Who spends more to combat COVID-19 social risks and why?

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Abstract
COVID-19 has gone beyond a public health crisis and poses a serious threat to people's livelihoods. In response to the growing employment and income crisis, most OECD countries have introduced various policies and programs to alleviate rapidly rising social risks and stabilise people's livelihoods. However, these measures vary, with some governments spending only 1% of GDP in 2020, while others spent more than 10%. We conducted a multiple regression analysis to examine factors associated with the level of additional social spending in 31 OECD countries. The results indicate that lower generosity of unemployment benefits was associated with additional social policy spending. However, contrary to the hypothesis, higher additional spending was found among countries with higher levels of government debt. We ended with policy recommendations.

KEYWORDS
COVID-19, government debt, social policy, social spending, unemployment benefit, welfare state

INTRODUCTION
COVID-19 has significantly affected world economies and people's livelihoods. Its impact can be inferred from the number of confirmed cases and deaths. As of December 31, 2021, the number of confirmed cases reached nearly 200 million worldwide, with a death toll of 5.4 million (WHO, n.d.). Furthermore, the GDP growth rate for OECD countries was on average -5.5% in 2020 (OECD, 2020a); with Spain (-11.6%) and the United Kingdom (-11.2%) suffering from severe economic damage, while South Korea (-1.1%) and Norway (-1.2%) performed relatively well. The unemployment rate provides another indicator of the socioeconomic impact of COVID-19. The rate among OECD countries was reported as 7.24% in 2020 compared to 5.38% in 2019, indicating the significant impact of COVID-19 on the labor market. For example, the unemployment rate in the United States soared to 14.7% in April 2020, an increase from 3.5% in February, the highest rate of unemployment since January 1948 (OECD, 2020b).

Despite these severe tolls due to COVID-19, the damaging effects of the pandemic were unevenly distributed. Many studies indicate that COVID-19 infection and mortality rates vary by race, with the Native American, Black, and Hispanic demographics having shouldered the most damage (Tai et al., 2021; Thakur et al., 2020). Moreover, strict social distancing and related policy measures, though essential to combat the spread of COVID-19, have directly influenced business and employment as well as those in need of care and their carers. In particular, low-income, self-employed, non-regular platform, temporary day workers, and women have been more affected in terms of employment and care needs (OECD, 2020b).
Studies also showed that the mental health of those experiencing job and income insecurities was worse than that of the general population (OECD, 2021a; Recchi et al., 2020). Accordingly, public opinion tended to favour the expansion of public spending away from pro-austerity preferences (e.g., Ferragina & Zola, 2022). In response, governments implemented a range of policies to mitigate the damage, such as expanding unemployment insurance, implementing public transfers to specific groups, providing subsidies to people nationwide, abating tax, and deferring payments (OECD, 2020c).

Much existing research on COVID-19 has focused on health issues (Bauer et al., 2020; Sen-Crowe et al., 2021). Some studies have attempted to establish the relationship between COVID-19 and socioeconomic vulnerabilities, but relatively scant research has addressed social policy responses (Daras et al., 2021; Neelon et al., 2021; Prieto et al., 2021). As of this writing, there are several comparative studies on social policy responses to the pandemic. Specifically, the OECD (2020c) descriptively compared and discussed emergency relief programs responding to COVID-19, such as new and existing job retention schemes, new universal transfers, and policy implications to fill the gap. In the recent special issue of Social Policy and Administration titled Social Policy in the Face of a Global Pandemic, several authors conducted comparative case studies on social policy responses in Europe, Northern America, and East Asia (Béland et al., 2021). These studies noted “emergency Keynesianism” after the outbreak of COVID-19, but also found cross-national variations that depended on existing policy legacies, fiscal conditions, and welfare politics (Béland et al., 2021; Greve et al., 2021; Moreira et al., 2021). These studies shed light on the mechanism behind different social policy responses in each region. However, these studies primarily rely on qualitative and case-oriented analysis of within-region commonalities and differences, paying little attention to overall differences in actual government spending. Some quantitative studies have analysed COVID-19–related government spending (Alberola-Ila et al., 2020; Benmelech & Tzur-Ilan, 2020; Hosny, 2021). For instance, Benmelech and Tzur-Ilan (2020) argued that countries with high incomes have implemented larger-scale fiscal policies compared to lower-income countries, which could be explained by their credit ratings. However, these studies focus on overall fiscal and budgetary issues and do not directly address social policy spending.

The aim of this study is to understand factors associated with additional social spending (additional non-health sector spending) in 2020, focusing on factors related to social demands, politics, finances, and existing policy. Although health spending is usually included as part of social spending (see OECD, 2021b), we did not include it as we focus on the policy responses to social risks other than the pandemic itself. The paper is presented in the following order. First, we discuss the theoretical framework and hypotheses. Then, based on our theoretical discussion, we conduct a multiple regression analysis on additional social spending in 31 OECD countries. The last section discusses the research findings and their policy implications.

THEORETICAL CONSIDERATION AND HYPOTHESES

Because there are limited extant studies on ‘additional’ social spending in times of a public health crisis, this research builds upon the rich literature and theories that account for ‘general’ social expenditure. Factors related to social demand, politics, and policy legacies are widely used in the welfare state literature (Castles, 2005; Flora & Alber, 1981; Iversen & Stephens, 2008; Kittel & Obinger, 2003; Pierson, 1994; Skocpol & Amenta, 1986; Wilensky, 1975). Furthermore, recent studies highlighted the influence of fiscal burden on social expenditure as an excessive fiscal burden could restrict further social spending (Lora & Olivera, 2007; Martín-Mayoral & Sastre, 2017).

Demand factors

Industrialization theory provided the earliest attempt to explain welfare development by describing how the transition to an industrialised society introduced social risks associated with the disconnection of labor, such as unemployment, retirement, disease, as well as economic wealth, which led to the development of the welfare state (Wilensky, 1975). Although this functional emphasis on demand factors has been criticised by many, recent studies show that social risks and demand factors are major contributors to welfare expenditure (Kittel & Obinger, 2003; Molina-Morales et al., 2013; Tashevska & Trenovski, 2019). Specifically, these studies have found that rising unemployment rates and aging populations had a significant impact on changes in social spending, stressing that increased welfare spending results more from the expansion of the state’s role to cope with various social issues than from political factors.

The compensation thesis explains the nexus between increasing welfare demand and social expenditure in the face of globalisation (Cameron, 1978; Rodrick, 1998). This view suggests that open economies expose countries to external risks, which increase the demand for expanded government roles. Therefore, governmental social spending will increase to compensate for social threats. Mogull (1990) highlighted two reasons countries increase government spending in response to social
demands. First, the state strives to improve the quality of life and alleviate poverty due to humanitarian and altruistic motives. Second, such spending serves as a means to quell social instability. For example, states believe that expanding cash or service assistance may pre-emptively prevent complaints from vulnerable members of society from being triggered by political action, leading to increased social unrest and costs.

The COVID-19 pandemic has led to a large number of confirmed cases, resulting in strict social distancing and self-quarantine rules, and, in turn, triggering an increase in social demands for support primarily due to the fast-growing number of unemployed and people suffering from lost or low incomes. In addition, the severity of social risks in times of crisis is higher than usual, and failure to manage the situation may create prolonged socioeconomic crises (Ahn, 2017). Therefore, higher social demands due to rising unemployment or poverty rates can create an automatic countermovement, known as the ‘feedback effect’ (Ferragina et al., 2020). One possible consequence of such a countermovement could be the propagation of related social policies and increase in expenditures. While there is evidence that higher health expenditure was associated with higher confirmed cases per population (Hosny, 2021), no research has investigated whether increasing social demands affected social policy responses. Built upon the above discussion, we propose the following hypotheses:

**H1-1.** Countries with more confirmed COVID-19 cases are likely to allocate more government funding in addition to existing social expenditure.

**H1-2.** Countries with higher unemployment rates are likely to allocate more government funding in addition to existing social expenditure.

**H1-3.** Countries with higher poverty rates are likely to allocate more government funding in addition to existing social expenditure.

**Political factors**

Another essential factor in determining government social spending is the role of political factors. Marshall (1950) interpreted the development of the welfare state as the process of institutionalising democratic citizenship, first with civil and political rights, then followed by social rights, in a continuous attempt to enhance social equality against economic inequalities produced by the market. Flora and Alber (1981) highlighted the creation of mass democracies and political modernization as the key factor in the development of the welfare state. The relationship between democracy and social spending has been empirically proven; for instance, Schneider and Ingraham (1984) demonstrated that voting, known as conventional political participation, strongly influenced the introduction and expansion of social welfare programs. Furthermore, some observed that the increase in social spending was linked to the interests of politicians competing for office (Skocpol & Amenta, 1986).

During austerity, the importance of electoral politics has been confirmed in many studies, including welfare reforms in the United States and the United Kingdom (Natali & Rhodes, 2004; Pierson, 1994). Politics could play an even more important role in times of crisis. Gourevitch (1986) argued that a nation’s countermeasures during a crisis are political choices whereby political and social forces exploit coalitions and struggle to pursue policies in their favour. Thus, a crisis makes partisan and electoral politics attentive to public demands, consequently expanding social policies in democratic countries. In this study, we expect a positive relationship between levels of democracy and government spending in OECD countries during the pandemic period.

Nevertheless, the theory of power resources argues that expansion of the welfare state is not directly related to the development of democracy itself but is influenced by whatever political orientation (right- or left-wing) is more dominant (Huber et al., 1993; Korpi & Palme, 2003). Power resources theorists focus on the struggle between the logic of politics and the logic of the market (Korpi, 1983). In their view, the power struggle of left-wing parties is allied with the working classes rather than assuming a more linear development of citizenship, which is the driving force behind the development of the welfare state (Esping-Andersen, 1985; Hicks, 1999; Korpi, 1983). In a capitalist industrial society, the working class—which has a high demand for welfare—mobilises its power to provide support for socially democratic or labor political parties. Thus, a more expansive welfare system tends to develop in countries with high union density and strong left-wing governments. Empirical evidence shows that social democratic governments allocate a considerable portion of their budget on redistribution (Castles, 2004; Iversen & Stephens, 2008) and successfully reduce poverty (Bradley et al., 2003). Despite some studies that have questioned whether or not the left-wing governments and trade unions pursue the same welfare policies (Jensen, 2012; Kittel & Obinger, 2003), studies have empirically proved that class politics still matters in the context of austerity and globalisation (Korpi & Palme, 2003). Accordingly, in this research, we expect that unions and left-wing parties would favour expanding additional social responses to address unprecedented social risks and political pressures caused by the pandemic, with the following hypotheses:
Countries with a higher degree of democracy are likely to allocate more government funding in addition to existing social expenditure.

Countries with a higher union density are likely to allocate more government funding in addition to existing social expenditure.

Countries with historically more power on the left are likely to allocate more government funding in addition to existing social expenditure.

Financial factors

Because excessive spending could lead to financial stress or even a financial crisis, any government would have to consider “fiscal space” in its spending (Heller, 2005). While the issue of fiscal space has been discussed in previous literature, there is little consensus on its definition (Cheng & Pitterle, 2018; Kose et al., 2017; Nerlich & Reuter, 2015). The most widely cited definition described fiscal space as the “availability of budgetary room that allows a government to provide resources for the desired purpose without any prejudice to the sustainability of a government’s financial position” (Heller, 2005, p. 3). Others simply defined fiscal space as “[a] country’s potential to expand [its] financing capacity” (Cheng & Pitterle, 2018, p. 3).

Empirical studies have demonstrated the impact of fiscal space on government spending (Alberola-Ila et al., 2020; Hosny, 2021). The International Monetary Fund (IMF, 2009) stated that fiscal space was one of the reasons that governments’ fiscal policies differed in response to the 2008 economic crisis. Recent studies have also examined the impact of fiscal space on the size of fiscal policies related to the COVID-19 pandemic. For example, analysing different governmental responses of emerging market economies (EMEs) and advanced economies (AEs) to the pandemic, Alberola-Ila et al. (2020) found that AEs spent much more of their GDP on both budgetary and non-budgetary measures than EMEs during the crisis. Hosny (2021) demonstrated that under COVID-19 pandemic conditions, fiscal capacity could positively affect non-health sector fiscal measures. In this regard, we regard the ratio of debt to GDP as the nation’s fiscal space with the following hypothesis:

Countries with a lower debt to GDP ratio are likely to allocate more government funding in addition to existing social expenditure.

Existing policy factors

State-centered theorists and, later, new institutional scholars commonly argue that new reforms are heavily constrained by the policies already in place (North, 1990; Pierson, 1994; Skocpol & Amenta, 1986). Skocpol and Amenta (1986) provided different examples of the effect of existing social policies in undermining or consolidating political coalitions to bring forward further social policy development. In other words, existing institutions, the products of state and political institutions, transform politics and subsequent policy reforms and responses, showcasing the effect of policy feedback. As such, a public policy tends to show path-dependent development through increasing return processes (Pierson, 2000). As a result, in spite of similar socioeconomic pressures, each government maintains divergent policy responses, as opposed to convergent. For instance, Esping-Andersen (1999) suggested that in the process of transitioning to the post-industrialization era, the policy responses from different welfare states do not converge when facing “new” social risks - a condition that is largely influenced by their individual welfare state institutional heritage.

The argument on the effect of policy feedback and increasing return processes can be applied to the COVID-19 era. Although the current pandemic has incurred severe socioeconomic risks, these risks are not entirely new. In other words, the maturation of the existing welfare system is likely to inhere some measures addressing socioeconomic risks (Castles, 2005). Therefore, it is important to understand how current social policies have addressed such risks before more closely examining additional spending. One recent study has examined whether the institutional factors, including social safety nets, may affect government fiscal policy and found that social safety nets could lessen economic shock by performing as automatic stabilisers (Alberola-Ila et al., 2020).

This study focuses on two existing social policies: unemployment policy and social investment policies due to the large tolls COVID-19 placed on individuals’ and countries’ economic and social well-being. Unemployment policy has become the most prominent policy issue throughout the pandemic because COVID-19 has caused a large-scale spike in unemployment rates worldwide. Similarly and relatedly, relevant labor market and family policies, such as social investment policies, have become ever more important during the current pandemic.

Unemployment policy varies across countries (e.g., Gallie & Paugam, 2000). Some countries, relatively speaking, would have an appropriate unemployment protection scheme in place to deal with the impact of COVID-19 without the need for an additional policy or program, while others might need additional support to cope with increasing and prevalent unemployment. In addition to the unemployment system, an active labor market policy (ALMP) as a core pillar of social
investment strategy promotes individual capacity and skills, thus facilitating labor market participation and supporting the transition to better jobs by providing, for example, vocational training (Choi et al., 2020). As the COVID-19 pandemic has accelerated digital transformation in OECD countries, employment instability increased rapidly, and ALMP for up- and re-skilling has garnered attention (OECD, 2021c). Family policy, another key area of social investment, could also be important in the pandemic period as the care burden increases considerably in line with strict social distancing and the closure, albeit temporary, of care and school facilities. In response, countries with well-established social investment policies are more able to respond to the impact of the pandemic without additional cost, whereas others may need to increase spending more aggressively. Therefore, this research expects that the larger the safety nets in advanced countries, the smaller the additional fiscal policy budgetary measures. If existing unemployment and social investment policies do not adequately support individuals suffering the most during the pandemic, increased government funding for social purposes might be called for. Accordingly, our hypotheses are as follows:

**H4-1.** Countries with more adequate unemployment benefits are likely to allocate less additional government funding to existing social expenditure.

**H4-2.** Countries that spend more on social investment policies are likely to allocate less additional government funding to existing social expenditure.

**METHODS**

**Data**

In order to conduct a comparative study between countries, we used data from the IMF, the OECD, the WHO, The Economist, and comparative political datasets (Armingeon et al., 2021), as shown in Table 1.

**Measures**

**Additional social spending**

To measure this dependent variable, we used data from the Fiscal Monitor Database of Country Fiscal Measures in Response to the COVID-19 Pandemic (IMF, 2021a). This database shows governments’ key fiscal measures in response to the COVID-19 pandemic, categorising the different types of fiscal support. In this study, we analysed the fiscal measure classification of “additional spending (non-health sector),” —that is, social protection spending for families, workers, and firms. This measure excludes liquidity support, meaning indirect support such as loans or guarantees, based on the premise that those funds would be repaid in the future. Health spending directed toward specifically coping with COVID-19 is excluded.

**Focal independent variables.** Demand, political, financial, and existing policy factors were included as independent variables. The details for each of these variables are shown in Table 1. First, we analysed three demand factor variables—the number of confirmed COVID-19 cases per million (logs), the unemployment rate, and the poverty rate. The number of confirmed COVID cases demonstrated a strong correlation with the number of deaths ($r = 0.78$) in our data (WHO, 2020). The unemployment rate refers to the rate for 2020. We used the most recently available poverty rate (2016–2019), set at 50% of the median equivalized household income (OECD, 2021d).

Second, we included variables for political factors related to democracy level, union density, and historical strength of the left-wing. We created the democracy level using The Economist’s Democracy Index 2019 with five aspects: electoral process and pluralism, the functioning of government, political participation, political culture, and civil liberties. An aggregated overall score was used for each of these five democratic level factors (The Economist, 2020). The union density variable was based on trade union density data from the OECD (2021e). We used the Comparative Political Dataset to operationalise the historical strength of the left-wing. Specifically, we derived the variable from the average value of the 2000–2019 values of the variable “govleft2” in the dataset. This variable refers to the “relative power position of social democratic and other left parties in government based on their seat share in parliament, measured in percentage of the total parliamentary seat share of all governing parties” (Armingeon et al., 2021, p. 5). In the case of South Korea, which is not included in the dataset, the same calculation was used by including seat statistics for each political party in the National Assembly of the Republic of Korea (National Assembly, 2021).

Third, the fiscal factor variable was calculated as a ratio of government debt to GDP (IMF, 2021b). Lastly, for existing policy factor variables, we used the replacement rate of existing unemployment benefits and the expenditure of social investment policies, including ALMP and family policy. Using the recent data available for each country (usually from 2019 to 2020), the existing unemployment benefits were operationalised as benefits in unemployment and the share of previous income one year after unemployment (OECD, 2021f), reflecting the generosity of
**Table 1** Definitions of analysed variables

| Variable | Source |
|----------|--------|
| Additional social spending (non-health) | IMF ‘Fiscal Monitor Database of Country Fiscal Measures in Response to the COVID-19 Pandemic’ (as of 12/2020, % of GDP: [https://www.imf.org/en/Topics/imf-and-covid19/Fiscal-Policies-Database-in-Response-to-COVID-19](https://www.imf.org/en/Topics/imf-and-covid19/Fiscal-Policies-Database-in-Response-to-COVID-19)) |
| Demand factor | COVID-19 cases per million (log) | WHO ‘COVID-19 Weekly Epidemiological Update’ (Data received by WHO from national authorities, as of December 27, 2020, Central European Time: [https://www.who.int/publications/m/item/weekly-epidemiological-update---29-december-2020](https://www.who.int/publications/m/item/weekly-epidemiological-update---29-december-2020)) |
| | Unemployment rate | OECD ‘Economic outlook No.108’ (as of 2020; [10.1787/c59cfd-de-en](https://www.imf.org/external/datamapper/GG_DEBT_GDP@GDD?year=2019)) |
| | Poverty rate | OECD ‘Poverty rate’ (recent, 2016–2019; [10.1787/0fe1315d-en](https://www.imf.org/external/datamapper/GG_DEBT_GDP@GDD?year=2019)) |
| Political factor | Union density | OECD ‘Trade Union Density’ (recent, 2010–2018; [https://stats.oecd.org/Index.aspx?DataSetCode=TUD](https://stats.oecd.org/Index.aspx?DataSetCode=TUD)) |
| | Historical strength of the left | Armingeon, K., Engler, S., and Leeman, L., ‘Comparative Political Dataset’ ([https://www.cpds-data.org/](https://www.cpds-data.org/)) |
| | Democracy level | The Economist ‘Democracy Index’ (as of 2019; [http://www.eiu.com/topic/democracy-index/](http://www.eiu.com/topic/democracy-index/)) |
| Financial factor | Debt to GDP | IMF ‘General Government debt’ (as of 2019, % of GDP; [https://www.imf.org/external/datamapper/GG_DEBT_GDP@GDD?year=2019](https://www.imf.org/external/datamapper/GG_DEBT_GDP@GDD?year=2019)) |
| Existing policy factor | Replacement rate of unemployment benefits | OECD ‘Benefits in unemployment, the share of previous income’ (recent, 2019–2020; [10.1787/0ccddo-en](https://www.imf.org/external/datamapper/GG_DEBT_GDP@GDD?year=2019)) |
| | Social investment expenditure | OECD ‘Social Expenditure (Aggregated data)’ added public expenditure of ALMP and family sector (recent, 2017–2018, % of GDP; [https://stats.oecd.org/Index.aspx?DataSetCode=SOCX_@GDP](https://stats.oecd.org/Index.aspx?DataSetCode=SOCX_@GDP)) |
| GDP per capita (log) | IMF ‘GDP per Capita’ (as of 2020, US dollars per capita; [https://www.imf.org/external/datamapper/NGDPDPC@WEO/OEMDC/ADVEC/WEO@WORLD?year=2020](https://www.imf.org/external/datamapper/NGDPDPC@WEO/OEMDC/ADVEC/WEO@WORLD?year=2020)) |

**Figure 1** Government additional spending in response to COVID-19 (non-health sector). Source: IMF (2021a)
unemployment protection. For the social investment expenditure variable, we added the percentages of GDP of public expenditure of ALMP and family policy (OECD, 2021b) using the most recent data available for each country (either 2017 or 2018). In addition to these focal independent variables, all analyses considered GDP per capita (IMF, 2021c).

Empirical strategy

We conducted our analysis in three steps using STATA 16.0. In the first step, we descriptively analysed additional social spending. We demonstrated the level of additional social spending by country along with an ANOVA test to examine if the level of additional social spending might differ by regime. In the second step, we presented descriptive statistics of key variables and the pairwise correlation between variables. Finally, we conducted a multiple regression analysis with 31 OECD countries whose data was available. We have provided key scatter plots and regression graphs between statistically significant independent variables and additional social expenditure.

RESULTS

Patterns of government additional social spending

Figure 1 shows the additional social spending as a percentage of GDP in response to COVID-19 by country (IMF, 2021a). All 31 OECD countries have expanded social spending in response to the pandemic. The United States (14.40%) spent the most, followed by Japan (13.79%), Canada (12.25%), and the United Kingdom (10.92%). In general, an increase in additional government spending was apparent in Anglo-Saxon countries compared to other countries. By contrast, Nordic countries, which have well-developed welfare states, showed relatively low levels of additional social spending, as evidenced by Denmark (1.74%) and Finland (2.18%). France (6.92%) and Germany (9.83%) among continental European countries showed higher additional social spending levels than the average (6.03%). Southern and Eastern European countries showed relatively lower spending. In East Asia, South Korea’s additional social spending was only approximately 3% of GDP compared to that of Japan. Although previous studies have shown that South Korea and Japan share similar welfare regimes (Holliday, 2000), their spending levels during the pandemic were quite different.

Next, we sought to identify whether the additional social spending might differ between welfare state regimes. Table 2 shows the additional social spending by welfare regimes and the ANOVA test with a post-hoc Scheffe test. Following previous literature (Esping-Andersen, 1990), we categorised the 31 countries into six regimes: Social-democratic (Denmark, Finland, Iceland, Norway, Sweden), Conservative (Austria, Belgium, France, Germany, Luxembourg, Netherlands), Liberal (Australia, Canada, Ireland, Switzerland, the United Kingdom, the United States), Southern European (Greece, Italy, Portugal, Spain), Eastern European (Czech Republic, Hungary, Poland, Slovak Republic, Estonia, Latvia, Lithuania, Slovenia, and East Asian (Japan, South Korea).

Results in Table 2 show a statistically significant difference in the additional social spending during the pandemic across welfare regimes ($F = 3.8$, $p < 0.05$). Specifically, the post-hoc Scheffe test demonstrated that liberal regimes ($M = 10.40$, $SD = 4.64$) spent significantly

| Welfare regime       | Mean (% of GDP) | SD (% of GDP) | $F$   | Post-hoc test (Scheffe) |
|----------------------|-----------------|---------------|-------|-------------------------|
| Social-democratic    | 2.97            | 0.976         |       |                         |
| Conservative         | 6.306           | 2.419         |       |                         |
| Liberal              | 10.403          | 4.644         |       | Liberal > Social-democratic** |
| Southern Europe      | 6.069           | 3.292         | 3.8** | Liberal > Eastern Europe* |
| Eastern Europe       | 4.497           | 1.813         |       |                         |
| East Asia            | 8.484           | 7.505         |       |                         |
| Total                | 6.204           | 3.85          |       |                         |

**$p < 0.05$; *$p < 0.1$. |
| Variable                                      | Obs | Mean  | SD    | Min  | Max   |
|----------------------------------------------|-----|-------|-------|------|-------|
| Additional social spending                   | 31  | 6.204 | 3.850 | 1.738| 15.329|
| Covid cases per million (log)                | 31  | 9.987 | 1.108 | 7.011| 11.200|
| Unemployment rate                            | 31  | 6.757 | 3.176 | 2.634| 16.866|
| Poverty rate                                 | 31  | 0.107 | 0.036 | 0.049| 0.178 |
| Debt-to-GDP ratio                            | 31  | 70.121| 48.322| 8.396| 237.955|
| Replacement rate of unemployment benefits    | 31  | 45.839| 23.543| 7    | 86    |
| Social investment expenditure                | 31  | 2.725 | 1.024 | 0.713| 5.371 |
| Union density                                | 31  | 25.742| 21.275| 4.3  | 91.8  |
| Historical strength of the left              | 31  | 31.484| 18.586| 0    | 63.205|
| Democracy level                              | 31  | 8.280 | 0.865 | 6.620| 9.870 |
| GDP per capita (log)                         | 31  | 10.772| 0.317 | 10.266|11.678|

**Table 4** Correlation coefficients between analysed variables

| Variables                                      | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| (1) Additional social spending                 | –   |     |     |     |     |     |     |     |     |      |      |
| (2) Covid cases per million (log)              | −0.33* |     |     |     |     |     |     |     |     |      |      |
|                                                 | (0.07) |     |     |     |     |     |     |     |     |      |      |
| (3) Unemployment rate                          | 0.09 | 0.11| −   |     |     |     |     |     |     |      |      |
|                                                 | (0.62) | (0.56) |     |     |     |     |     |     |     |      |      |
| (4) Poverty rate                               | 0.42** | −0.27| 0.30| −   |     |     |     |     |     |      |      |
|                                                 | (0.02) | (0.15) | (0.11) |     |     |     |     |     |     |      |      |
| (5) Democracy level                            | −0.03 | −0.23| −0.09| −0.29| −   |     |     |     |     |      |      |
|                                                 | (0.86) | (0.22) | (0.64) | (0.11) |     |     |     |     |     |      |      |
| (6) Union density                              | −0.26 | −0.03| −0.03| −0.51*** | 0.60*** | −   |     |     |     |      |      |
|                                                 | (0.15) | (0.89) | (0.88) | (0.00) | (0.00) |     |     |     |     |      |      |
| (7) Historical strength of the left            | −0.28 | 0.38** | 0.27| −0.32*** | −0.07 | 0.09| −   |     |     |      |      |
|                                                 | (0.12) | (0.03) | (0.14) | (0.08) | (0.71) | (0.62) |     |     |     |      |      |
| (8) Debt to GDP                                | 0.54*** | −0.21| 0.31* | 0.29| −0.25| −0.14| −0.02| −   |     |      |      |
|                                                 | (0.00) | (0.27) | (0.09) | (0.11) | (0.18) | (0.46) | (0.91) |     |     |      |      |
| (9) Replacement rate of unemployment benefits  | −0.36* | 0.20| 0.03| −0.40** | 0.50*** | 0.53*** | 0.28| −0.04| −   |      |      |
|                                                 | (0.05) | (0.29) | (0.89) | (0.03) | (0.00) | (0.00) | (0.13) | (0.85) |     |      |      |
| (10) Social investment expenditure             | −0.40** | 0.17| −0.17| −0.50*** | 0.54* | 0.63*** | 0.27| −0.39** | 0.54*** | −   |      |
|                                                 | (0.03) | (0.35) | (0.35) | (0.00) | (0.06) | (0.00) | (0.14) | (0.03) | (0.00) |     |      |
| (11) GDP per capita (log)                      | −0.04 | 0.07| −0.30| −0.23| 0.70*** | 0.36* | −0.21| −0.29| 0.47*** | 0.29| −   |
|                                                 | (0.82) | (0.71) | (0.10) | (0.22) | (0.00) | (0.05) | (0.25) | (0.11) | (0.01) | (0.11) |      |

***p < 0.01; **p < 0.05; *p < 0.1.
more than social-democratic (M = 2.97, SD = 0.98) and Eastern European (M = 4.50, SD = 1.81) regimes.

**Descriptive analysis**

Table 3 shows the descriptive statistics for all variables and Table 4 shows pairwise correlations between government additional social spending and the independent variables. Five variables—the number of COVID cases per million, the poverty rate, debt-to-GDP ratio, the replacement rate of unemployed benefit, and the social investment expenditure—show significant correlations with additional social spending. Specifically, additional social spending was negatively correlated with COVID cases per million, the replacement rate of unemployed benefit, and social investment expenditure. Conversely, it was positively correlated with the poverty rate and the debt-to-GDP ratio.

**Multiple regression analysis**

We next examined factors that might be associated with the different levels of additional social spending in 31 countries. As shown in Table 5, Model 1 included demand factors and GDP per capita, while Models 2 to 4 were like Model 1 but sequentially added political, financial, and existing policy factors.

Unlike the pairwise correlation analysis, the statistical significance of the COVID case numbers, the poverty rate, and the social investment expenditure disappeared in the regression analysis. Both demand and political factors proved to be nonsignificant. In addition, although the poverty rate was statistically significant in Model 1, its significance disappeared after considering other factors. No significant association was found for GDP per capita on the additional social spending.
However, the debt level and replacement rate of unemployment benefits remained statistically significant in relation to additional social spending. First, the debt level demonstrated a significant positive association with additional government spending in times of crisis, contrary to the hypothesis. In other words, debt-ridden countries tended to spend proportionally more during the COVID crisis. These results may only apply to the current public health pandemic but reveal that having relatively little fiscal space might not necessarily be a hindrance to government spending during the pandemic (Figure 2).

In contrast, the replacement rate for unemployment benefits was significantly negatively associated with additional social spending. That is, countries with a lower level of unemployment benefits demonstrated increased post-pandemic spending, while those with a higher replacement rate spent less (Figure 3).

**DISCUSSION AND CONCLUSION**

In this study, we aimed to explain cross-national differences in the additional social spending by governments...
in response to the COVID-19 pandemic. First, we found that cross-national differences in the level of additional social spending and the difference might have to do with the existing welfare regime types. Specifically, liberal welfare regimes spent significantly more, whereas social democratic welfare regimes spent significantly less. In addition, Southern and Eastern European states spent less than conservative welfare states.

Some case studies have confirmed different social policy responses to COVID-19 in different welfare state regimes. For example, Greve et al. (2021) observed that Nordic countries maintained their key welfare principles of universal and generous welfare benefits for the vulnerable during the pandemic by strengthening and extending existing social policies (see Greve et al., 2021, p. 303, Table 3). Unlike social democratic welfare states, liberal welfare states—where the coverage and generosity of social policies were relatively limited—quickly introduced new ad-hoc measures to support the vulnerable within the labor market, although the social policy responses of Canada were “bolder and faster” than those of the United States (Béland et al., 2021, p. 289). Moreover, Moreira et al. (2021) found that although Southern European countries’ responses varied in detail, they also shared important commonalities, such as emphasising the role of subsidies and introducing temporary benefits to respond to the impact on the labor market.

Choi et al. (2022) illustrated the residual social policy approach against COVID social risks in three East Asian economies—South Korea, Hong Kong, and Taiwan—differentiating them from liberal welfare states and even Japan. Of note, Germany and the Netherlands, often categorised as conservative and Bismarckian welfare states, demonstrated different levels of additional social spending. Specifically, the Netherlands, also known as a passive social democratic welfare state (Van Kersbergen & Becker, 1988), spent a similar proportion to Nordic countries, below 4% of GDP. In contrast, additional spending in Germany—arguably transforming into a liberal welfare state (Siegel et al., 2014)—is near to that of Anglo-Saxon countries at around 10% of GDP. Although within-regime differences in social policy responses were observed, such as those between the United Kingdom and Ireland (Hick & Murphy, 2021), the welfare state regime generally matters.

The existing policy factor could perhaps explain the different roles of the welfare state regime in the additional social spending. Specifically, our study confirmed a significant negative association between the replacement rate of existing unemployment benefits and the additional social spending response to COVID-19. In other words, the higher the replacement rate of unemployment benefits, the lower was the additional social spending. The key examples of countries with higher unemployment benefit replacement rates and lower additional government spending levels are Denmark, Finland, Norway, and Sweden. Comparatively, Anglo-Saxon liberal welfare states such as the United States, the United Kingdom, and Canada had higher additional spending with lower replacement rates.

Liberal welfare states tend to implement residual unemployment benefit policies to prevent a reduction in work motivation and promote employment (Gallie & Paugam, 2000). These countries thus typically provide a low level of unemployment benefits and a short payment period. However, the COVID-19 pandemic has led to massive unemployment that cannot be resolved by individual action. Thus, liberal welfare states without sufficient employment protection might have been forced to increase spending significantly to compensate for their weak unemployment benefit systems. In contrast, Nordic countries have a relatively generous unemployment system, indicating that any increase in their government spending was relatively low even in the COVID-19 crisis. Eastern European welfare states also have low unemployment replacement rates, as in liberal welfare states, but their additional social spending was as low as Nordic countries. Despite the nonsignificant association of the democracy variable, the disparity in the average values between Eastern European and Nordic welfare states is noticeable: 7.3 in Eastern Europe and 8.8 in Anglo-Saxon countries, which is statistically significant.

Our results also showed that countries with a higher debt level spent more. This result, however, is contrary to conventional wisdom and our study’s hypothesis. Studies conducted on general government expenditure during the COVID-19 era have reported similar results (Alberola-Ila et al., 2020; Benmelech & Tzur-Ilan, 2020; Hosny, 2021). Alberola-Ila et al. (2020) showed that the pre-crisis sovereign debt rating was positively associated with the total fiscal package, and Benmelech and Tzur-Ilan (2020) demonstrated that even when they removed the outlier, Japan, the result was a positive association between the debt and government spending. Although beyond the scope of this paper, these results perhaps can be explained by the low global interest rate. If interest is low, borrowing money costs less and thus becomes more attractive (OECD, 2021g). Because recent debts have been issued at a lower cost (OECD, 2021g), a country’s increasing GDP (due to further spending) might offset the interest payments (Furman & Summers, 2020), suggesting countries are less constrained by debt. If this was true, even advanced countries with high debt levels could inject their financial resources into recovering from the crisis. Indeed, for this reason, the IMF has recommended that countries actively implement expanded fiscal policies to combat COVID-19 (Inman, 2020).
These findings carry an important policy implication: it is necessary to establish and expand social policies to cope with massive social risks before a crisis occurs. COVID-19 could be present for some time as it constantly evolves, and more viruses and national disasters resulting from climate change could occur in the near future. Countries with comprehensive unemployment protection providing sufficient benefits have been able to respond rapidly to looming social risks; these can function as automatic stabilisers. However, the pandemic has revealed the vulnerability of many welfare states in terms of lacking a comprehensive system to protect those self-employed, platform workers, and other precarious workers. Our results demonstrate that additional programs tended to be introduced by countries worldwide to help people in crisis, which are more often than not less organised in terms of beneficiary selection. For example, the United States, Japan, and South Korea, whose unemployment protection is relatively weak, chose to provide a universal emergency relief allowance. Yet, these programs are ad-hoc and temporary in nature, which would not be able to cope well with pro-longed vulnerabilities created either by the pandemic or other crises. Therefore, our results suggest the need for welfare states to reorganise and strengthen the management of existing and new risks, going beyond protecting typical employment sectors. Given that future crises will likely be more frequent and widespread, consideration needs to be given to redesigning the welfare system to cope with complex social risks.

**CONFLICT OF INTEREST**

The authors declare that there is no conflict of interests regarding the publication of this article.

**DATA AVAILABILITY STATEMENT**

The data that support the findings of this study are openly available at the following URL/DOI.

| Variables                                 | Repository name                                                                 | URL/DOI                                                                 |
|-------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Additional social spending(non-health)    | IMF ‘Fiscal Monitor Database of Country Fiscal Measures in Response to the COVID-19 Pandemic’ (as of 2020.12) | https://www.imf.org/en/Topics/imf-and-covid19/Fiscal-Policies-Database-in-Response-to-COVID-19 |
| Covid Cases per million (log)             | WHO ‘COVID-19 Weekly Epidemiological Update’ (Data as received by WHO from national authorities, as of 27 December 2020, 10 am CET) | https://www.who.int/publications/m/item/weekly-epidemiological-update---29-december-2020 |
| Unemployment rate                         | OECD ‘Economic outlook No.108’ (as of 2020)                                      | https://stats.oecd.org/Index.aspx?DataSetCode=EO                        |
| Replacement rate of existing unemployment benefits | OECD ‘Benefits in unemployment, the share of previous income’ (recent, as of 2019–2020) | 10.1787/0cc0d0e5-en                                                     |
| Unionisation rate                         | OECD ‘Trade Union Density’ (recent, as of 2010–2018)                            | https://stats.oecd.org/Index.aspx?DataSetCode=TUD                        |
| Democracy level                           | The Economist ‘Democracy Index’ (as of 2019)                                     | http://www.eiu.com/topic/democracy-index/                               |
| Debt to GDP                               | IMF ‘General Government debt’ (as of 2019)                                       | https://www.imf.org/external/datamapper/datasets/GDD                    |
| GDP per capita                            | IMF ‘GDP per Capita’ (as of 2020)                                               | https://www.imf.org/external/datamapper/NGDPDPC@WEO/OEMDC/ADVEC/WEOWORLD |
| Gini coefficient                          | OECD (recent, as of 2014–2018)                                                   | 10.1787/459aa7fl-en                                                     |

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