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Protect Incomes or Protect Jobs?

THE ROLE OF SOCIAL POLICIES IN POST-PANDEMIC RECOVERY

Asli Demirgüç-Kunt, Michael Lokshin, and Iván Torre

Abstract

This paper examines the effectiveness of income protection and job protection policies for the post-pandemic economic recovery of the second half of 2020 through 2021. The paper is based on a new dataset of the budgets of social protection programs implemented as a part of the pandemic stimulus package in 154 countries. The empirical analysis shows that, in the short run, higher expenditure on job protection measures is associated with more robust GDP growth, increased employment, and decreased inactivity and poverty rates compared to the expansion of income protection programs. Both policies had a significant economic impact only in countries with weaker pre-pandemic social insurance systems. In countries with broader coverage of the social insurance system, the income and job protection programs appear to have a limited impact on post-pandemic recovery. Because the structural economic changes induced by the pandemic are expected to fully materialize in several years, more research is needed to understand the longer-term effects of job protection and income protection policies on labor markets and economic recovery.

KEYWORDS
Pandemic, labor market policies, social protection, cash transfers, unemployment insurance, job retention

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1. Introduction

The recent global events forced policymakers to re-evaluate the tradeoffs between income protection and job protection policies in terms of their impact on the post-pandemic economic recovery. Unemployment skyrocketed from 3.5 to 8.3 percent in the US and from 5.4. to 9.5 percent in Canada, but it increased only moderately from 5.2 percent to 6.3 percent in, for example, Scandinavian countries. Many European economies tried to preserve employment, keeping workers attached to their employers. In contrast, countries in North America focused on supporting the incomes of the affected populations. Policy choices adopted by governments to protect their population played the leading role in defining the trajectories of early economic recovery (e.g., Demirgüç-Kunt et al. 2021).

Many countries have used job retention schemes to mitigate the economic shock of COVID-19. These schemes consist of short-time work arrangements, furloughs, and/or wage subsidies funded by the government (Drahokoupil and Müller, 2021). During the first peak of the pandemic in mid-2020, governments of OECD countries supported about 50 million jobs. On average, high-income countries spent an equivalent to 1.5% of their GDP on wage subsidies. By reducing labor costs, job retention schemes allowed firms to adjust work hours, thereby reducing the number of jobs to be terminated and lowering the risk of unemployment. These schemes tend to provide stronger support to workers who are temporarily not working than do the unemployment benefits (OECD 2021a). The UK government subsidized the wages of 9.6 million employees—about a third of the UK workforce. The labor market regulation programs were present in 178 countries (Gentilini et al. 2021).

The massive income-support measures deployed during the pandemic through stimulus packages incorporated cash transfer programs, expanded existing and introduced new social assistance programs. Cash-based policies implemented in 186 countries and social pension programs established by 38 countries represented 42 percent of the world's total social assistance measures (Gentilini et al. 2021).

In most countries, the labor market policies introduced in response to the COVID-19 pandemic pursued two main goals: to limit social hardship caused by the pandemic and ensure a rapid and sustainable post-pandemic economic recovery. The weights of the job protection and income protection measures in the policy response, in theory, should depend on the government's perception of the nature of the crisis. The optimal response to transitory and exogenous shocks, such as natural disasters, should focus on job preservation by subsidizing businesses to maintain jobs and reduce workers' welfare losses. Such policies support workers and ensure that firms can jumpstart their activities once the crisis is over. Among these policies are short-time work and temporary layoff schemes and administrative measures to limit workers' dismissal (i.e., Giupponi and Landais 2018).

But the impact of the current crisis might be more structural and permanent. The pandemic-induced changes forced businesses to develop new value chains that rely on digitization and automation processes, and many companies learned to operate with fewer workers (McKinsey 2020).

In developed countries, automation and digitalization are expected to increase demand for high-skill occupations. At the same time, remote work and reduced travel will likely suppress demand and lower wages in the less-skilled service sectors such as hospitality, food, and janitorial services (Ding and Molina 2020). The cost of capital, high degree of informality, and barriers to technology diffusion might depress wages and increase unemployment in developing countries and emerging economies. These structural changes will require significant reallocation of resources. Policies focusing on job protection may hinder the movement of labor from unviable jobs to better-performing industries and slow the recovery (Barrero et al., 2020).

Unemployment insurance systems complemented by comprehensive social assistance services and cash transfers could effectively support workers during the transition between jobs, ensuring rapid recovery. But these policies come at a cost. Weak employment protection and reliance on unemployment insurance schemes could lead to excessive dismissals. To reduce costs, businesses may lay off workers, putting extra pressure on unemployment insurance (Cahuc and Zylberberg 2008). In countries with low levels of wage replacement or low insurance eligibility and coverage, inadequate job protection could increase the risks of extreme poverty and adverse health outcomes (O'Campo et al. 2015).

This paper attempts to assess which combinations of job protection and income protection policies lead to better economic outcomes. The analysis focuses on the short-term effects of different policy mixes on the post-pandemic recovery during 2020–2021.

We assembled a new database with information on budget allocations for every social protection program implemented in response to the pandemic in 155 countries. The database derives the universe of social protection programs from the Global Database on Social Protection Responses to COVID-19 (Gentilini et al. 2021). Using these data, we estimate the relative contributions of income protection and job protection policies to the overall social protection response.

Our empirical model estimates the relationship between four economic outcomes (GDP growth, unemployment, rates of labor inactivity, and poverty) and variables representing expenditures on the two types of social protection policies and country-level controls. Our analysis shows that, in the short run, higher expenditure on job protection is associated with a more robust economic recovery, increased employment, and decreased inactivity and poverty rates; expansion of income protection measures appears to have no significant economic effect. We conduct a series of robustness checks with empirical specifications that use alternative definitions of our dependent variables. These estimations qualitatively confirm our main results on the greater effectiveness of job protection policies in promoting economic recovery during the second half of 2020 and the first half of 2021.

We then take our analysis further to account for the effects of pre-pandemic characteristics of social protection systems. We find that social protection response had a significant economic impact in countries with weaker pre-pandemic social insurance systems. In countries with broader

social insurance coverage, income and job protection programs appear to have a limited impact on post-pandemic recovery. We speculate that some programs implemented during the pandemic—particularly those protecting jobs—may have been redundant in these countries as automatic stabilizers were already in place.

This paper contributes to the emerging literature on the effectiveness of various types of social protection programs in facilitating post-pandemic recovery. To our knowledge, it offers one of the first empirical cross-country analyses of the short-term impact of job protection and income protection programs on economic growth, unemployment, labor inactivity, and poverty. The findings of this paper could be used to design more effective policies to address the main challenges in the post-pandemic world and find the right balance between job preservation and reallocation of resources in the economy. We hope that our paper will motivate further research on the relationship between social protection systems and economic outcomes in the longer run.

The paper is organized as follows. The next section describes the latest literature on the effect of employment protection and unemployment insurance policies on various labor market outcomes. Section 3 discusses the sources of data used in the analysis. Section 4 presents descriptive statistics on the nature of the social protection response to the pandemic and describes the short-term evolution of economic outcomes in 2020–21. Section 5 outlines our empirical strategy, followed by a presentation of the main results in Section 6. Section 7 summarizes the paper's main findings.

2. Tradeoffs between job protection and income protection: Recent literature

Many studies have examined the separate effects of employment protection and unemployment insurance, but relatively few analyze the combined effect of these policies on welfare and labor market 2 outcomes. Policies that protect incomes and policies that protect jobs are often contrasted in a debate about poverty reduction in low-income developing countries. Seen as rights-based, these policies guarantee employment ("the right to work"), meaning that anyone who wants a job at a predetermined wage rate can get it, or guarantee income ("the right to income"), meaning that everyone with an income below a certain threshold receives a cash transfer that brings their income to the threshold level. An extensive body of literature on the pros and cons of these two approaches concludes that "differentiated Universal Basic Income" might dominate both policies as a more transparent and less bureaucratically costly instrument of poverty reduction (i.e., Ravallion 2019).

The early theoretical works on unemployment insurance included research by Baily (1978), Shavell and Weiss (1979), Hansen and Imrohoroglu (1992), and Hopenhayn and Nicolini (1997). More recent studies—for example, Acemoglu and Shimer (1999), Chetty (2006), Hassler and Rodriguez Mora (2008), Landais et al. (2010), and Boeri and Macis (2010)—further developed the theoretical frameworks and presented empirical evidence on the significant effects of

unemployment benefits on gross job turnover, coming primarily from higher rates of job destruction, as well as on inter-industry reallocation.

Studies on the effect of employment protection on sectoral reallocation and job destruction include Lazear (1990), Bertola and Rogerson (1997), Ljungqvist (2002), Bertola (2004), Rogerson et al. (2005), Piccirilli (2010), Bartelsman et al. (2016), and Karabay and McLaren (2011). This literature concludes that strong employment protection negatively affects labor market performance and hinders technological innovation by limiting the size of high-risk, innovative sectors.

The European policy debate attracted significant attention to comparing the performances of the European and US labor markets in the last decades. The rigidity of the European labor market, which relies heavily on employment protection policies, was often blamed for slowing technological change and maintaining high unemployment rates. In response to these criticisms, Pissarides (2001) developed a theoretical model demonstrating that employment protection does not reduce job creation if chosen optimally. He shows that employment protection can insure against income risk when moral hazard prevents unemployment insurance from providing sufficient cover. Workers pay for employment protection during the productive phase of the job and continue receiving wages when the job is no longer productive. If court fees are high and enforcement of job contracts is costly, government legislation can provide a cheaper alternative to enforcing the contract between the employer and a worker than private contracts. In countries with inadequate employment insurance provision and strict employment protection measures, increasing the generosity of unemployment benefits could lead to faster destruction of unproductive jobs.

Blanchard and Tirole (2008) emphasize the importance of analyzing the joint optimal design of unemployment insurance and employment protection programs. They show that under different assumptions, employment protection could be a substitute for unemployment insurance, but such substitution comes at the cost of production efficiency. Making unemployment benefits conditional on the search and acceptance of jobs could improve insurance, lower employment protection, and decrease production inefficiencies.

Lommerud et al. (2018) extend the Blanchard and Tirole (2008) model to investigate the impact of "flexicurity" on investment in technology and job creation. Flexicurity refers to a situation in which unemployment benefits are combined with low employment protection, and the payroll tax is used to balance public budgets (i.e., Andersen 2012). Lommerud et al. (2018) show that low firing costs are bad for technology investment but good for job creation. Weaker job protection policies increase the number of dismissals and reduce investment in production-improving technology. At the same time, lower dismissal costs decrease firms' costs of retaining workers by diminishing their bargaining power.

Anesi and De Donder (2013) study the political economy of combining employment protection and unemployment insurance policies. They show that the election process and the formation of political parties could influence the relative weights of the policies. In the direct citizen-candidate model,

low-skilled workers are decisive and push for maximum employment protection and unemployment benefits. Allowing for political party formation results in policy equilibria in which high-skilled workers form a coalition with the unemployed and support a combination of policies with high unemployment benefits and lower job protection levels.

Several recent papers analyze the impact of the COVID-19 pandemic on the labor market and its relationship to social policies. Eyméoud et al. (2021) contrast US and European labor market trends during the pandemic. They demonstrate that the EU countries avoided a sharp increase in unemployment in the early stages of the pandemic by funding short-time work programs. However, these programs may slow the reallocation of workers from shrinking to growing sectors of the economy during the recovery.

Aidukaite et al. (2021) and Beland et al. (2021) study the labor market response to the COVID-19 crisis in Hungary, Lithuania, Poland, Slovakia, and the OECD countries. Both papers find that labor market policies in these countries depended on pre-pandemic social policy choices and mainly focused on job protection measures. Finamor and Scott (2021) document a negative association between the generosity of unemployment insurance and employment in the US during the pandemic. Notably, the employment gap remained constant even after the expansion of benefits expired, indicating that fear of infection and childcare options could be important factors explaining the persistent rates of labor inactivity in the US.

3. Data

The analysis in this paper relies on a new country-level dataset of expenditure on social protection measures implemented in response to the COVID-19 pandemic put together by the authors. Our database uses information from the Global Database on Social Protection Responses to COVID-19 (GDSPRC) (Gentilini et al. 2021). The GDSPRC contains information on the duration, target population, and other technical aspects of these measures. We collected detailed budget information for each social protection program listed in the GDSPRC from official documents (including IMF Article IV revisions and related documents from other international organizations), government websites, and news sources. We quantified the expenditures of social protection programs in 154 countries. This set of countries forms the core sample for the empirical analysis in this paper (See Appendix Table A1 for the list of countries).

We also used several auxiliary data sources. Information on countries' pre-pandemic social protection landscape comes from the ASPIRE database (World Bank 2021a) and OECD's Social Spending database (OECD 2021b). Data on employment, inactivity, and growth outcomes comes from ILO (2021), the IMF (2021), and the World Bank (World Bank 2021b). Poverty projections are from Lakner et al. (2020). Information on the size of the informal sector is from the Informal Economy Database produced by the World Bank (Elgin et al. 2021).

An essential feature of our analysis is the distinction between social programs focused on income protection and programs focused on job protection. Table 1 shows a correspondence between social protection areas, categories of social protection, as defined in GDSPRC, and the policy focus (on either income protection or job protection). All categories included in the social assistance policy areas focus on income protection; the categories of social insurance and labor market policy areas are split between those focusing on income protection and those focusing on job protection.

4. The nature of the social protection response and the impact of the pandemic

Countries across the world implemented substantial economic measures in response to the economic shock of the pandemic. The size of the economic mitigation measures (also called the "stimulus budget") averaged about 5.6 percent of GDP (Table 2). In high-income countries, the average stimulus package reached 10 percent of GDP; in lower-middle and low-income countries, the average size of the stimulus package was about 3 percent of GDP.

Pandemic stimulus packages also included infrastructure spending and general business support measures. The share of these non-social protection policies in the total stimulus budget was highest at the extremes of the world income distribution (Figure 1). Low-income countries allocated about 35 percent of their total mitigation budgets to health spending. Health spending represented only 13 percent of the total size of the mitigation budget in high-income countries.

Social protection policies were an essential part of stimulus packages. Globally, the average size of the social protection response budget was 2.0 percent of countries' GDP. Like the overall stimulus budget, the size of the social protection budget varied widely across countries at every income level (Figure 2). On average, high-income countries allocated almost 3.5 percent of their GDP to social protection response, with several countries exceeding 5 percent of GDP. Upper-middle-income countries' social protection response budget averaged 1.9 percent of GDP, almost half of their overall stimulus package. Lower-middle-income countries' budget was 1.0 percent of GDP. Among low-income countries, the social protection response budget was just 0.8 percent of GDP—less than a fourth of these countries' overall stimulus budget.

Countries' stimulus packages differed not only by size but also by composition. Low-income countries allocated almost all of their social protection response budget to income protection measures. On average, these countries devoted 0.4 percent of GDP (about half of their social protection response budget) to unconditional cash transfers, followed by in-kind and food transfers for about 0.3 percent of GDP and 0.1 percent of GDP on waivers of utility bills. Job protection measures, such as wage subsidies and waivers of social insurance contributions, were practically absent in low-income countries.

Lower-middle-income countries had a policy mix similar to that of low-income countries, with 0.9 percent of GDP going to income protection measures out of a total social protection response budget of almost 1 percent of GDP. Upper-middle countries spent slightly less than a third of their total social protection response budget (or about 0.6 percent of GDP) on job protection measures. The higher a country's income, the more it spent on job protection measures (Figure 3).

In high-income countries, job protection measures were most prevalent, amounting to about 1.9 percent of GDP, or more than half of their social protection response budget. About 1.4 percent of GDP (or 40 percent of the SP response budget) was allocated to wage subsidies, with some countries exceeding 2 percent of GDP. Waivers of social insurance contributions amounted to about 0.6 percent of GDP in high-income countries. With respect to income protection measures, which amounted to about 1.6 percent of GDP in this county income group, the largest were unconditional cash transfers (0.7 percent of GDP), unemployment support (0.4 percent of GDP), and utility and financial waivers (0.3 percent of GDP).

A clear pattern emerges from this analysis: low-income and lower-middle-income countries devoted most of their (small) social protection budgets to measures preserving the income of their citizens, through either direct cash transfers or the provision of in-kind and food transfers. In contrast, higher-income countries aimed their (larger) social protection budgets at preserving jobs by directly subsidizing wages and reducing the social insurance costs to employers. Upper-middle-income countries combined both policy approaches—preserving income and preserving jobs—, with unconditional cash transfer taking the forefront.

The economic impact of the pandemic was substantial: In every country in the world, except for Burundi and Mongolia, including the minority of countries that recorded positive growth in GDP in that year, employment declined in 2020 (Figure 4). The correlation between the drop in employment and the decline in GDP is relatively weak, however, countries that faced similar declines in GDP reported very different changes in employment. Among countries where GDP dropped by −4.5–−3.5 percent (about the median change of −3.8 percent), the decline in employment rate ranged from −6.8 to −0.4 percentage points.

Differences in structural characteristics of the economy—such as labor intensity across and within sectors affected by the pandemic shock—may explain part of this variance. But differences in social and labor market policy responses to the crisis may also be driving the relationship between change in employment and GDP (Eyméoud et al. 2021). Simple correlation analysis shows that the policy focus of the social protection response—leaning towards either job protection or income protection measures—affects the socio-economic outcomes during the first year of the pandemic (Figure 5). Countries that spent a larger share of their social protection response budget on job protection measures (as opposed to income protection) observed, at least in the short term, smaller decreases in employment (panel b) and smaller increases in inactivity and poverty (panels c and d), while there was no clear pattern for changes in GDP (panel a).

5. Theoretical priors and empirical specification

In this paper, we analyze how the allocation of the pandemic stimulus budget between income and job protection measures affects socio-economic outcomes during the pandemic and early post-pandemic period. The effects of these two types of policies differ both in the short and the long run.

By allowing firms to jumpstart their operations immediately after pandemic restrictions are lifted, the job protection measures could promote faster short-term recovery. However, this might come at the cost of indirectly subsidizing inefficient businesses, reducing the rate of creative destruction, and ultimately hindering long-term recovery (Barrero et al. 2020).[1] The moral hazard of generous unemployment benefits and cash transfer programs could slow the recovery in the short run but facilitate the reallocation of workers to the most productive sectors of the economy, securing sustainable long-term recovery.

Income and job protection measures affect the behavior of workers and firms and induce fiscal externalities. The combination of these effects influences the equilibrium in the labor market and the pace of economic recovery. Social protection systems could generate inefficiencies in the labor market because of the heterogeneity of economic shocks across sectors and industries. Inadequate job protection policies and/or overly generous unemployment insurance may result in excessive firing and lower rates of productive job matches. By reducing the incentives to search for more productive matches, job protection programs might delay the efficient reallocation of workers (Jäger et al. 2019). This effect could be especially pronounced if the shock is permanent. When only a few jobs are available, incentivizing workers to search less might be welfare-enhancing (Michaillat and Saez 2019).

At the same time, both types of programs have direct welfare-improving effects for beneficiaries by smoothing their consumption and thus reducing poverty. Unemployment insurance, cash, and in-kind transfers help households mitigate the impact of adverse income shocks. Such measures could influence economic growth through the fiscal multiplier effect of increased consumption (McKay and Reis 2016).

Job protection programs also have a direct consumption-smoothing effect on the wellbeing of workers who would have been laid off without such programs. In that sense, they may play a dual role in preserving productive job matches and protecting workers' incomes. However, while unemployment insurance and other transfers primarily protect vulnerable groups (such as youth and individuals with low levels of educated), employment protection programs tend to protect mostly insiders and better-educated workers (Cahuc and Carcillo 2011).

1 Better job security might moderate workers' resistance to introducing new technologies and work practices (Akerlof 1984).

In countries with large informal sectors, income protection programs could be the dominant mode of social protection as they can reach a broader share of the population, particularly vulnerable people (Bottan et al. 2021). In contrast, job protection measures may be effective in countries with primarily formal economies. The generosity of unemployment insurance, direct cash transfers, and job protection policies also affect labor market tightness, unemployment, and job participation rates. However, the effects of increases in the generosity of unemployment insurance on the labor market are much stronger than the effects of job protection policies (Giupponi and Landais 2020).

Based on these theoretical considerations and empirical evidence, we expect that by mid-2021, the countries that gave higher priority to job protection policies would have had lower unemployment and job inactivity levels than countries that expanded and increased the generosity of their unemployment insurance policies and/or implemented large cash or in-kind transfers (e.g., Schwellnus et al. 2020). We also expect that, on average, job protection measures would be more effective in promoting short-term economic recovery, as firms can restart their activities as soon as nonpharmaceutical interventions are lifted. The poverty rate should respond more to generous unemployment insurance and cash transfers, as these measures directly support household consumption. The job protection measures should also reduce poverty, albeit to a lesser degree.

We analyze the impact of different types of social policies on four economic outcomes. To assess the pace of economic recovery, we use the difference in GDP levels between the 2021 World Bank estimates[2] and the pre-pandemic forecast for the same year.[3] This indicator quantifies how close economic activity is to its pre-pandemic level. It can be interpreted as a measure of the strength of the economic recovery.[4] We use the difference in the pre-pandemic (January 2020 forecast) and post-pandemic (2020, actual) poverty headcount rates in a country to evaluate the impact of social policies on poverty.[5] We use differences in the employment and inactivity rates between 2019 and 2020 to assess the impact of the various allocations of social policies on labor market outcomes. Unlike GDP and poverty, the measures of labor market outcomes are expressed in relation to their pre-pandemic values. In this sense, the measures used for labor market outcomes may include some variation caused by pre-pandemic trends. Estimation results based on these measures may therefore have to be interpreted with caution.

2 The 2021 GDP are based on the estimates by the World Bank Global Economic Prospects of January 2022 (World Bank 2022). For countries missing in that publication, the estimates of the IMF World Economic Outlook of October 2021 (IMF 2021) are used.

3 The pre-pandemic forecast corresponds to the values published by the World Bank Global Economic Prospects of January 2020 (World Bank 2020a). For countries missing in that publication, the values of IMF World Economic Outlook of October 2019 (IMF 2019) are used.

4 The relatively short time span of our study covering 2020 and 2021 limits our ability to interpret medium and longer term effects of the two types of policies on the main economic outcomes. At the same time, the war in Ukraine that started in spring of 2022 profoundly impacted the world economies. Disentangling the effects of the pandemic from the effects of this war on economic growth, employment, and poverty might be challenging and probably is beyond the feasible scope of our research.

5 We use the poverty headcount rates corresponding to the $5.5 (2017 PPP) per day international poverty line as projected by Lakner et al. (2020).

We use several controls in estimating our empirical model. As we show in the previous section, the pre-pandemic country's per capita GDP affects the size of the stimulus budget and the relative allocation of funds to job protection and income protection policy measures. Pre-pandemic GDP can also affect the speed of recovery and other outcomes of interest. We control for the share of services in pre-pandemic GDP, and the size of the informal sector as these sectors suffered disproportionately from the pandemic (OECD 2020, World Bank 2020b). In addition, the degree of informality may affect the effectiveness of job protection and income protection policies in mitigating the impact of the pandemic. The descriptive statistics of the variables used in our empirical analysis are shown in Appendix Table A2.

In our main estimations, we regress the four economic outcomes on variables representing expenditures on the two types of social protection policies and country-level controls:

$$DY_c = \alpha + \beta_1 IncomeProtectionGDP_c + \beta_2 JobsProtectionGDP_c + \beta_3 NonSPResponseGDP_c + \pi_1 LogGDPpc_c + \pi_2 ServicesGDP_c + \pi_3 Informality_c + \varepsilon_c \quad (1)$$

where DY_c is one of the four indicators described above for country c. $IncomeProtectionGDP_c$ is the expenditure on income protection measures, $JobProtectionGDP_c$ is expenditure on job protection policies, and $NonSPResponseGDP_c$ is the stimulus budget spent on measures other than social protection in country c, all expressed in percentage of 2019 GDP. $LogGDPpc_c$ is the log of 2019 per capita GDP in PPP dollars. $ServicesGDP_c$ represents the percentage of the services sector in country c's GDP in 2019. $Informality_c$ is the share of informal output in GDP in the last available pre-pandemic year, expressed in percentage points. We might expect that low- and middle-income countries might opt for income protection rather than job protection policies because of the high levels of informality in these countries. That is why controlling for the levels of informality is especially important for the interpretation of our results.

6. Main results

Table 3 summarizes the main results of estimating equation (1). Expenditure on income protection measures appears to have no significant correlation with any of the four economic outcomes. Expenditure on job protection measures seems to be associated with a more robust short-term recovery, an increase in employment, a decrease in the inactivity rate, and a decrease in the poverty headcount rate. These correlations align with our theoretical priors, although the association with the poverty rate is stronger than expected, given that no statistically significant correlation is found between poverty and income protection measures.[6]

6 We replicated all the results presented in this paper by including the total number of COVID19-related death per million of population in specification (1). This variable is insignificant is all estimations and the inclusion of it produces no meaningful changes in cooficinets compared to our baseline specification.

The magnitude of the elasticities between expenditure on job protection and the four economic outcomes is substantial. An increase in job protection expenditures of 1 percentage point of GDP is associated with an increase in GDP of about the same magnitude in 2021 (Table 3, column 2); an increase in employment of about 0.4 percent of the working-age population during 2020 (column 4) and an equivalent decrease in the inactivity rate in the same year (column 6).

These results suggest that preserving employment during 2020 by subsidizing firms' wage bills brought levels of economic activity during 2021 closer to the pre-pandemic trend. The longer-term effects are unclear, as evidence from business enterprise surveys suggests that job protection measures were associated with less labor reallocation from low-productivity firms to high-productivity firms. This finding would imply a loss of efficiency in the economy in the longer run (Bruhn, Demirgüç-Kunt, and Singer 2023).

The share of the population with incomes under the $5.50 a day international poverty line is about 0.4 percentage points lower for every percentage point of GDP spent on job protection measures (Table 3, column 8). From a cross-country perspective, this result suggests that preserving labor earnings may have a stronger effect on short-term poverty reduction than direct income protection measures.

Several arguments could be made to explain the limited impact of income protection policies on poverty in some countries. Most income protection programs were implemented in the early stages of the pandemic, and the average duration of cash transfers was only 4.5 months (Gentilini 2022). Transfers were insufficient to counter forgone labor incomes and cover only a small share of potential earning losses of households (Busso et al. 2021). Lower marginal propensity to consume out of COVID-19 emergency cash transfers, compared to the labor income, could be another factor influencing the effectiveness of income protection programs. Evidence from high-income countries shows that only about a quarter of the pandemic cash transfers in Germany, Japan, and the US was spent on durable and nondurable goods, with the rest of the transfers used for debt repayment and savings (Baker et al. 2020, Goldfayn et al. 2022, Kaneda et al. 2021). The limited mitigation impacts of social assistance responses to the pandemic were also reported in many countries, for example, in India (Kumar et al. 2022), Ghana, Mozambique, Ecuador, Zambia, Tanzania, Uganda (Adu-Ababio et al. 2021), Malawi and Liberia (Aggarwal et al. 2020), Mexico (Lustig et al. 2020). The design of income protection policies may have also hindered their poverty impact: only 26 percent of the cash transfer programs implemented during the pandemic used a means or proxy-means test to target beneficiaries, while 47 percent targeted either occupation groups or broad demographic categories. In this sense, many programs could have transferred money to individuals and households not at risk of poverty (Gentilini 2022). Technological difficulties in accessing digital payment methods could have also constrained some households (Londoño-Vélez and Querubin 2022). Our main result on the limited impact of income protection policies on poverty must be also understood as a cross-country assessment, and thus positive impacts on some countries (see, for instance, Bottan et al., 2021) may be offset by small or nonsignificant impact in other countries.

To assess the robustness of these results, we estimate a series of alternative specifications of equation (1), shown in Table 4. In specification I, all dependent variables are expressed as the difference between the values observed in 2020 and 2019. In specification II, the GDP and poverty headcount rate (at $5.50 a day poverty line) are expressed as the difference between the value observed in 2020 and the pre-pandemic projection for the same year. In specification III, the GDP and poverty headcount rate ($5.50 a day) are expressed as the difference between the value observed in 2021 and the pre-pandemic projection for the same year. In specification IV, the poverty headcount rate is expressed as the difference between the value observed in 2020 and the value observed in 2019, using the international poverty line corresponding to a country's income group ($1.90 a day for low-income countries, $3.20 a day for lower-middle income countries and $5.50 a day for upper-middle income countries) and the national poverty line for high-income countries. In all four specifications, the main correlations hold in qualitative terms.

Specifications V-VIII include, as additional regressors, the coverage of the social protection system before the pandemic—distinguishing between coverage of the social insurance subsystem (specification V, expressing all dependent variables as a difference between 2020 and 2019, and specification VI, where GDP and poverty headcount rate are expressed as the difference between the value observed in 2020 and the pre-pandemic projection for the same year) and coverage of the social assistance subsystem (specification VII, expressing all dependent variables as the difference between 2020 and 2019, and specification VIII, where GDP and poverty headcount rate are expressed as the difference between the value observed in 2020 and the pre-pandemic projection for the same year). These regressors control for a direct effect of the pre-existing social protection systems on top of which the social protection responses to the pandemic were implemented.

The results of estimating specifications V-VIII show that the main correlations between the four economic outcomes and income and job protection expenditures during the pandemic are qualitatively similar to the baseline estimates after accounting for the direct effect of characteristics of the pre-existing social protection system. However, the magnitudes of the effects on employment and inactivity rates are slightly smaller and less significant. These results lead us to perform further exploratory analysis of the relationship between the pre-pandemic characteristics of the social protection systems and the performance of the social protection response to the pandemic, which we detail in the next section.

6.1 The role of pre-existing social protection systems

The pandemic social protection response relied partly on the pre-existing system of social protection: about 30 percent of the social protection programs implemented during the pandemic were an adaptation or a new benefit of a pre-existing program (Gentilini et al. 2021). New programs may also have benefited from the existing social protection infrastructure. In this sense, the economic effects of the social protection measures could be a function of the pre-existing social protection systems (e.g., Aidukaite et al. (2021), Beland et al. (2021)).

To explore this possibility, we focus on a characteristic of social protection systems before the pandemic for which there is comparable cross-country information: the coverage of social insurance and social assistance programs, defined as the share of a country's population covered by either type of program. Another relevant characteristic of the pre-existing social protection systems is the coverage within the eligible population, or the average value of the benefits received. Our data are insufficient for conclusive cross-country comparisons of these characteristics and their impact on the economic effects of the pandemic response.[7]

In Table 5, we present the results of estimations in which expenditure on income and job protection interacted with a dummy variable indicating whether a country's pre-pandemic coverage of social insurance or social assistance is above the sample median. Columns 1 and 2 show that the effect of income protection expenditure is not statistically significant for the countries with high or low social protection (social insurance or social assistance) coverage.[8] In the case of job protection expenditure, the effect is not statistically significant for countries with low social protection coverage, and it is only significant at the 10% level for countries with high social protection coverage.[9] This finding suggests that the baseline result of a positive and statistically significant association of job protection measures with economic recovery could be attributed to the effects of pre-pandemic characteristics of social protection systems.

The effects of income and job protection expenditure on employment and inactivity during the pandemic depend on the pre-pandemic coverage of social insurance programs. The results in columns 3 and 5 of Table 5 show that in countries with low coverage of social insurance programs, expenditure on income protection measures is correlated with a decrease in employment and an increase in inactivity. Expenditure on job protection measures positively correlates with increased employment and shows no correlation with inactivity rates.

In countries with higher coverage of social insurance programs, the effects of both types of social protection expenditure on employment and inactivity are much smaller, as shown by the statistically significant interaction effect.[10] These results suggest that the social protection response during the pandemic may have had stronger effects on labor markets in countries with low pre-pandemic social insurance coverage. This finding is not surprising given the objective of social insurance systems—to insure individuals and households against shocks and allow them to smooth consumption over time. To the extent that the programs implemented during the pandemic play a similar role as social

7 The sample size of our cross-country regressions will drop to about 85 observations if we use countries for which data on all relevant characteristics of the social protection systems are available.

8 The main coefficient is not statistically significant in itself and it is also not statistically significant jointly with the interaction coefficients.

9 The coefficients on job protection expenditure and its interaction with either high social insurance coverage or high social assistance coverage are jointly significant only at the 10% level. The sample size of this analysis is reduced compared to the baseline analysis, and therefore the results should be interpreted with caution.

10 The coefficients of job protection expenditure and its interaction with high social insurance coverage are not different from zero at the 10% significance level, suggesting that the effect of job protection on employment and inactivity in countries with high social insurance coverage could actually be zero.

insurance systems in terms of protecting people against economic shocks, it is expected that the effects of these programs are weaker in countries in which an advanced social insurance system was already in place.

In columns 4 and 6 of Table 5, income and job protection expenditures are interacted with the pre-pandemic coverage of social assistance systems. Unlike in the case of social insurance, there is no statistically significant effect of income protection expenditure on employment and inactivity once social assistance coverage is included as an interaction factor. In the case of job protection expenditure, the joint significance test results show that the positive effect on employment and the negative effect on inactivity is statistically significant at the 5% level only in countries with high social assistance coverage. This suggests that, differently from social insurance, social assistance coverage may enhance or complement the effects of job protection policies—although more evidence is needed to assert this.

Columns 7 and 8 of Table 5 show the effects of the social protection response interacted with pre-pandemic characteristics of social protection systems on poverty rates. In line with the results on employment and inactivity, pre-pandemic coverage of social insurance programs appears to be a significant factor determining the effectiveness of social protection responses (column 7). A puzzling finding is that income protection expenditure appears to be associated with a *higher* poverty headcount rate in countries with low social insurance coverage. This finding could indicate reverse causality, as countries with low social insurance coverage may have been more vulnerable to an increase in poverty, to begin with—precisely because they lacked automatic stabilizer mechanisms—and may, therefore, have implemented larger income protection programs in response.[11]

Job protection expenditures have a stronger, positive impact on poverty rates in countries with low social insurance coverage. These programs have a much smaller effect in countries with more extensive social insurance systems before the pandemic. The results in column 8, where the two types of social protection expenditure are interacted with pre-pandemic social assistance coverage, suggest that, just like in the case of the effects on employment and inactivity, social assistance may enhance or complement the effect of job protection programs.

6.2 Addressing the potential bias in cross-country correlations

The interpretations of our results might raise concerns about the potential influence of omitted variables. Three variables could be endogenous in specification (1)—the levels of expenditure on income protection programs (*IncomeProtectionGDP*), on job protection programs (*JobsProtectionGDP*), and on non-social protection programs (*NonSPResponseGDP*). To address this

11 This result does not hold when a different poverty line is used according to each country's income group (see footnote 4).

potential omitted variable bias, the standard instrumental variable (IV) approach requires using three instruments for these endogenous variables.

However, such macro-level expenditure variables are highly inter-correlated, and finding exogenous instruments for each of them appears to be virtually impossible. We revert to an alternative approach and formulate a different specification (2) where we regress our variables of interest on the share of the social protection response budget allocated to job protection measures (*JobsProtectionShare*):

$$DY_c = \alpha + \beta_1 JobsProtectionShare_c + \pi_1 LogGDPpc_c + \pi_2 ServicesGDP_c + \pi_3 Informality_c + \varepsilon_c \quad (2)$$

The coefficient β_1 then captures the effect of the focus of the social protection response on different socio-economic outcomes. This partial correlation coefficient is more appropriately interpreted in terms of its sign and statistical significance rather than magnitude.

To instrument the share of the social protection response budget allocated to job protection policies, we rely on the cross-country pattern found by Lokshin et al. (2022), who document the relationship between a country's electoral cycle and the type of social protection response to the pandemic. They find that governments in countries that had elections just before the start of the pandemic implemented a social protection response with a higher share of job protection policies, while the governments that were up for reelection in the second part of 2020 or 2021 implemented relatively more income protection policies.[12] In equation (2), we use as an instrument the predicted value of the share of job protection policies in the social protection response budget derived from a partially linear regression with the electoral cycle as the main regressor.[13] In other words, we are using as an instrument the part of our dependent variable (the share of job protection policies in the social protection response budget) that is explained exclusively by the electoral cycle. Our exclusion restriction relies on the assumption that the share of social protection response spending allocated to job protection correlates with a country's electoral cycle, but the economic effects of the pandemic (our dependent variables) are not correlated with the electoral cycle.

Table 6, column 1, presents the result of the first stage of instrumenting the share of the social protection response budget allocated to job protection measures. We exclude countries with suppressed political competition, interim non-democratic governments, or limited control of their territories.[14] As expected, the instrument is highly significant and positively correlated with the

12 This is consistent with evidence from Latin America that suggests that governments expand cash transfers in the run up to elections (Bueno, 2021).

13 This corresponds to the main regression in the analysis of Lokshin et al. (2022). In order to control for the fact that the pandemic altered the election schedules of many countries, the electoral cycle is measured by the number of months elapsed in March 2020 (at the onset of the COVID-19 pandemic) since the last national elections.

14 We exclude countries where political competition is suppressed according to the Polity5 project (a value of 1 in the scale 1–10 of the *POLCOMP* variable) and also countries with interim non-democratic governments in March 2020 (Bolivia, Sudan) or that have little effective control of their territories (Central African Republic, Chad, Mali). Benin, Gabon, Singapore and Tajikistan are also excluded as political competition in these countries is virtually suppressed as well despite having a value higher than 1 in *POLCOMP*.

share of social protection spending allocated to job protection, indicating that the electoral cycle influences the composition of social protection response packages. The instrument also passes the weak instrument test (Stock and Yogo 2005).

The results of the second stage of the IV estimation (presented in columns 3, 5, 7, and 9 of Table 6) show that, while the sign of the coefficients is similar to that of OLS estimates, only in the case of the employment rate and the inactivity rate are the effects statistically significant. A strong country's focus on job protection policies is associated with a higher employment rate, a lower inactivity rate, while there is no statistically significant effect with respect to GDP in 2021 and the poverty headcount rate. These results give credibility to the findings of our baseline analysis using equation (1), particularly those related to the effect of job protection policies on employment and inactivity, which could then be interpreted as substantially causal.

7. Conclusions

In response to the COVID-19 pandemic, countries across the world implemented an array of social protection measures, some of them aiming at protecting the income and livelihoods of families and others aiming at protecting employment through job retention schemes. To assess the short-term impacts of these policies on post-covid economic recovery, we put together a database on the social protection response expenditure during the pandemic. It reveals that, on average, countries spent about 2 percent of GDP on social protection measures, although high-income countries spent almost five times more than low-income countries. Expenditure on income protection measures was about 1.2 percent of GDP, with less variation across country income groups than expenditure on job protection. That spending averaged 0.8 percent of GDP but ranged from almost zero in low-income countries to 1.9 percent of GDP in high-income countries.

Our analysis shows that countries that allocated larger shares of their stimulus budget to job protection measures seem to experience more robust GDP growth, higher employment, and lower inactivity and poverty rates than countries that allocated a larger share of the stimulus package to income protection measures. While these results are purely correlational, a more limited analysis using an instrumental variable approach indicates that the effects on employment and inactivity could be substantially causal. The overall pattern of results could be partly explained by the pre-pandemic coverage of social insurance programs. In countries with broader coverage, the income and job protection programs implemented during the pandemic had a smaller economic effect. The social protection response had a significant effect in countries with limited pre-pandemic social insurance coverage. In countries with advanced social protection systems, some social protection programs implemented during the pandemic may have been redundant as automatic stabilizers were already in place. In addition, job protection programs may have limited labor reallocation from low-productivity to high-productivity firms during the post-pandemic recovery.

While the analysis in this paper focuses mainly on the "instrumental" value of social protection, that is, on the role of social protection for economic recovery and growth, we recognize the principal "intrinsic" value of social protection in direct transfers to the welfare of recipients. In that, income protection measures play the most crucial role.

These findings underscore the importance of investing in the development of social protection systems during periods of economic growth to protect households and firms during economic downturns without implementing additional measures. The effects of structural economic changes induced by the pandemic (the new value chains, production processes, and labor institutions) are expected to fully materialize in five to eight years. They might affect the relative performance of the two policy options analyzed in the paper. The shortcoming of job protection programs may become apparent if some of the changes in demand and supply introduced by the pandemic become permanent, and protecting jobs hinder the necessary reallocation between obsolete firms and newly created firms due to changes in demand and work habits. More research is therefore needed to understand the longer-term effects of various types of social policies on labor markets and economic recovery.

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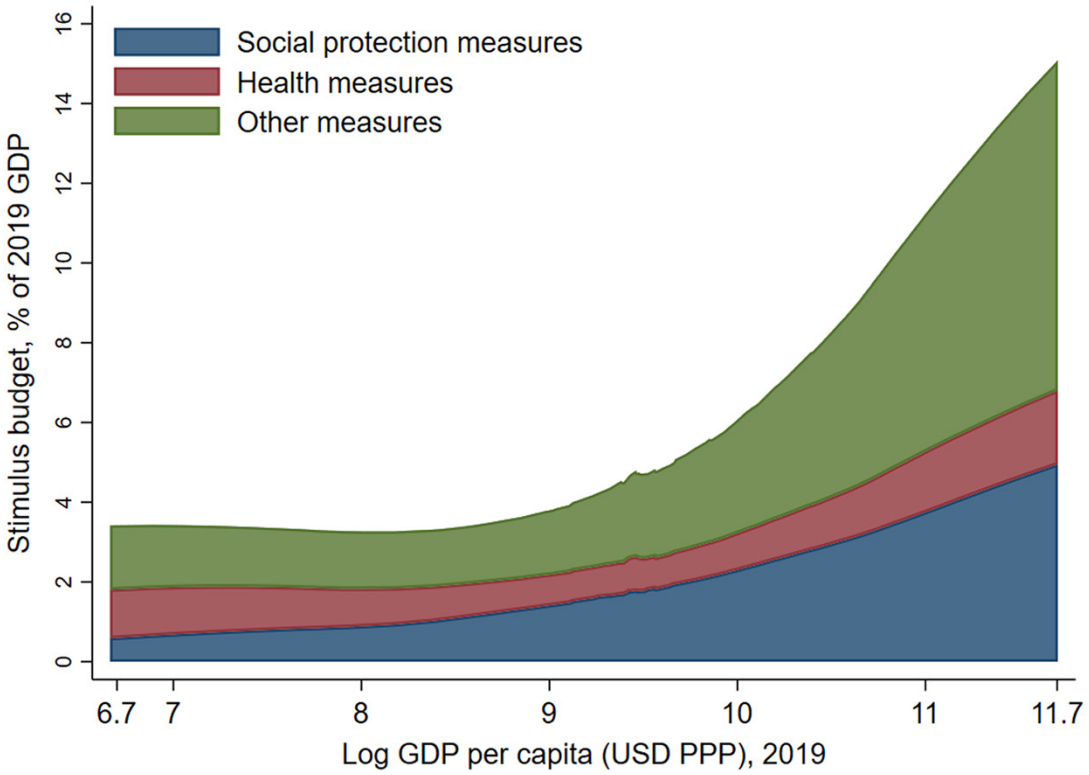
Figures and tables

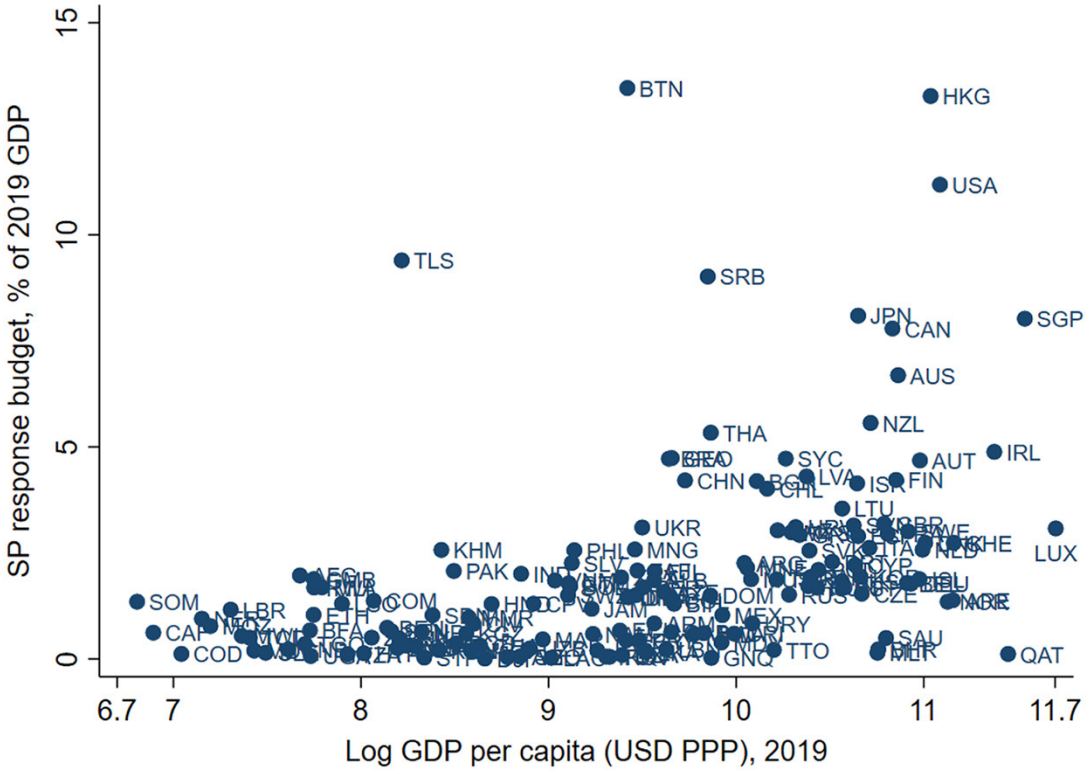
FIGURE 1. Stimulus budget, expressed in % of 2019 GDP



Notes: This graph plots the size of economic mitigation measures (distinguishing between social protection and other measures, expressed in percent of 2019 GDP) by log GDP per capita (2019 data, expressed in USD at PPP). The share of each type of spending is plotted by a LOWESS (Locally Weighted Scatterplot Smoothing) function.

Source: Social protection budget data are from the authors' dataset. Data on the budget for economic mitigation measures are from the IMF (2021). GDP data are from World Bank (2023).

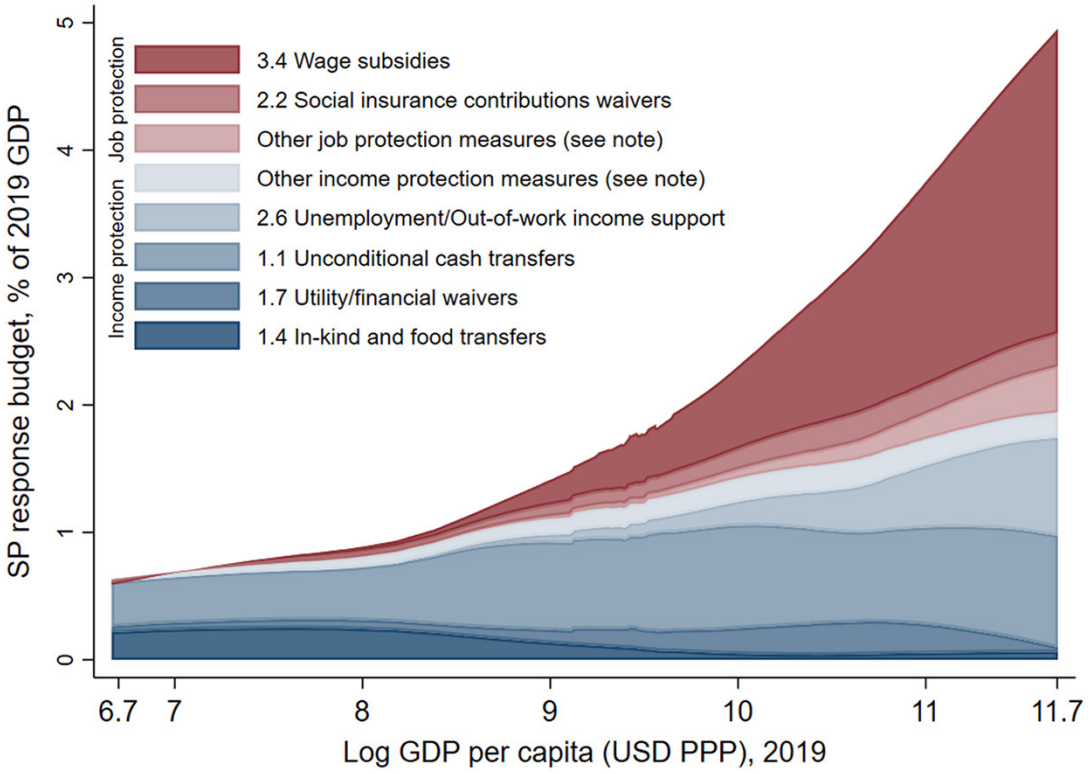
FIGURE 2. Size of social protection response budget and GDP per capita



Notes: This graph plots, for every country in the world, the pandemic social protection response budget, as a percent of the 2019 GDP (vertical axis) and the log 2019 GDP per capita, in USD PPP prices (horizontal axis).

Source: Social protection budget data are from the authors' dataset. GDP data are from World Bank (2023).

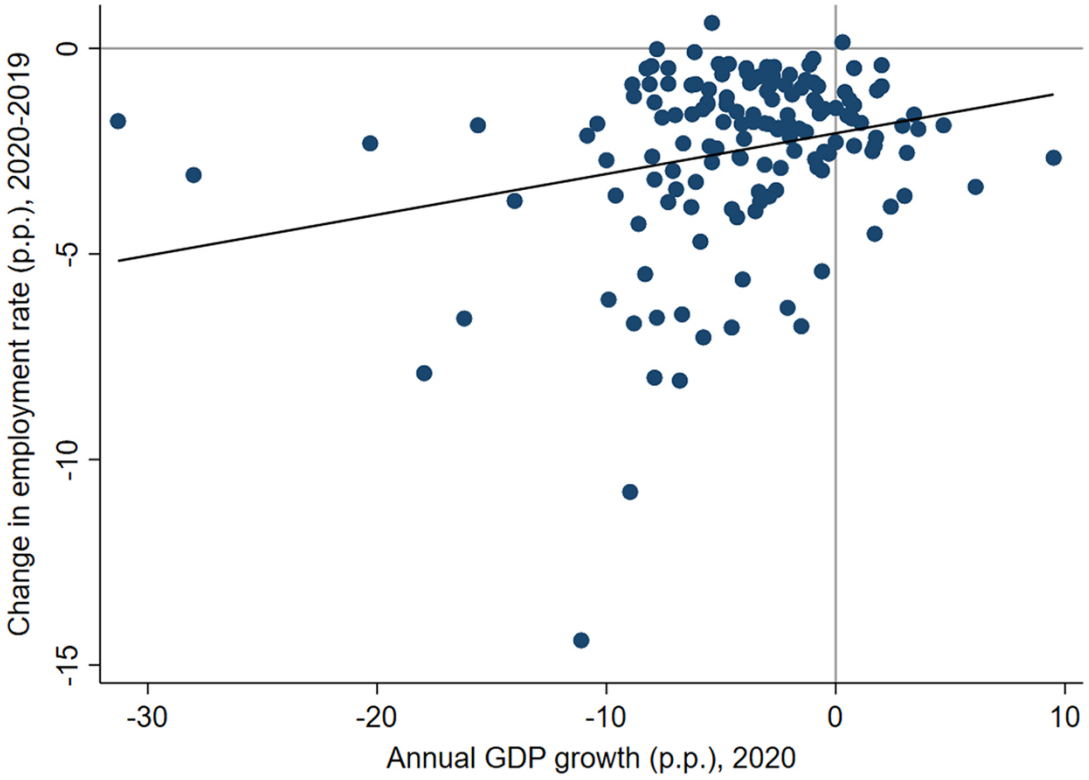
FIGURE 3. Share of social protection response budget by program type of measure



Notes: This graph plots the social protection response budget (by type of program, expressed in percent of 2019 GDP) by log GDP per capita (2019 data, expressed in USD at PPP). The share of each type of program is plotted by a LOWESS function. Detailed program codes can be found in Table 1. "Other job protection measures" includes program codes 2.3, 2.4, 2.5, 3.3, 3.6, 3.7, and 3.8. "Other income protection measures" includes program codes 1.2, 1.3, 1.5, 1.6, 2.1, and 3.5.

Source: Social protection budget data are from the authors' dataset, expanded from Gentilini et al. (2021). GDP data are from World Bank (2023).

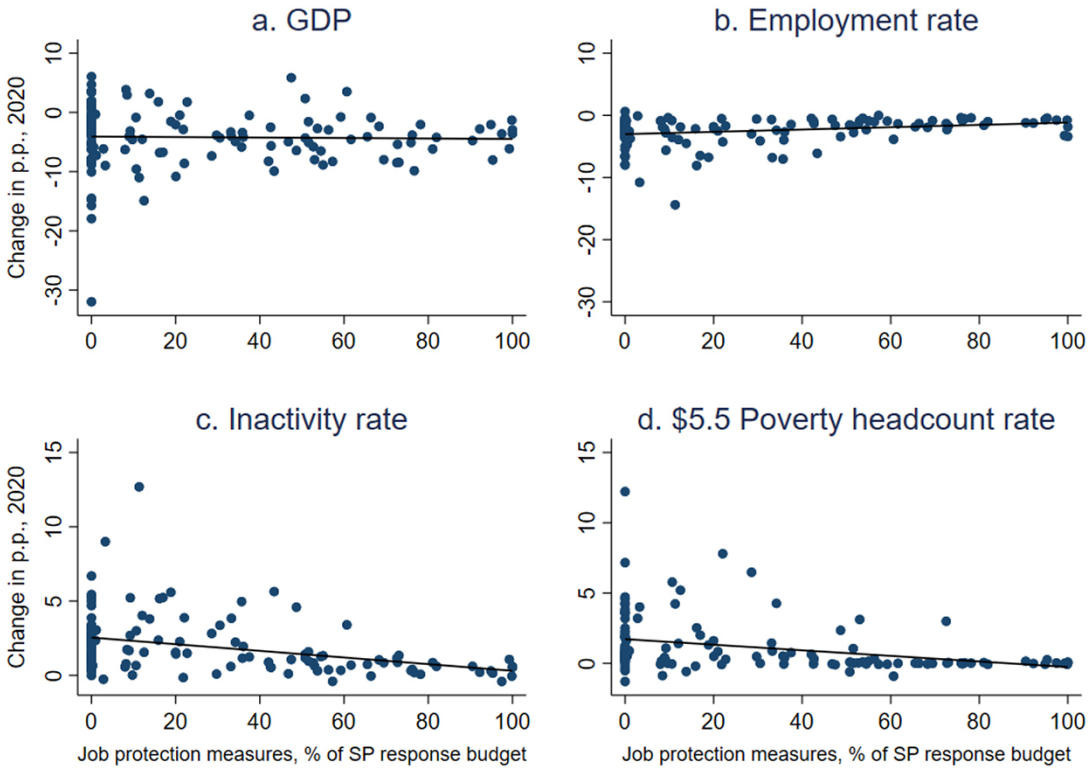
FIGURE 4. GDP growth and change in employment rate, 2020



Notes: This graph plots, for every country in the world, the change in employment rate between 2019 and 2020 (vertical axis) and the change in GDP between 2019 and 2020 (horizontal axis). The employment rate is defined as the share of employed over the working-age population. The change between 2019 and 2020 is expressed in percentage points. The GDP change is expressed in percentage variation with respect to the 2019 level. The solid black line plots the linear fit between the two variables.

Source: Employment data are from ILO (2021), and GDP data are from IMF (2021) and World Bank (2023).

FIGURE 5. Change in socio-economic outcomes (2020) and job protection measures



Notes: This graph plots the change in different socio-economic outcomes during 2020 (vertical axis) and the job protection measures expressed as a share of the social protection pandemic response budget mix (horizontal axis) for 133 countries. The solid black line plots a linear fit between the two variables in each panel. Panel (a) plots the change in GDP during 2020 in percentage points. Panel (b) plots the change in the employment rate during 2020 in percentage points, where the employment rate is defined as the share of employed over the working-age population. Panel c plots the change in the inactivity rate during 2020 in percentage points, where the inactivity rate is defined as the share of inactive over the working-age population. Panel d plots the change in the poverty headcount rate ($5.5 a day international poverty line).

Source: Social protection budget data are from the authors' dataset, expanded from Gentilini et al. (2021). Employment data are from ILO (2021) and GDP data from World Bank (2023).

TABLE 1. Classification of social protection programs by policy focus

Social Protection Area	Social Protection Category	Policy Focus
Social assistance	1.1 Unconditional cash transfers	Income protection
	1.2 Conditional cash transfers	
	1.3 Social pensions (non-contributory)	
	1.4 Unconditional food and in-kind transfers	
	1.5 Conditional in-kind transfers (school feeding)	
	1.6 Public works	
	1.7 Utility and financial obligations waivers/reductions	
Social insurance	2.1 Pensions	
	2.2 Social insurance contributions[a]	Job protection
	2.3 Paid leave	
	2.4 Workers' compensation	
	2.5 Health insurance	
	2.6 Unemployment/out of work income support	Income protection
Labor market policies	3.2 Activation measures	
	3.3 Redistribution of labor	Job protection
	3.4 Wage subsidies	
	3.5 Other active labor market policies[b]	Income protection
	3.6 Labor income support	Job protection
	3.7 Labor regulatory adjustment and enforcement	
	3.8 Firm liquidity support	

Notes:

a. Measures that involve withdrawals from individual retirement accounts were excluded from this analysis because their fiscal impact could not be unambiguously identified. Waivers of social insurance contribution for firms were included when budget cost estimates were available. Thus, all measures under this category were classified as focusing on job protection.

b. This category includes entrepreneurship support, startup incentives, and employment measures for people with disabilities. Given their focus on bringing people into employment (similar to activation measures), measures in this category were classified as focusing on income protection as they are not tied to an individual having had a job.

TABLE 2. Stimulus and social protection response budget

Variable	Low-Income Countries	Lower-Middle Income Countries	Upper-Middle Income Countries	High-Income Countries	All Countries
	All values are country averages expressed in % of 2019 GDP				
Stimulus budget	3.14	3.00	4.26	10.03	5.58
of which					
Health response budget	1.06	0.69	0.72	1.34	0.95
Social protection response budget	0.75	0.97	1.91	3.48	1.99
Income protection measures	0.75	0.90	1.31	1.57	1.20
of which					
Unconditional cash transfers	0.38	0.60	0.74	0.68	0.63
In-kind and food transfers	0.28	0.13	0.03	0.04	0.10
Utility and financial waivers	0.07	0.07	0.19	0.27	0.16
Unemployment/out-of-work income support	0.00	0.01	0.11	0.38	0.15
Job protection measures	0.00	0.07	0.59	1.92	0.79
of which					
Social insurance contributions waivers	0.00	0.01	0.21	0.21	0.13
Wage subsidies	0.00	0.05	0.35	1.55	0.60
Number of countries	19	40	38	45	142

Notes: See Table 1 for the classification of social protection into policy focus areas (income protection and job protection). UCT = Unconditional Cash Transfers.

Source: Social protection budget data is from the authors' dataset. Stimulus budget and health response data from IMF (2021).

TABLE 3. Cross-country regressions of the effect of social protection response on socio-economic outcomes

	Change in GDP				Change in Employment Rate				Change in Inactivity Rate				Change in Poverty Rate			
	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)	
	Coef.	***S. Err.***	**Coef.**	***S. Err.***	**Coef.**	***S. Err.***	**Coef.**	***S. Err.***	**Coef.**	***S. Err.***	**Coef.**	***S. Err.***	**Coef.**	***S. Err.***	**Coef.**	***S. Err.***
Social protection response																
Expenditure on income protection, % of GDP	−0.092	*0.267*	0.145	*0.289*	−0.162	*0.125*	−0.175	*0.201*	0.104	*0.098*	0.127	*0.153*	0.127	*0.116*	0.195	*0.151*
Expenditure on job protection, % of GDP	0.583	*0.391*	1.132**	*0.502*	0.446***	*0.165*	0.324	*0.196*	−0.405***	*0.155*	−0.382**	*0.156*	−0.444***	*0.136*	−0.488***	*0.178*
Non-SP response expenditure, % of GDP	0.282**	*0.125*	0.220*	*0.122*	0.049	*0.065*	0.055	*0.087*	−0.018	*0.053*	−0.015	*0.073*	−0.129**	*0.052*	−0.141**	*0.055*
Country characteristics																
Log GDP per capita, 2019	0.097	*0.402*	0.874	*0.520*	−0.183	*0.143*	−0.054	*0.251*	−0.095	*0.122*	−0.203	*0.206*	−0.014	*0.157*	−0.230	*0.209*
Share of services sector, % of GDP			−0.157*	*0.080*			−0.043	*0.027*			0.038*	*0.021*			0.049*	*0.027*
Share of informal output, % of GDP (DGE)			0.002	*0.047*			−0.044	*0.033*			0.035	*0.028*			0.015	*0.018*
Number of countries	147		134		145		134		145		134		148		134	
R^2	0.09		0.15		0.07		0.12		0.10		0.16		0.14		0.19	

Notes: This table reports estimates from the following regression model:

$$S_c = \alpha + \beta_1 IncomeProtectionGDP_c + \beta_2 JobsProtectionGDP_c + \beta_3 NonSPResponseGDP_c + \pi_1 LogGDPpc_c + \pi_2 ServicesGDP_c + \pi_3 Informality_c + \varepsilon_c$$

Where S_c is a socio-economic outcome for country c. $IncomeProtectionGDP_c$ indicates the expenditure in social protection measures aimed at income protection of country c, expressed in percentage points of the 2019 GDP, $JobProtectionGDP_c$ is the expenditure in social protection measures aimed at job protection of country c, expressed in percentage points of the 2019 GDP and $NonSPResponseGDP_c$ is the expenditure of pandemic response measures in policy areas other than social protection in country c, expressed in percentage points of the 2019 GDP. $LogGDPpc_c$ is the log of GDP per capita of country c in 2019, expressed in dollars at PPP. $ServicesGDP_c$ represents the share of the services sector in the GDP of country c in 2019, expressed in percentage points. $Informality_c$ represents the share of informal output in the GDP of country c in the last available pre-pandemic year, expressed in percentage points. All estimations are by OLS with robust (HC3) standard errors. *** indicates that the coefficient is significant at 1% level, ** – at 5% level, * – at 10% level.

TABLE 4. Sensitivity analysis

Specification	Budget on Each Type of Program (% of GDP)	Dependent Variables							
		Δ GDP		Δ Employment Rate		Δ Inactivity Rate		Δ Poverty Rate	
		Coef.	*S. Err.*	Coef.	*S. Err.*	Coef.	*S. Err.*	Coef.	*S. Err.*
I	Income protection	0.193	*0.271*	−0.175	*0.201*	0.127	*0.153*	0.092	*0.116*
	Job protection	1.108**	*0.501*	0.324	*0.198*	−0.382**	*0.156*	−0.438***	*0.152*
	# of Countries	134		134		134		132	
II	Income protection	0.151	*0.288*					0.195	*0.151*
	Job protection	0.974*	*0.525*					−0.488***	*0.178*
	# of Countries	134						134	
III	Income protection	0.145	*0.289*					0.175	*0.142*
	Job protection	1.132**	*0.502*					−0.435**	*0.171*
	# of Countries	134						134	
IV	Income protection							0.219	*0.139*
	Job protection							−0.697**	*0.301*
	# of Countries							113	
V	Income protection	0.166	*0.320*	−0.321*	*0.192*	0.217	*0.155*	0.128	*0.140*
	Job protection	1.279**	*0.607*	0.184	*0.212*	−0.317*	*0.169*	−0.514**	*0.201*
	# of Countries	115		115		115		113	
VI	Income protection	0.153	*0.318*					0.161	*0.178*
	Job protection	1.356**	*0.598*					−0.616***	*0.227*
	# of Countries	115						115	
VII	Income protection	0.421	*0.340*	−0.022	*0.222*	0.046	*0.200*	0.021	*0.149*
	Job protection	1.547**	*0.677*	0.352	*0.251*	−0.386*	*0.215*	−0.569***	*0.208*
	# of Countries	109		109		109		107	
VIII	Income protection	0.378	*0.359*					0.067	*0.195*
	Job protection	1.680**	*0.669*					−0.650***	*0.238*
	# of Countries	109						109	

Description of scenarios

I – In this specification, all the dependent variables are expressed as a difference between the value observed in 2020 and the value observed in 2019.

II – In this specification, the GDP and poverty headcount rate ($5.5 a day line) are expressed as a difference between the value observed in 2020 and the pre-pandemic projection for the same year.

III – In this specification, the GDP and poverty headcount rate ($5.5 a day line) are expressed as a difference between the value observed in 2021 and the pre-pandemic projection for the same year.

IV – In this specification, the poverty headcount rate is expressed as a difference between the value observed in 2020 and the value observed in 2019, using the international poverty line corresponding to a country's income group ($1.9 a day for low-income countries, $3.2 a day for lower-middle income countries and $5.5 a day for upper-middle income countries) and the national poverty line for high-income countries.

V – In this specification, all the dependent variables are expressed as a difference between the value observed in 2020 and the value observed in 2019, and the level of pre-pandemic social insurance coverage is included as an additional control variable.

VI – In this specification, the GDP and poverty headcount rate ($5.5 a day line) are expressed as a difference between the value observed in 2021 and the pre-pandemic projection for the same year, and the level of pre-pandemic social insurance coverage is included as an additional control variable.

VII – In this specification, all the dependent variables are expressed as a difference between the value observed in 2020 and the value observed in 2019. The level of pre-pandemic social assistance coverage is included as an additional control variable.

VIII – In this specification, the GDP and poverty headcount rate ($5.5 a day line) are expressed as a difference between the value observed in 2021 and the pre-pandemic projection for the same year and the level of pre-pandemic social assistance coverage is included as an additional control variable.

TABLE 5. Cross-country regressions of the effect of social protection response on socio-economic outcomes

	Change in GDP				Change in Employment Rate				Change in Inactivity Rate				Change in Poverty Rate			
	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)	
	Coef.	***S. Err.***	**Coef.**	***S. Err.***	**Coef.**	***S. Err.***	**Coef.**	***S. Err.***	**Coef.**	***S. Err.***	**Coef.**	***S. Err.***	**Coef.**	***S. Err.***	**Coef.**	***S. Err.***
Expenditure on income protection, % of GDP	−1.674	*1.250*	1.041	*0.711*	−1.308**	*0.506*	0.172	*0.198*	1.129**	*0.438*	−0.132	*0.175*	1.222**	*0.603*	−0.096	*0.159*
Expenditure on income protection × High social insurance coverage	2.060	*1.262*			1.142*	*0.580*			−1.052**	*0.490*			−1.239**	*0.621*		
Expenditure on income protection × High social assistance coverage			−1.546	*0.946*			−0.500	*0.524*			0.452	*0.445*			0.276	*0.339*
Expenditure on job protection, % of GDP	2.628	*2.175*	1.477*	*0.853*	1.790**	*0.749*	0.132	*0.312*	−1.166	*0.802*	−0.176	*0.249*	−2.137***	*0.790*	−0.305	*0.218*
Expenditure on job protection × High social insurance coverage	−1.221	*1.961*			−1.539**	*0.692*			0.779	*0.755*			1.630**	*0.759*		
Expenditure on job protection × High social assistance coverage			0.403	*1.034*			0.480	*0.343*			−0.452*	*0.268*			−0.567*	*0.323*
High social insurance coverage (above the median)	0.484	*2.332*			0.442	*0.753*			−0.230	*0.590*			−0.471	*0.922*		
High social assistance coverage (above the median)			−0.280	*1.592*			−0.829	*0.820*			0.605	*0.704*			0.897	*0.624*
Test of joint significance—main variable and interaction with SP coverage	F−stat	*P−value*	F−stat	*P−value*	F−stat	*P−value*	F−stat	*P−value*	F−stat	*P−value*	F−stat	*P−value*	F−stat	*P−value*	F−stat	*P−value*
Income protection	2.04	*0.135*	1.43	*0.245*	3.79	*0.026*	0.60	*0.552*	3.58	*0.031*	0.58	*0.561*	2.06	*0.133*	0.36	*0.699*
Job protection	3.00	*0.054*	2.54	*0.084*	2.87	*0.061*	3.24	*0.043*	2.64	*0.076*	5.35	*0.006*	5.58	*0.005*	3.94	*0.023*
Number of countries	115		109		115		109		115		109		113		107	
R^2	0.18		0.20		0.22		0.21		0.25		0.24		0.32		0.25	

Notes: This table reports estimates from the following regression model:

$$S_c = \alpha + \beta_1 IncomeProtectionGDP_c + \beta_2 IncomeProtectionGDP_c \times Hi\_SPCoverage_c + \beta_3 JobsProtectionGDP_c + \beta_4 JobsProtectionGDP_c \times Hi\_SPCoverage_c + \beta_{35} NonSPResponseGDP_c + \pi_1 LogGDPpc_c + \pi_2 ServicesGDP_c + \pi_3 Informality_c + \pi_4 Hi\_SPCoverage_c + \varepsilon_c$$

Where S_c is a socio-economic outcome for country *c*. $IncomeProtectionGDP_c$ is the expenditure in social protection measures aimed at income protection of country *c*, expressed in percentage points of the 2019 GDP, $JobProtectionGDP_c$ is the expenditure in social protection measures aimed at job protection of country *c*, expressed in percentage points of the 2019 GDP and $NonSPResponseGDP_c$ is the expenditure of pandemic response measures in policy areas other than social protection in country *c*, expressed in percentage points of the 2019 GDP. $LogGDPpc_c$ is the log of GDP per capita of country *c* in 2019, expressed in dollars at PPP. $ServicesGDP_c$ represents the share of the services sector in the GDP of country *c* in 2019, expressed in percentage points. $Informality_c$ represents the share of informal output in the GDP of country *c* in the last available pre-pandemic year, expressed in percentage points. $HI\_SPCoverage_c$ is a dummy value that indicates whether the share of the population of country *c* covered by the social protection system is above the sample median. Two subsystems are distinguished—social assistance and social insurance. All estimations are by OLS with robust (HC3) standard errors. *** indicates that the coefficient is significant at 1% level, ** – at 5% level, * – at 10% level.

TABLE 6. Cross-country regressions of the effect of social protection response on socio-economic outcomes

	Share of SP Response Allocated to Job Protection		Change in GDP				Change in Employment Rate				Change in Inactivity Rate				Change in Poverty Rate			
	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)	
	First stage IV		OLS		IV		OLS		IV		OLS		IV		OLS		IV	
	Coef.	*S. Err.*	Coef.	*S. Err.*	Coef.	*S. Err.*	Coef.	*S. Err.*	Coef.	*S. Err.*	Coef.	*S. Err.*	Coef.	*S. Err.*	Coef.	*S. Err.*	Coef.	*S. Err.*
Social protection response																		
Share of SP response budget allocated to job protection measures			6.302***	*2.309*	10.171	*7.947*	2.635***	*0.654*	5.780*	*3.359*	−2.144***	*0.503*	−5.027*	*2.968*	−2.286***	*0.752*	−3.573	*2.524*
Country characteristics																		
Log GDP per capita, 2019	0.126***	0.026	1.186	*0.801*	0.703	*1.069*	−0.104	*0.292*	−0.497	*0.554*	−0.110	*0.248*	−0.250	*0.501*	0.001	*0.221*	0.157	*0.294*
Share of services sector, % of GDP	0.000	0.003	−0.207*	*0.115*	−0.213**	*0.104*	−0.048*	0.027	−0.053*	*0.029*	0.034	*0.021*	0.038	*0.023*	0.045**	*0.023*	0.047**	*0.023*
Share of informal output, % of GDP (DGE)	−0.008***	0.002	−0.013	*0.063*	0.014	*0.086*	−0.044	0.035	−0.022	*0.032*	0.035	0.029	0.015	*0.026*	0.031*	*0.016*	0.022	*0.025*
Instrumental variable																		
Electoral cycle-driven share of SP response budget allocated to job protection measures	1.190***	0.311																
Cragg-Donald Wald F statistic	11.896				11.896				11.896				11.896				12.851	
Number of countries	120		120		120		120		120		120		120		118		118	
R^2	0.50		0.14		0.14		0.14		0.06		0.19		0.08		0.14		0.13	

Notes: This table reports estimates from the following regression model:

$$S_c = \alpha + \beta_1 JobsProtectionShare_c + \pi_1 LogGDPpc_c + \pi_2 ServicesGDP_c + \pi_3 Informality_c + \varepsilon_c$$

Where S_c is a socio-economic outcome for country c. $JobProtectionShare_c$ is the share of the social protection pandemic response expenditure that was allocated to measures aimed at job protection in country c. $LogGDPpc_c$ is the log of GDP per capita of country c in 2019, expressed in dollars at PPP. $ServicesGDP_c$ represents the share of the services sector in the GDP of country c in 2019, expressed in percentage points. $Informality_c$ represents the share of informal output in the GDP of country c in the last available pre-pandemic year, expressed in percentage points. All estimations in columns 2, 4, 6, and 8 are by OLS with robust (HC3) standard errors. Columns 3, 5, 7, and 9 are estimated by 2SLS with robust standard errors. The first stage results are presented in column 1. *** indicates that the coefficient is significant at 1% level, ** – at 5% level, * – at 10% level. The Stock-Yogo weak identification test critical values are: 10% maximal IV size=16.38 15%=8.96 20%=6.66 25%=5.9363.

Appendix tables

TABLE A1. Countries included in core sample

Albania	Georgia	Niger
United Arab Emirates	Ghana	Nigeria
Argentina	Gambia, The	Netherlands, The
Armenia	Guinea-Bissau	Norway
Australia	Equatorial Guinea	New Zealand
Austria	Greece	Pakistan
Azerbaijan	Guatemala	Panama
Belgium	Honduras	Peru
Benin	Croatia	Philippines
Burkina Faso	Hungary	Poland
Bangladesh	Indonesia	Portugal
Bulgaria	India	Paraguay
Bahrain	Ireland	Qatar
Bahamas	Iran, Islamic	Romania
Bosnia and Herzegovina	Iceland	Russian Federation
Bolivia	Israel	Rwanda
Brazil	Italy	Saudi Arabia
Botswana	Jamaica	Sudan
Central African Rep.	Jordan	Senegal
Switzerland	Japan	Singapore
Chile	Kazakhstan	Sierra Leone
China	Kenya	El Salvador
Côte d'Ivoire	Kyrgyz Rep.	Slovak Rep.
Cameroon	Cambodia	Slovenia
Congo, Dem. Rep.	Korea	Sweden
Congo	Lao People's Dem. Rep.	Eswatini
Colombia	Liberia	Chad
Comoros	Sri Lanka	Togo
Cabo Verde	Lesotho, Kingdom of	Thailand
Costa Rica	Lithuania	Tajikistan
Cyprus	Luxembourg	Trinidad and Tobago
Czech Rep.	Latvia	Tunisia
Germany	Morocco	Turkey
Denmark	Madagascar	Uganda
Dominican Rep.	Maldives	Ukraine
Algeria	Mexico	Uruguay
Ecuador	North Macedonia	United States
Egypt, Arab	Mali	Vietnam
Spain	Malta	South Africa
Estonia	Myanmar	Zambia
Ethiopia	Mongolia	Zimbabwe
Finland	Mozambique	
Fiji	Mauritius	
France	Malawi	
Gabon	Malaysia	
United Kingdom	Namibia	

TABLE A2. Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max	Obs
Change in GDP, 2020–2019 (p.p.)	–4.347	5.378	–31.98	6.06	152
Change in GDP, 2021 actual to pre-pandemic forecast (p.p.)	–6.645	5.432	–27.74	12.09	150
Change in employment rate, 2019–2020 (p.p.)	–2.500	2.160	–14.40	0.62	150
Change in inactivity rate, 2019–2020 (p.p.)	1.932	1.826	–0.41	12.69	151
Change in poverty rate ($5.5), 2019–2020 (p.p.)	1.267	1.998	–1.29	12.22	152
Change in poverty rate ($5.5), 2020 pre-Covid projection to 2020 (p.p.)	1.870	2.319	–0.60	12.80	154
Change in poverty rate ($5.5), 2021 pre-Covid projection to 2021 (p.p.)	1.998	2.591	–0.80	15.60	154
Change in poverty rate (line by income group), 2019–2020 (p.p.)	1.382	2.065	–5.20	12.22	131
Pandemic expenditure in income protection measures (p.p. of GDP)	1.310	1.782	0	13.46	154
Pandemic expenditure in job protection measures (p.p. of GDP)	0.740	1.253	0	6.48	154
Pandemic expenditure in non-SP measures (p.p. of GDP)	3.573	3.448	0	16.89	148
Log GDP per capita, 2019	9.458	1.1708	6.81	11.70	154
Share of services in GDP, last pre-pandemic year available (p.p.)	55.49	10.936	31.12	89.98	152
Share of informal output (DGE), last pre-pandemic year available (p.p.)	28.267	11.237	7.97	63.40	139
Social Insurance Coverage, last pre-pandemic year available (p.p. of population)	21.381	18.314	0.37	61.24	129
Social Assistance Coverage, last pre-pandemic year available (p.p. of population)	27.754	24.995	0	93.25	123