vital income through which 3 billion euros were initially allocated to 850,000 vulnerable households²⁴. These actions were essential to strengthen social protection and face the Spanish context of inequalities.

Discussion: cases in comparative perspective and lessons learned

Germany is a federation (like Brazil) composed of 16 states (*Länder*) and a considerable degree of decentralized powers and functions, but with a strong State capacity for national coordination. Some historical-structural characteristics of the State can be associated with its high responsiveness to COVID-19. Within the framework of German capitalism, it is a State that seeks a balance between social and economic policy²⁸. It is a strong authorizing and regulating State of the economic order²⁹ that guarantees competition; participation of employers and workers' unions in decisions; and control over areas of public interest such as health, education and insurance³⁰. On the one hand, it is based on a comprehensive social welfare state subordinated to intervention by the authorities and high social regulation by

corporations; on the other, in industrialization and decentralization based on small and medium enterprises with high productivity, wages and international competitiveness. It shows a robust productive structure and low unemployment rate.

Spain is one of the most decentralized countries in the EU with a high degree of power and responsibilities transferred to the 17 CCAAs (regional level of government analogous to Brazilian states), functioning as a federation. The accession to the EU and a progressive direction in the national Executive Branch in the 1980s favored the development of the economy and strengthening of the Welfare State³¹, although the economic structure is not as solid as Germany's given the lower industrial development and high dependence on service sector, such as tourism. Since 1990 the State has undergone reforms aimed at economic liberalization and privatization, restricting its authority and regulatory role. It shows a fragile productive structure and moderate to high unemployment rate. Labor and health reforms have resulted in per capita health spending 15% below the EU average and increased workers on temporary contracts in the last decade. These historical-structural characteristics of the State can be associated with its weaker capacity to respond to COVID-19.

Concerning political-institutional dimension, the comparative analysis of these cases shows that governance structures and national coordination were common and successful. The characteristics of such governance are related to the political-territorial organization: in the German case, federative, making use of federal laws agreed with the states and the Parliament; in the Spanish case, intergovernmental, negotiated with regional governments and expressed by Royal Decrees. At the health sector level, noteworthy is the role of the Ministry of Health in the national coordination to control the spread of the epidemic and strengthen the public health and surveillance system.

Informative governance was relevant in both cases. Information and transparency favored citizen participation in actions for prevention, self-care, and solidarity. In the German case, the federative coordination contributed to generating trust in society.

Another common point was the implementation of social and economic support policies. The differences in fiscal and financial capacities of each State can be related to the greater volume of resources made available in the German

case. The valuation of the national industry and the role attributed to the National Development Bank are strong points of crisis management in that country. Spain also implemented essential measures to protect the population and the productive fabric, marking the State's decision to offset inequalities as it already had a more vulnerable productive and employment structure. The Spanish national Executive's role in raising funds from the European fund was essential to expand its financial and operating capacity.

Concerning the health policy and the health system, the German response is characterized by strengthening of care capacity; coordination between health services and public health surveillance, favored by the vast capacity for testing and using digital technologies; and health education (scientific dissemination and communication with society). The historical-structural conditions of the health, surveillance and science and technology system acted favorably. In the Spanish case, the response within the universal health system is characterized by strengthening of care capacity, emphasizing hospital care during the first wave and reorienting the focus of the response to PHC integrated with surveillance as of May; expanded testing capacity; and investment in surveillance information systems. The weaker historical-structural conditions of health, surveillance and science and technology systems were offset by favorable political-institutional factors.

Strengths of the German response are associated with the decision of the State to act as a promoter of public policy, the high state capacity (planning, fiscal, and financial) and national production of equipment and supplies and a robust health system. These characteristics of national sovereignty allowed for rapid investment in expanding hospital and testing capacity.

In the Spanish case, strengths are related to the State's purposeful action favoring the implementation of health, social, and economic policies, a universal health system and the role of PHC in surveillance from May onwards. However, low national production capacity of inputs and equipment (high external dependence and workers' exposure to risks), weak SNS structure (regarding workforce, laboratories, and hospitals) and socio-sanitary structure of older adults' homes impaired the State's response capacity and required more significant efforts.

The institutional government action in the analyzed cases resulted from a combination of political-institutional and historical-structural

factors. In both cases, the directionality of the State's actions and government decisions favored governance and the State's capacity to manage the crisis. The historical-structural conditions (macroeconomic, productive structure and employment, industrial capacity and sanitary structure) acted favorably in the German case but less favorably in Spain. The Spanish case illustrates the importance of the political-institutional dimension to face unfavorable structural conditions.

In light of the experiences analyzed, some lessons can be learned with implications for Latin American countries, including Brazil, although their historical-structural conditions are different from those of European nations. Among these lessons lies the importance of the federal/central government's role for national governance and coordination of health sector and intersectoral public policies, emphasizing the implementation of strategies to control the epidemic spread, strengthening the health system, establishing social and economic measures to support vulnerable populations, workers, companies and developing communication strategies with society through scientifically-based messages. A synthesis of the lessons learned in each of these action fronts is presented in Table 2, considering the Brazilian reality.

One of the main lessons is that the national capacity to respond to COVID-19 is associated with good governance practices and coordination of strategies in face of the crisis, which involves articulation between the Executive and Legislative, government levels, public policy sectors (emphasizing employment and social protection), health authorities and services, workers' organizations, employers and broader society. In Brazil, a sizeable federative country, the definition of governance and national coordination forums, articulating different levels of government and sectors, would be strategic and necessary. Within the Unified Health System (SUS) we highlight the potential of the Tripartite, Bipartite, and Regional Interagency Committees.

COVID-19 demands a combination of sanitary, social, and economic policies to protect people's lives and health, related to the nature of the State's actions in the economic and social areas. Thus, another relevant lesson for Brazil is the importance of public investment in short, medium and long terms in social protection and health systems' structures, in national science and tech-

nology system and in the country's capacity for developing and producing inputs, which can be differentials in responding to health emergencies.

If, on the one hand, historical-structural factors can condition the capacity to respond, on the other, political-institutional dimension also matters for the implementation and effectiveness of strategies to fight the pandemic. In the Brazilian case, the strengthening of political-institutional aspects is necessary for present and future emergencies, including national action considering locoregional specificities; balance between decentralized and centralized actions; strengthening institutional capacities of state and municipal governments; and increased federative cooperation mechanisms.

Final considerations

The COVID-19 pandemic is a multidimensional crisis expressed in health, social and economic spheres in which inequalities in living conditions, the productive structure and the organization of the health system exert influence and should be considered in national coping strategies.

Countries' response to the pandemic shows different state capacities in coordination, implementation, and effectiveness of strategies. Strengths of crisis management were early recognition of its severity and national leadership and negotiation capacity; national sovereignty in producing inputs and equipment; and central government funding for health, social, and economic areas. These were relevant differences in the governmental response in both cases as were health system structure, availability of workers and national science and technology system.

Some health, social and economic challenges cannot be faced by National States alone, requiring regional and global strategies. The ability of countries and populations to recover from the effects of the pandemic varies, with difficulties more evident in peripheral economies. Global coordination efforts involving the United Nations, the World Health Organization, health authorities and scientific institutions in countries can favor developing joint coping strategies, therapies and technologies to be made universally available and contribute to offsetting the inequalities in facing this humanitarian crisis.

Chart 2. Lessons learned from the COVID-19 pandemic: policy responses needed to address the health, social and economic crisis and to strengthen the public health system.

	Public policies and actions to confront COVID-19 and strengthen public health system (priority fronts for government action)
Governance and national coordination	<p>Actions developed to promote national coordination of public policies to face the COVID-19 pandemic by:</p> <ul style="list-style-type: none"> - Formulating an agreed national plan, defining the role of each level of government; - Defining a structure for governance and monitoring and evaluating this plan; - Achieving a balance between decentralization and centralization of strategies and actions; - Strengthening political-institutional capacities in different levels of government; - Increasing diplomacy and intergovernmental cooperation mechanisms.
Communication with society	<p>Actions developed to provide transparency to decisions taken at the government level so that society can be informed and participate in the process through:</p> <ul style="list-style-type: none"> - Regular official communications from government bodies on strategies to be implemented and in progress; - Publication and dissemination of daily updated epidemiological data; - Maintenance of a public panel on the occupation of hospital beds, including ICU beds;
Controlling spread of the pandemic	<p>Policies and actions developed to reduce transmission of infection in territories, restricting mobility and social contact through:</p> <ul style="list-style-type: none"> - Case isolation measures and contact quarantine; - Measures of physical distancing or lockdown, according to an analysis of the epidemiological situation by: <ul style="list-style-type: none"> - Maintaining the safety distance (1.5 to 2 meters), recommending the use of a mask and personal hygiene; - Canceling or postponing major collective events; - Suspending face-to-face activities in school and religious institutions; - Suspending (partially or totally) non-essential activities; - Controlling land and air borders, restricting the movement of people and goods.
Strengthening the health and surveillance system	<p>Policies and actions developed to expand capacity of health systems to carry out health care and surveillance by:</p> <ul style="list-style-type: none"> - Increasing care capacity at all levels of care, with particular attention to primary health care (PHC), hospital beds and ICU beds; - Increasing laboratory capacity to carry out diagnostic tests, strengthening network of public laboratories; - Facilitating adequate supplies and equipment, including personal protective equipment (PPE), medications and mechanical ventilators; - Organizing health services, defining flows and points of care appropriate to locoregional reality, emphasizing the role of PHC in telehealth service and home care, whenever possible; - Implementing a public regulation of access to essential goods (medicines, masks, and beds), with national price regulation; - Standardizing data recording systems on new cases, hospitalizations and deaths, with national coordination; - Articulating PHC and epidemiological surveillance to implement rapid detection measures for possible new outbreaks, including early identification (confirmed by RT-PCR, if possible) and contact tracing; - Increasing investment in sentinel, genomic and laboratory surveillance systems and the interoperability of these systems at national, state, and local levels.

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Chart 2. Lessons learned from the COVID-19 pandemic: policy responses needed to address the health, social and economic crisis and to strengthen the public health system.

	Public policies and actions to confront COVID-19 and strengthen public health system (priority fronts for government action)
Strengthening social protection and economic support measures	<p>Policies and actions developed to guarantee social protection to the population, with particular attention to the most vulnerable; and favor the resumption of productive, commercial and financial activities through:</p> <ul style="list-style-type: none"> - Direct income transfer policies; - Support for housing maintenance, such as social rent, temporary suspension of mortgage payments and containment of eviction actions; - Guaranteed access to essential goods such as water, electricity and gas; - Expansion of access to unemployment insurance, including self-employed and informal workers; - Fiscal and financial support for small and medium-sized companies; - Tax concessions to companies.

Source: Author's elaboration.

Collaborations

AMM Pereira was responsible for the design, formal analysis, and writing of the paper. CV Machado, MB Veny, AMY Juan and SN Recio collaborated in the paper's formal analysis, review, and editing.

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