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Social protection expansions during crisis and fiscal space

From ad hoc to durable solutions?

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Abstract: This study provides a first attempt to contribute a large-scale assessment of whether crisis response as observed during the COVID-19 pandemic can serve as a feasible blueprint for creating durable solutions across countries. Adopting a lens on fiscal contracts, it assesses high-level parameters of both the collection and the spending sides of public finance. More precisely, it contrasts fiscal and political feasibility by considering fiscal capacity, policy portfolios, and existing inequality levels. To do so, it draws on UNU-WIDER's Government Revenue Dataset, containing measures on total non-tax and tax revenue as well as subcomponents. It further combines this dataset with the COVID-19 Stimulus Tracker of the United Nations Economic and Social Commission for Western Asia, comprising more than 7,000 policy measures implemented as a response to the challenges brought forth by the pandemic. Using an unsupervised clustering algorithm (k-means), it groups countries according to three key metrics: fiscal excess, spending diversity, and inequality as measured by the Gini coefficient. The study highlights countries' unequal capacity to respond to covariate shocks such as the pandemic, in both fiscal and political terms. While it has been argued that the pandemic accelerated a declining trend in between-country inequality, these vastly unequal crisis response abilities may reverse this trend in the long term. In addition, current social protection policy expansions and perhaps innovations seem to be more fiscally and politically feasible for high-income countries that are also characterized by greater equality in resource distribution and comparatively higher public goods spending. Overall, country group differences may limit the role of crisis response during COVID-19 as potential blueprints in crafting adaptive, inclusive, and sustainable systems in less-developed economies.

Key words: fiscal contracts, crisis response, social protection, tax revenue, k-means clustering, pandemic

JEL classification: C38, H5, H84, I00

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1 Introduction

The pandemic has laid bare the vast economic disparities between and within countries and is likely to increase such cleavages further. The progress that has been made towards achieving the Sustainable Development Goals (SDGs) is likely to see some setbacks. Estimates suggest that as many as 150 million people may have been pushed back into extreme poverty by the end of 2021 (World Bank 2020). To combat such challenges, the pandemic has also led to an expansion—most likely unprecedented—in social protection schemes. As of October 2021, a total of 8,168 policy measures across 196 countries had been identified as policy responses to the pandemic (UNESCWA 2021). More than two-thirds of policy responses (77.4 per cent) have been based on government fiscal support. Combined, the expense of measures implemented amounted to 18.5 per cent of global GDP in 2020. The recognition of the vital role of social protection in crisis responses also (re)ignited debates about building more adaptive, inclusive, and sustainable systems (Bastagli and Lowe 2021). The element of adaptiveness, in particular, is evident in certain flexibilities in programmes that allow for potential scaling up but also the efficient reaching of those most affected by the crisis, as well as building household resilience towards shocks (see also Cornelius et al. 2018; Davies et al. 2008). It has further been stressed that recent events and policy responses create momentum for institutional learning that allows for the harvesting of ideas and lessons learned that can inform responses to similar covariate shocks and crises in the future (see for example Behrendt 2021).

This paper presents a first attempt to do this. Through adopting a lens on fiscal contracts (Timmons 2005; Weale 2020), it pays attention to both the collection and the spending side and seeks to explore whether current policy expansions can serve as feasible blueprints for future crisis response. While it does not provide an answer as to whether the policies implemented have been effective in offsetting economic hardship, it assesses the feasibility of policy portfolios used as crisis response from a fiscal and a political perspective. Fiscal feasibility speaks to fiscal capacity by creating a link between tax revenues and government-financed pandemic expenditures, whereas political feasibility takes existing inequality levels into account and maps them against the scope and diversity of policy portfolios. By drawing on two global datasets, the UNU-WIDER Government Revenue Database (GRD) and the UN Economic and Social Commission for Western Asia (UNESCWA) COVID-19 Stimulus Tracker, it assesses feasibility on a high level using summary statistics and a k-means clustering algorithm to detect country groupings.

The analysis lays bare countries' unequal capacity to roll out crisis response, in both fiscal and policy terms as well as in terms of policy diversity. This includes lower government spending among low-income countries, which translates to smaller policy portfolios with less-diverse measures while at the same time existing levels of inequality are high. Only the majority of high-income countries depict both politically and fiscally feasible crisis responses. Overall, the analysis highlights potential challenges in using current ad hoc expansions as blueprints for more durable solutions in the long run. It further challenges the acceleration of a decreasing trend in between-country inequality that is in part due to larger economic contractions in richer economies (Deaton 2021). Rather, the variation in capacity of governments in adequately responding to the crisis may instead exacerbate inequalities between countries, the global North and South in particular, in the long run.

The remainder of the paper is structured as follows. First, in Section 2 I discuss the concept of fiscal contracts and why the fiscal and political feasibility of these contracts matters during crisis response. Section 3 introduces the main datasets employed in this study and the key variables used. Section 4 details the clustering algorithm and the optimal number of cluster solutions chosen for

the study. In Section 5, I discuss the results, including summary statistics of key variables across income groups and clustering solutions, where I discuss the fiscal and political feasibility of fiscal contracts during crisis response. Section 6 concludes and addresses limitations of this study.

2 The fiscal contract during crisis response

The underpinning rationale for discussing pandemic relief in relation to fiscal space stems from an idea discussed in modern social contract theory. From a normative perspective, social contract theory provides an intellectual construct that addresses which policies, social and political practices, and institutions are right or justifiable (Weale 2020: 3). Social contracts are thus hypothetical in that they reflect a state of democratic public consensus agreed by rational parties. Applied to matters of tax systems, a social contract, then often phrased as a fiscal contract, suggests that beneficial expenditures are delivered to taxpayers in exchange for their tax payments. Thus, building effect tax systems is seen as fundamental in processes of state-building, particularly in the context of developing countries, where this process often lags behind (for example, Brautigam et al. 2008; Lenton et al. 2017; Timmons 2005). Though arguably taxation then only captures one side of the fiscal contract, the distribution side—namely social protection—has often been studied separately. Hence, a view that connects both the collection and the distribution side of the fiscal contract has been explored in recent studies concerned with their overall distributional effects (for example, Bastagli 2015; Hirvonen et al. 2018) or the financing of social protection (for example, Barrientos 2008; Barrientos and Hulme 2009). In this study, I use a fiscal contract perspective to link taxation and pandemic relief measures by focusing on assessing ad hoc modifications and their feasibility, as explained below.

2.1 Steady collection vis à vis ad hoc distribution

Recent reviews of social contracts have expanded the early theoretical concept beyond its foundations in rationality. This included emphasizing the complexity of social life and diverse understandings of the social world. Instead of creating a 'neutral' ground and shared principles for public justification, diverse perspectives rather lead to social experimentation and corresponding novel solutions to political problems (Muldoon 2016; 2017). This line of reasoning seems to be particularly applicable to the events witnessed throughout the pandemic. As discussed, the consequences were universal yet manifold, and often individual experiences of challenges depended on starting positions shaped by existing inequalities. Hence, government responses—though building on existing social protection schemes and conceptualizations—were typically ad hoc in nature. In addition, due to the lack of a comparable event in recent years and under similar economic circumstances, one could argue that pandemic relief measures had an experimental character.

Further, while this study is less concerned with the investigation of which policies, or more precisely which pandemic relief measures, were right or justifiable, social contracts offer another interesting perspective. Throughout the pandemic, existing systems or social contracts had to perform ad hoc judgements of unfolding challenges and craft respective responses. This happened while one side of the social contract, namely the collection of public resources, was kept constant[1]

[1] Naturally, the pandemic and its economic effects have changed the levels of revenue collection in economies. Thus, this study should be understood largely in terms of the absence of non-ad hoc major adjustments in tax system design (and thus excluding short-term tax benefits and cuts) and not in terms of macroeconomic changes that affect levels of revenue collection.

and the other side, namely the distributive measures for such resources, was modified. In addition, these modifications did not undergo democratic processes of voting on the 'most justifiable' policies. Instead, they were often performed under transitional policy frameworks enacted through the declaration of national disaster or emergency states.[2] States of emergency generally enable governments to enact policies for the protection and safety of their citizens that they would normally not be able to implement (or not in a timely or ad hoc manner). Often, pandemic relief measures were rolled out under such transitional policy frameworks but their enactment outlasted emergency states and, in some cases,[3] they were extended.

From this perspective, I will contrast a 'steady-state scenario' of the collection side with the 'ad hoc' expansions on the distribution side of fiscal contracts. I further explore clusters that emerge when taking both sides, collection and spending, into account. Thereby, I explore whether current ad hoc expansions can provide feasible blueprints for building adaptive social protection systems.

2.2 Feasible blueprints for adaptive social protection

Adaptive social protection is a concept or framework that incorporates an ad hoc element. It does so by emphasizing households' vulnerability and shocks in systems design. The idea seems to stem from environmental perspectives, for instance recognizing climate change shocks and the vulnerability of households that rely on farming activities for their livelihoods (see Davies et al. 2008). In light of the pandemic, a focus on vulnerability—and more importantly the scalability and coverage of existing programmes—has resurfaced in debates that promote social protection as a vital tool for crisis response. Thereby, it has been argued that if 'social protection crisis response [is] to make a different to progress towards inclusive, adaptive and sustainable social protection, … institutionalising learning to date [is] key' (Bastagli and Lowe 2021: 1). Adaptive systems also promote sectoral collaboration by establishing systems to ensure scalability (Cornelius et al. 2018). Cross-sectoral collaboration could also lead to more multifaceted and comprehensive approaches. In order to assess whether pandemic responses can serve as a feasible blueprint for institutional learning—and how this might differ across countries—I focus on fiscal and political feasibility as proposed by Burchi et al. (2020).

Returning to a lens on fiscal contracts, fiscal feasibility is primarily concerned with the collection side whereas political feasibility links to social spending and hence the distribution side. Sustainable systems—and perhaps blueprints for adaptive systems—are, then, those that show an equilibrium between fiscal and political feasibility. For instance, more-developed welfare states typically show an equilibrium at high levels of both spending and revenue, whereas those with less-comprehensive social protection display a low social spending/low revenue equilibrium (Mosley 2015). In this study, fiscal feasibility takes the government-financed costs of pandemic measures into consideration and contrasts them with levels of domestic tax revenue collection in a given country. Fiscal feasibility can thus be interpreted as a high-level measure of fiscal space amid the ad hoc scaling up of social protection systems.

Politically feasibility on the spending side, then, takes a country's level of inequality into account and contrasts it with spending diversity, the latter being a measure that captures the

[2] A state of emergency can generally be declared in the case of a natural disaster, civil unrest, conflict, pandemic, epidemic, or similar events. It provides governments with the opportunity to put through policies for the protection and safety of their citizens in a way that would normally not be permitted. As many as 70 countries declared a state of emergency during the pandemic (CCPR 2020).

[3] An example to illustrate this is the South African Social Relief of Distress grant introduced in May 2020, which was intended to terminate at the end of April 2022 but was extended until March 2023 (SASSA n.d.).

comprehensiveness of pandemic relief. As the pandemic has shown, consequences were manifold and varied across different population groups. Thus, the pandemic exacerbated existing inequalities in the labour market across countries, with welfare losses more pronounced in developing countries (Ferreira et al. 2021). These losses then intensified existing inequalities within developing countries—by gender, educational outcomes, occupational status, or membership of the formal or informal sector (Bundervoet et al. 2022). A person's support for the fiscal contract can be influenced by their perception of the net fiscal effect on their own living standards, including indirect returns such as political stability (Burchi et al. 2020). In addition, concern for others and especially those in need may also generate support for the fiscal contract (Berens and von Schiller 2017). Hence, a more holistic approach, with multiple different policy measures that target and benefit a wider range of population groups, is assumed to be more politically feasible in countries where levels of inequalities are high. In the following, I shall define political and fiscal feasibility with regard to the data used in this study, after describing the datasets.

3 Data

3.1 Sources

This study draws on two main datasets. One is the GRD provided by UNU-WIDER (2021a). The GRD is a comprehensive database which includes information on government tax as well as non-tax revenues, social contributions, and grants, available as a percentage of GDP (Oppel et al. 2021). The GRD draws on sources including Organisation for Economic Co-operation and Development (OECD) Revenue Statistics, International Monetary Fund (IMF) Government Finance Statistics, and IMF Article IV reports. The latest version was updated in 2021 and includes relevant statistics for 2019, which is of primary interest to this study given that it is the most recent year to provide information about revenue collection. It has statistics on total tax revenues in 2019 for 143 countries, with slightly lower availability for more-disaggregated measures.

The second database stems from the Global Observatory of Social Protection and Economic Policy Responses, provided by UNESCWA (2021). This database is updated in an ongoing manner; this study uses the version of 15 October 2021. The Global Observatory collects policy announcements from official sources, which include official government websites, state media, inter-governmental or international organizations, and other UN agencies. It further cuts across similar initiatives such as the IMF Policy Responses to COVID-19 Tracker, the UN Economic Commission for Latin America and the Caribbean (ECLAC) COVID-19 Observatory, and the Oxford COVID-19 Government Response Tracker, as well as other similar platforms. The observatory includes information for 194 countries. The database allows for disaggregation by the type of policy and the source of financing policy measures. This study includes only the 7,152 policy measures recorded in the first year of the pandemic—2020—and thus excludes 750 policy measures introduced in 2021. This step was taken in order to map one year of revenue collection (2019) with one year of pandemic relief (2020).

3.2 Key variables

At first it should be noted that due to the comparative nature of the study, high-level definitions are chosen in order to detect broader patterns rather than rendering specific drivers, as tax-benefit systems can be complex and context-specific. In addition, in comparing some of the key statistics, I account for the level of development of countries, in that the following concepts are compared across and within income groups as defined by the World Bank.

Regarding the collection side, I draw on the GRD dataset and select more expansive measures that speak to the extent of tax revenue but also include more-specific components that can shed light on the composition of domestic tax revenue. This is done from the perspective of zooming in on a more direct link between taxpayer and benefits.

Domestic tax revenue

Drawing on the UNU-WIDER (2021a) GRD dataset, I use the variables of total revenues[4] including social contributions and total tax revenues including social contributions. Both variables are expressed as a percentage of a country's GDP. These variables present the most comprehensive measure of domestic revenues in a given country. Information on total tax revenue is available for 143 countries in the pre-pandemic year of 2019. This measure includes, if applicable, resource taxes typically levied on the extraction of natural resources. It also includes mandatory or voluntary social contributions, which are relevant given the focus on social protection expenditure. In addition, I look at specific tax components to gain insights on domestic tax revenue composition.

Direct taxes: taxes on income, profits, and capital gains

Due to the aim of contrasting the extent of contribution and spending, as described in Section 2, the study focuses on forms of direct taxation, as they can be more closely linked to the specific taxpaying party. Thus, taxes on income, profits, and capital gains (TIPCG) provide an interesting summary variable for direct taxation. While personal income tax would be most closely linked to individuals (as democratic voters), this variable is less available for low-income countries (LICs), being available only for five in 2019. Information on TIPCG is available for a total of 129 countries, including 13 LICs and 28 lower-middle-income countries (LMICs).

Further, I create two relative measures, *total tax share* and *TIPCG share*. The total tax share is the share of total taxes out of total domestic revenues, the latter including non-tax revenues and social contributions. The TIPCG share represents the share of TIPCG out of total taxes.

Pandemic expenditure

On the distribution side, I focus especially on expenditure on pandemic relief. I pay attention to the source of finance and the type of policy measures. Sources of finance comprise government expenditure (77 per cent), central bank liquidity support (15 per cent), and an 'other' category which comprises international aid and donor agencies (7 per cent). I include a measure—pandemic expenditure—which covers the total expenditure across all financing sources, and one that measures the total amount and the relative share financed by governments only.

In addition, I look at the frequency of policy categories that feature in pandemic relief. These range from social insurance and assistance (a combined share of about 22 per cent) to labour market or health-related policies (13 per cent) and financial (28 per cent) and general support (22 per cent) measures. Examples of financial support are interest rate reduction, cash-flow assistance, and price controls for essential goods and services. General measures include, for example, measures to enhance food security, research and development expenditure, or the creation of a general fund. Policy categories enable me to establish a measure of spending diversity, which I explain in the following section.

[4] This measure includes non-tax revenue. It is not directly discussed in this study but serves as a denominator to establish the share of total taxes out of total revenues, including non-tax sources, in a given country.

To contextualize fiscal and political feasibility more broadly, the study further draws on the well-established dataset of the Varieties of Democracy (V-Dem) project (Coppedge et al. 2021). This project is one of the largest in terms of social science research-oriented data collection and provides a comprehensive set of variables that describe and measure the quality of governance and government. This study draws specifically on two variables—the equal distribution of resource and the particularistic versus public-goods spending index. The first measures the extent to which tangible and intangible resources are distributed in a given society. It can thus be seen as a measure of inequality from an institutional perspective and ranges from 0 (low equality) to 1 (high equality). The second index used measures whether government spending is more narrowly defined, thereby benefiting more specific parts of the population, sectors, or social groups—or whether it serves the common good and thus benefits all members of society (though this should not be equated to universalism, as it can still entail a targeting mechanism, i.e. by need). Lower values indicate that spending is more particularistic (serving fewer), while higher values indicate that most or all expenditures are public goods. Both of these indicators link to the aspect of spending diversity amid inequality as defined in the following section. The study uses the year 2019 to match with the data on tax revenues from the GRD. Additional information derived from this dataset allows the embedding of the clusters that emerge when examining crisis responses in the broader political economies of countries. This can tease out certain similarities in terms of institutional quality within and across clusters.

4 Methodology

First, I will compare summary statistics of key variables across income groups, including an overview of taxation and pandemic relief as well as spending diversity and fiscal excess, defined in the following section, amid existing inequality levels and across income groups.

4.1 Measuring fiscal and political feasibility

To establish country clusters, fiscal and political feasibility needs to be operationalized given the data available. As explained earlier, fiscal feasibility is primarily concerned with the notion of fiscal space or capacity. Political feasibility considers existing inequality levels in a given country, whereas more diverse spending approaches are considered as being more politically feasible in countries where levels of inequalities are high (see Section 2). I define fiscal excess F as the total tax revenue of a country c, including social contributions Tc, minus a country's government fiscal support for pandemic relief Ec (government pandemic expenditure). Both measures are expressed as a percentage of GDP. Hence, fiscal excess represents the tax revenue share of GDP that remains after pandemic expenditures. I focus on tax revenue in line with the fiscal contract rationale of 'who pays' versus 'who benefits', whereby taxation creates a more direct link between citizen and state. A higher gap between levels collected and levels spent is interpreted as more feasible from a fiscal perspective in terms of sustaining expenses (amid other public spending).

$$F_c = T_c - E_c$$

Next, spending diversity is defined as follows to capture political feasibility as described in Section 2. I take into account the different policy categories as described in Section 3, i.e. social assistance, social insurance, labour market measures, health-related relief, financial policy relief, general support, loan and tax benefits, and miscellaneous. Using the same rationale as in Simpson's Diversity Index, I calculate the frequency of policy measures within each category per country p

as well as the total number of policy measures in a given country P if policies had an assigned cost component and were financed by government fiscal support.[5]

$$S_c = \left(1 - \left(\frac{\sum p_{c,i} * (p_{c,i} - 1)}{P_c * (P_c - 1)}\right)\right) * P_c$$

Taking the number of policy measures that belong to category i of a given country c in comparison with the total policy measures implemented, the value of the index ranges between 0 and 1. The lower the value, the lower the diversity, and vice versa. Hence, a country with a spending diversity index of 0.6 would have a more comprehensive approach than a country with a value of 0.3. In addition, and due to the fact that the number of policies financed by government varies significantly across countries, I weigh diversity by Pc, which is the total number of policies financed by government in a given country. Accordingly, spending diversity considers the extent of government financing as well as how many different policy initiatives were fiscally supported by governments.

Lastly, I utilize the Gini coefficient of per capita income. The Gini coefficient serves as a proxy to measure existing levels of income inequality prior to the pandemic using the statistics available in the World Income Inequality Database (WIID) companion published by UNU-WIDER (2021b). I use the latest available statistics for each country since 2015 and up to 2019, enabling me to retrieve Gini coefficients for 122 countries. Combined, a country with a higher Gini coefficient and higher spending diversity would be ranked higher on political feasibility than a country with high inequality and low spending diversity. This represents only a high-level indication of how to group countries rather than a metric than can render specific differences.

4.2 K-means clustering to find optimal groupings

In order to then assess political and financial feasibility jointly, I apply a clustering method using the three variables fiscal excess, spending diversity, and the Gini coefficient for each country. Generally, clustering provides a method to detect groups of common features in a dataset. More specifically, I use a k-means clustering algorithm which can be used as an exploratory clustering method within unsupervised learning procedures (Hastie et al. 2009). In this study, the number of clusters that can be detected is unknown, as differences in fiscal and political feasibility can align in manifold ways across countries.[6] Broadly, k-means clustering builds on key statistics to group similar kinds of items in clusters—thus, in case of this study, countries that are similar across the three defined key variables in various combinations.

Thus, the within-cluster sum of squares (WSS) signifies the sum of distances between the data points observed and the corresponding centroids for each established cluster. Hence, a lower value signifies higher convergence within clusters. The proportional reduction of error (PRE) coefficient

[5] This is important, as not all policy measures captured result in public expenditures. An example of this would be the declaration of national disasters under health-related support, which does not have a direct cost component. A comparison of overall figures is presented in the results section.

[6] There is no initial assumption as to how many clusters there should be, primarily because the extent of social protection expansion and the diversity of country-specific approaches are unprecedented. There is thus no plausible approach to phrasing an assumption as to how these difference across countries converge into clusters.

can further elicit the optimal number of clusters, as it measures the proportional reduction of the WSS for cluster solution k compared with the previous solution $k-1$ cluster.

In order to define the right number of clusters, I compare 20 different cluster solutions, with $k = 1, \dots, 20$ (note that Table 1 below displays only cluster solutions 1 to 10), with random selections of data points as the initial centre. This process is further repeated to see whether the same optimal number of clusters emerges across different initial centres.[7] An optimal number of clusters still exhibits a low number of k while showing a notable reduction in variations within clusters. The cluster solutions below measure fiscal excess, spending diversity, and Gini coefficient for 80 countries for which all three variables are available. As shown in Table 1 and Figure 1, the results indicate clustering with $k = 4$ to be the optimal solution. At clustering solution $k = 4$, WSS and $log(WSS)$ reduce, whereby $\eta 2$ shows a reduction in WSS by 63 per cent compared with 34 per cent in the $k = 3$ cluster solution and a reduction in PRE_4 by 44 per cent compared with the $k = 3$ solution. In addition, WSS does not reduce considerably for $k < 4$ solutions.

Table 1: Clustering solutions—key statistics

Cluster	K	WSS	log(WSS)	η^2	PRE
R1	1	237	5.46	0	.
R2	2	185.4	5.22	0.22	0.22
R3	3	156.4	5.05	0.34	0.16
R4	4	87.5	4.47	0.63	0.44
R5	5	80.9	4.39	0.65	0.07
R6	6	70.3	4.25	0.70	0.13
R7	7	59.1	4.07	0.75	0.16
R8	8	54.3	3.99	0.77	0.08
R9	9	49.6	3.90	0.79	0.09
R10	10	43.7	3.77	0.81	0.12

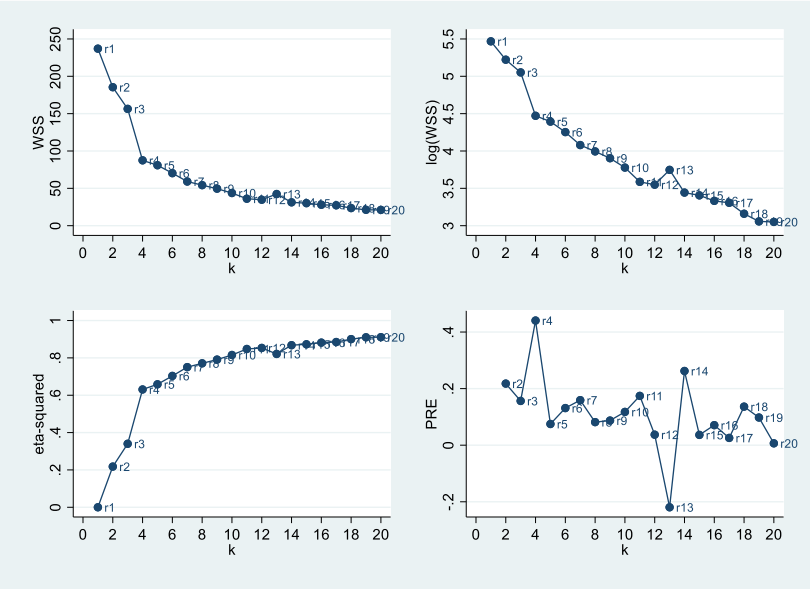
Note: output omitted.

Source: author's construction based on UNESCWA (2021) and UNU-WIDER (2021a, b).

In the matrix in Figure 2, it becomes evident that across the three defined variables (Gini, spending diversity, and financial excess), the four cluster solutions tend to group countries together but can overlap. This means that clusters can exhibit similarities in one or two of the three variables (see also Appendix A). I discuss this more closely in the following section when examining them more closely in terms of fiscal and political feasibility.

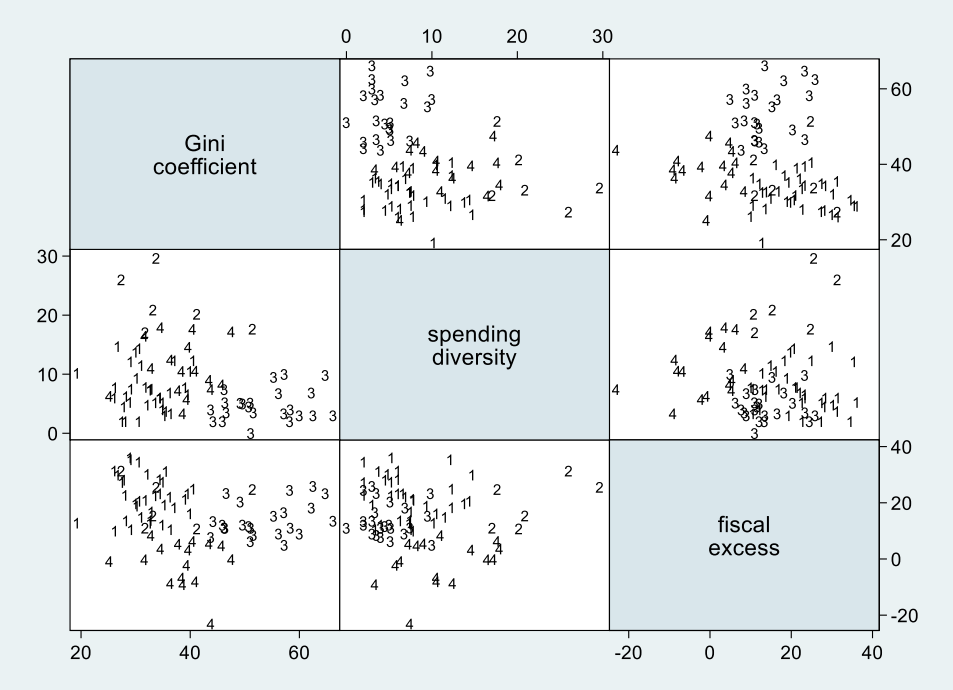
[7] This process was repeated manually in Stata 17.0, storing and comparing results across different initial centres. Across 15 comparisons, the most frequent optimal number that emerged was $k = 4$ (in 12 of the 15 repetitions).

Figure 1: Clustering solutions—key statistics



Source: author's illustration based on UNESCWA (2021) and UNU-WIDER (2021a, b).

Figure 2: Clustering solutions across three key variables (Gini coefficient, spending diversity, and financial excess)



Source: author's construction based on UNESCWA (2021) and UNU-WIDER (2021a, b).

5 Results

5.1 Taxation and pandemic relief: unequal capacity for crisis response

As shown in Table 2, the extent of total tax revenue collection (including social contributions) expressed as a share of GDP increases across income groups. While it amounts to 12 per cent of GDP in LICs it is almost three times as much in high-income countries (HICs), at 31 per cent. This pattern holds true for both total tax and TIPCG, with TIPCG being twice as high in HICs (10 per cent of GDP) as in LICs (4 per cent of GDP). Total tax and TIPCG levels are then fairly similar in LMICs and upper-middle income countries (UMICs). Overall, these tendencies are generally expected. As promoted in domestic revenue mobilization programmes and efforts, there is widespread recognition that the potential of domestic revenues is yet to be fully recognized in developing countries (and thus LICs and LMICs). In addition, the prospects for government revenue in LICs look dire, with revenues expected to have fallen by roughly 7.5 per cent throughout the first year of the pandemic (Mullins et al. 2020). It will be interesting to revisit this once relevant statistics are available.

Table 2: Domestic tax revenue and composition across income levels

Income groups	Total tax revenue			Total tax (% of total revenue)			TIPCG			TIPCG (% of total tax)		
	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
Low income	18	12.1	4.9	16	0.65	0.18	13	4.3	3.8	13	0.31	0.14
Lower-middle income	35	18.5	7.2	32	0.76	0.15	28	6.0	2.6	26	0.32	0.12
Upper-middle income	42	21.9	7.6	34	0.77	0.18	42	5.9	2.5	41	0.29	0.13
High income	48	30.7	10.9	44	0.78	0.19	46	10.2	5.3	45	0.31	0.15
Total	143	22.8	10.6	126	0.76	0.18	129	7.3	4.4	125	0.31	0.14

Notes: figures present group-based averages; SD = standard deviation.

Source: author's construction based on UNU-WIDER (2021a).

On the other hand, the share of total tax revenue out of total revenue (and thus also including non-tax resources) is more evenly spread across income groups (see Table 3). It is lowest in LICs at 65 per cent and highest in HICs at 78 per cent. However, there may be large deviations across countries of different income groups due to, for example, resource taxes and revenues. When looking at TIPCG and its share in total tax revenues (total tax including social security contributions), the shares are even more equal across income groups. Yet the fact that overall TIPCG revenue is small in LICs as well as total tax revenues indicates this merely that tax composition in terms of income, profits, and capital revenue, but not in terms of levels, tends to be more alike across income groups. This is interesting because from a fiscal contract perspective, the component of direct taxation in the form of TIPCG tends to be similar across different levels of development.

On the expenditure side, similar differences occur. Pandemic expenditure is expressed as a percentage of a country's GDP. HICs spent three times as much on pandemic relief overall compared with LICs. This is even more pronounced when looking at government fiscal support

only. HICs spent roughly six times as much as LICs (13 versus 2 per cent of GDP). Both LMICs and UMICs spent between 7 and 11 per cent of GDP overall and 6 to 9 per cent of GDP based on government fiscal support. The majority of pandemic relief was government financed in LMICs, UMICs, and HICs, with a lower share of 44 per cent in LICs. Again, this links back to yet-to-be-realized domestic revenue potential in developing countries that in turn restricts their spending capacity.

Table 3: Pandemic expenditure across income levels

Income groups	Pandemic expenditure			Pandemic expenditure government			Government fiscal support (%)		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Low income	25	6.4	4.1	23	2.1	2.3	26	0.44	0.20
Lower-middle income	53	7.5	6.5	51	5.6	6.2	55	0.64	0.21
Upper-middle income	53	10.9	13.4	52	8.7	11.8	54	0.77	0.16
High income	55	18.2	14.7	55	13.2	12.0	59	0.82	0.22
Total	186	11.5	12.2	181	8.4	10.4	196	0.70	0.24

Note: figures present group-based averages.

Source: author's construction based on UNESCWA (2021).

Looking at how many policies were adopted overall as well as how many were financed by government, the same differences occur across income groups (see Table 4). On average, LICs implemented less than half the number of policy initiatives compared with HICs (22 versus 48). The difference becomes even more pronounced when looking at government-supported policies (10 versus 42) and those financed by government (3 versus 11). LMICs and UMICs tend to be more similar, particularly in terms of their total policy portfolio (on average 32 and 36 respectively) and government-financed policies (on average 6 and 7 respectively). Here, HICs also financed almost twice as many policy initiatives as LMICs and UMICs (11 versus 6 and 7 on average).

Table 4: Size of policy portfolios—policies adopted under pandemic responses

Income groups	Total number of policy measures			No. of policy measures supported by govt			No. of policy measures financed by govt		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Low income	26	22.3	10.9	26	10.1	7.5	25	2.8	2.8
Lower-middle income	55	32.3	21.7	55	22.1	16.5	53	6.1	5.2
Upper-middle income	54	35.9	26.0	54	29.3	23.6	49	6.9	5.7
High income	59	48.2	25.4	59	41.8	22.9	54	11.2	8.9
Total	196	36.4	24.6	196	28.2	22.6	181	7.4	7.0

Note: figures present group-based averages.

Source: author's construction based on UNESCWA (2021).

Below, I pay attention to the particular categories and types of policy initiatives implemented. Note that the comparison in Table 5 includes all policies (in Table 4 captured as total number of policy measures) and hence also those not allocated to government support (overall about 23 per cent) as well as those that did not have a cost component under government fiscal support.

Certain differences as well as similarities arise in policy adoption when discussing some of the policy categories in more detail. On average about 42 per cent of policy measures implemented in LICs were general or health related. Note that general measures can include food security as well as research expenses. This should be seen as a consolidation of policies that do not fit other categories. About 17 per cent was spent on financial policies, followed by 16 per cent on social assistance policies. Less than 10 per cent went to labour market policies, loan and tax benefits,

social insurance, and multiple-purpose policies. Other income groups differ in terms of a higher share on social insurance spending and loan and tax benefits (especially UMICs and HICs), a lower share on health-related and general policies (especially HICs), and a higher share of labour market policies in HICs (twice as high as in LICs).

Table 5: Policy categories of pandemic relief across income groups

Income group	Financial	General	Health	Labour market	Loan and tax	Multiple	Social assistance	Social insurance	Total
Low income	17.5	20.6	20.6	6.4	7.1	7.1	15.9	4.8	100
Lower-middle income	16.2	16.2	16.5	8.1	9.6	8.4	15.5	9.6	100
Upper-middle income	15.6	15.6	14.7	9.8	11.4	6.8	14.4	11.7	100
High-income	14.0	14.0	13.7	13.2	10.4	9.6	13.7	11.4	100
Total	15.4	15.8	15.5	10.1	10.1	8.2	14.6	10.3	100

Note: figures present group-based averages.

Source: author's construction based on UNESCWA (2021).

Labour market policies included measures such as activation (training), labour regulation adjustments, paid leave or work-from-home policies, and wage subsidies to employers against lay-offs or work hour adjustments. Given the higher degree of informal labour in developing countries, most of these policies will have been ineffective in tackling economic challenges. This might be one explanation for the lower share of such measures in LICs.

Financial policies, with the greatest relative share observed in LICs, included measures such as interest rate reductions, price controls, tax exemption, customs waivers, rental subsidies to firms, liquidity support, or loan and interest deferments for firms, typically small and medium-sized enterprises. Liquidity support such as setting up or enhancing financing facilities was most common in LICs (39 per cent of all financial policies), followed by soft loans and credit support (17 per cent) and tax exemptions, reductions, or deferments for businesses. This differed from HICs, where soft loans and credit support were most common (25 per cent), followed by cash-flow assistance (including compensations for cancellation of events or loss of fixed assets) at 21 per cent and liquidity support at 16 per cent.

Health-related measures included awareness campaigns, support for the healthcare system, increasing stocks of basic goods and medicines, and other targeted measures. The relative share of health-related support was highest in LICs, with targeted health support (including declaration of national emergencies or disasters) being most common (44 per cent) followed by support for the healthcare system (40 per cent). The same pattern held true in HICs.

Social insurance policies included disability pensions, health insurance support, paid parental leave, general pensions or sick leave, support or waivers for social insurance contributions, and unemployment benefits. In LICs, no disability pensions, general health insurance support, or paid parental leave were supported. Most common were social insurance contribution support or waivers (45 per cent), followed by unemployment benefits (27 per cent). In HICs, unemployment benefits (35 per cent), social insurance contributions or waivers (31 per cent), and sick leave support (15 per cent) were most common.

Though there were differences in how countries responded to the pandemic in terms of specific policies, it is also noteworthy that there are some similarities. All income groups had a share of above 5 per cent in each policy category (except for social insurance in LICs). It is further evident that social protection expansions throughout the pandemic exceeded the conventional domains of social assistance, insurance, and labour market policies to include more comprehensive macroeconomic measures or new initiatives targeted at local businesses and small and medium-sized enterprises. It could be argued that these should not be interpreted as social protection per se; however, given the momentum of policy innovation in terms of building adaptive, inclusive, and sustainable systems, cross-sectoral approaches and new measures could lead to a new understanding of social protection.

5.2 Spending diversity, fiscal excess, and inequality

Before discussing country clusters, I look more closely at spending diversity and fiscal excess amid levels of inequalities across country groups (see Table 6). The presented values of spending diversity are not interpretable per se. Higher values generally indicate that a country has a greater and more diverse policy portfolio or pandemic response while lower values signify the opposite—namely, fewer policies overall as well as less diversity in policies adopted.

As there were notably smaller policy portfolios in LICs, this also applies to their combined measures of size and diversity of pandemic response. Policy portfolios were largest and most diverse in HICs. While LMICs and UMICs were somewhat alike (only a 0.7 point difference), there were more notable gaps between LICs and LMICs (about 2.5 points) and between UMICs and HICs (about 2.8 points). Hence, policy responses in the poorest and richest economies differed most starkly.

In addition, the average level of inequality was highest in LICs and declined across higher income groups, with the lowest average Gini coefficient being observed for HICs. Furthermore, HICs had the highest fiscal excess, meaning 'leftover' fiscal space, when deducting pandemic expenditure financed by government from total tax revenues including social contributions. While levels were similar for LMICs and UMICs, fiscal excess was about half as high in LICs compared with HICs. This again reflects lower fiscal capacity in developing countries, as discussed earlier.

Table 6: Spending diversity, inequality, and fiscal excess across income groups

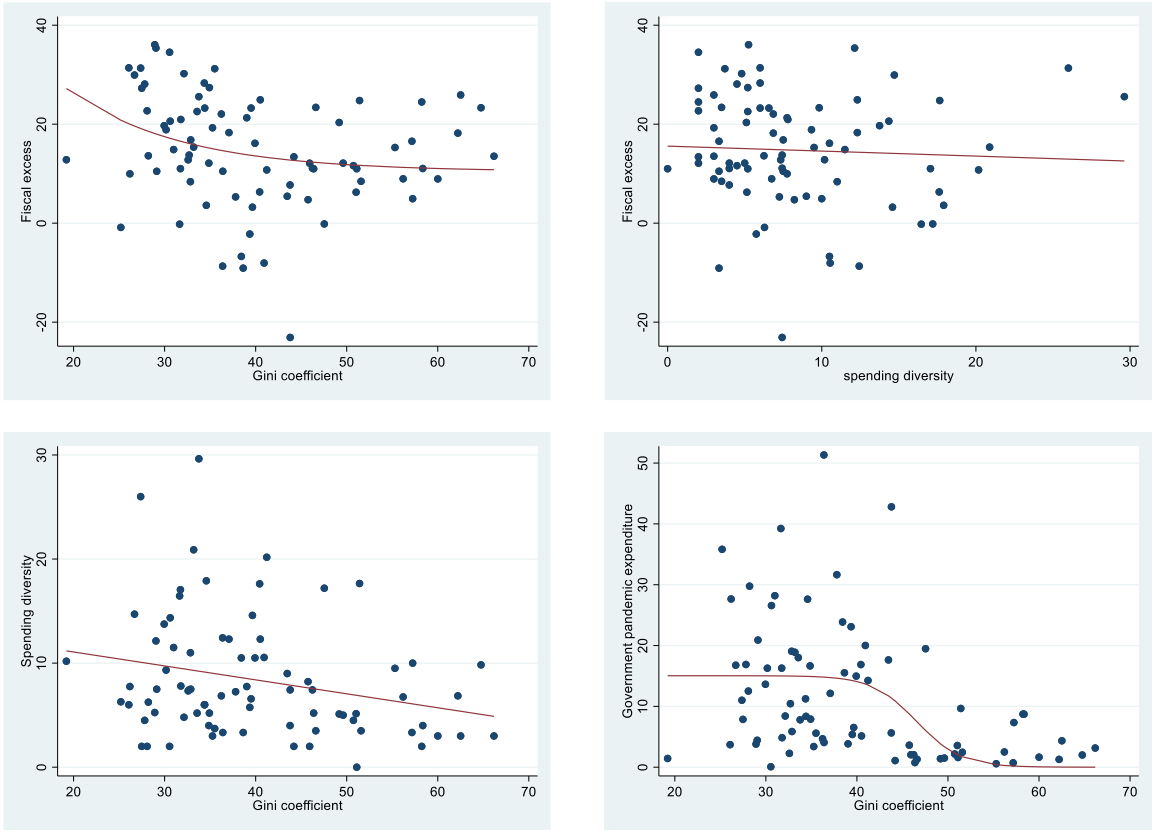
Income groups	Spending diversity			Gini latest since 2015			Fiscal excess		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Low income	14	3.41	2.25	11	53.8	3.9	17	9.9	6.5
Lower-middle income	41	5.93	3.47	33	47.9	10.6	33	13.7	9.7
Upper-middle income	40	6.63	4.31	34	42.7	9.5	40	13.3	13.4
High income	50	9.48	6.85	38	32.7	5.5	46	17.2	11.3
Total	145	7.10	5.34	116	42.0	11.0	136	14.3	11.4

Source: author's construction based on UNESCWA (2021) and UNU-WIDER (2021a, b).

When looking at the sample of 80 countries for which all three metrics are available, some associations occur. Inequality seems to influence fiscal excess, spending diversity, and government pandemic expenditure overall (see Figure 3). While fiscal excess is high for countries with low inequality, there seems to be a decline in rising inequality; however, this flattens out once Gini coefficients are larger than 45 (upper left quadrant). It is further noteworthy that some countries with Gini coefficients between 35 and 45 show negative values of fiscal excess, meaning that their

government pandemic expenditure exceeded total tax revenues.[8] Inequality also seems to be negatively correlated with spending diversity: the lower the inequality levels, the higher the diversity, and vice versa (lower left quadrant). In addition, countries with comparatively lower levels of inequality (a Gini coefficient of 40 or below) show higher levels of government pandemic expenditure which seem to drop more steeply once inequality exceeds a Gini coefficient of 40 and stabilize at a low level for countries with high inequality (Gini coefficient of 50 or above; see lower right quadrant). Lastly, fiscal excess does not seem to have a strong association with spending diversity. This means that whether governments have a larger fiscal capacity after deducting expenses from tax revenues does not necessarily influence the size of or the variety within their policy portfolios.

Figure 3: Associations between key metrics—inequality, fiscal excess, spending diversity, and government expenditure



Source: author's own illustration based on UNESCWA (2021) and UNU-WIDER (2021a, b).

[8] This could apply to countries which have a higher share of non-tax revenues, which may have been used to finance pandemic expenditures.

5.3 From overachieving to constrained capacity: political and fiscal feasibility across country clusters

The associations between fiscal excess, spending diversity, and inequality as discussed above are then also reflected in the formation of clusters. However, through the clustering algorithm, groupings can reflect a three-fold co-occurrence. Further, they enable a broad distinction according to the rationales of fiscal and political feasibility.

Table 7 summarizes the key statistics across clusters. Clusters 1, 2, and 4 are characterized by comparatively low levels of inequality. Clusters 1 and 3 depict smaller and less-diverse policy portfolios which are matched against high (in case of cluster 1) and average (cluster 3) fiscal excess. Cluster 4 stands out for its comparatively greater and more-diverse policy portfolios compared with clusters 1 and 3; however, it shows on average negative fiscal excess, meaning that pandemic expenditures generally exceed total tax revenues. Cluster 2 appears to be a basket of countries with particularly large and diverse policy portfolios. Average, inequality levels are low, and fiscal excess is high compared with the sample average.

From a feasibility perspective, clusters 1, 2, and 3 would be considered fiscally feasible given their high or average fiscal excess on average. Clusters 1 and 3 would be considered politically feasible (low inequality matched with average spending diversity), as would cluster 2 (low average inequality matched with high spending diversity). Clusters 1 and 2, fulfilling both fiscal and political feasibility, could thus be considered feasible overall and therefore perhaps provide blueprints for countries within these clusters in rolling out future crisis response. Cluster 2 could even be labelled an overachieving one in terms of political feasibility, as low levels of inequality are matched with exceptionally large and diverse policy portfolios. However, it is worth looking more closely at the clusters.

Table 7: Clusters across spending diversity, inequality, and fiscal excess

Cluster	N	Gini		Spending diversity		Fiscal excess	
		Mean	SD	Mean	SD	Mean	SD
1	35	32.1	4.6	7.3	3.6	21.8	7.6
2	6	36.4	8.6	21.9	4.9	19.8	8.6
3	23	53.7	6.8	4.7	2.6	13.9	6.0
4	16	38.5	5.6	11.0	4.6	−1.4	8.1
Total	80	39.9	10.8	8.4	5.7	14.7	11.3

Source: author's construction based on UNESCWA (2021) and UNU-WIDER (2021a, b).

When mapping countries across key metrics, similarities in groupings become more obvious (see Appendix A, Figures A1 to 3). The overachiever cluster (cluster 2, red) consists of countries which differ vastly in inequality levels. Brazil's Gini coefficient stands at 54 while Finland's is measured at 27. What these six countries (the Republic of Korea, Canada, Finland, the United Kingdom, the United States, and Brazil) have in common is that they generally score higher on spending diversity (and thus political feasibility) compared with the rest of the countries. The third cluster (green) shows a grouping of countries with high inequality levels and smaller and less-diverse policy portfolios. It comprises primarily developing countries and the emergent economy Mexico.

Table 8: Income groups and cluster allocations

Income groups	Cluster ID				
	1 Feasible	2 Feasible	3 Non-feasible	4 Non-feasible	Total
Low income	0	0	4	1	5
	0.00	0.00	80.00	20.00	100.00
Lower-middle income	3	0	11	2	16
	18.75	0.00	68.75	12.50	100.00
Upper-middle income	7	1	7	7	22
	31.82	4.55	31.82	31.82	100.00
High income	25	5	1	6	37
	67.57	13.51	2.70	16.22	100.00
Total	35	6	23	16	80
	43.75	7.50	28.75	20.00	100.00

Source: author's construction based on UNESCWA (2021) and UNU-WIDER (2021a, b).

Interestingly, clusters cut across income groups (see Table 8). Cluster 3 (high inequality, small policy portfolios, average fiscal excess) primarily includes LICs and LMICs (a total of 15 out of 23). Further, the majority of both LICs[9] and LMICs sit in either the non-feasible clusters 3 and 4 (all LICs and more than 80 per cent of LMICs). UMICs are more evenly spread across clusters; however, a combined majority (about 64 per cent) sit within non-feasible clusters. Only HICs show a majority in feasible clusters (about 81 per cent).

Based on these three criteria (inequality, fiscal excess, and policy portfolios), notable inequalities become evident in countries' capacity to respond to crises. While this in itself is an expected finding, it is interesting to see that some countries score consistently lower in their fiscal capacity and spending portfolios, particularly poorer countries, whereas richer economies were able to either roll out larger and more diverse policy efforts (clusters 2 and 4) or retain the fiscal capacity to do so (cluster 1). While these insights are generated on a high level, they also stress that pandemic relief and the institutional learning from it are affected by inequalities across levels of development. The applicability and potential spill-over effects in policy adoption across such divides are also limited, as the starting point may differ vastly across countries of different income groups.

5.4 Crisis response in the wider political economy

This section provides a brief comparison of the two indices discussed in Section 3 that stem from the V-Dem project. This comparison is not exhaustive, as the primary focus of this study is to provide a holistic overview of crisis response and first clusters that emerge considering inequalities, spending patterns, and fiscal space. However, the equal distribution of resource indexes is relevant, as it speaks closely to idea of spending diversity amid inequality but provides this information considering the welfare state more broadly and thus beyond crisis response.

Concerning the equal distribution of resources, the first cluster stands out as having the highest average and thus more-equal distribution of resources (see Table 9). The equality of resources index further varies significantly across clusters (see Appendix C for equality of means testing). Recall that this cluster comprises mostly HICs with low inequality, high fiscal excess, and slightly

[9] Due to data availability, less can be said about low-income countries, as it was only possible to include five in the clustering exercise.

lower than average spending diversity. The second and smallest cluster, comprising an interesting set of countries that converged due to high spending diversity, also shows a generally higher level of equal distribution of resources, supporting an egalitarian democracy. Interestingly, the cluster with the lowest spending diversity and highest inequality levels on average also shows the lowest score on the equal resource distribution index. Taken together, high resource inequality and low spending diversity in crisis response could lead to greater inequalities in the long term in these countries, as resource inequality often undermines the ability of the marginalized to meaningfully participate in politics. The considerably lower levels of crisis response (on average 38 policies), which are less diversified, could be more likely to result in coverage gaps, leaving behind those in need, or those with politically unrecognized needs.

Table 9: Some measures of the political economy across clusters

Cluster ID	Total policies		Equal distribution of resources		Particularistic/public goods spending	
	Mean	SD	Mean	SD	Mean	SD
1	48.4	20.9	0.83	0.15	1.26	0.97
2	85.6	14.3	0.76	0.22	1.43	0.62
3	38.0	18.1	0.45	0.22	0.98	0.97
4	49.2	16.6	0.76	0.22	1.02	1.1

Source: author's construction based on UNESCWA (2021) and UNU-WIDER (2021a, b).

Closely related is the index on particularistic versus public-goods spending. This index generally follows a rationale which assesses whether government spending is more clientelist or supports more common goods that benefit everyone within a society. In addition to the equality of resource distribution index, it thus complements spending diversity in terms of not only how much different members of society receive but also who tends to benefit. The average values observed across clusters do not differ significantly. Yet, as with the equality of resource distribution, the lowest score is observed for cluster 3, implying that government spending tends to be more particularistic whereas in all other clusters, public-goods spending is comparatively higher. It could be argued that if these more particularistic forms of spending paired with lower spending diversity primarily target the poor, it could be seen as a form of effective crisis response. Yet it has been found that a higher extent of particularistic spending often coincides with negative effects on the development of the welfare state and governance quality in the long run (Lo Bue et al. 2021). This does not necessarily set up good institutional foundations and state capacity for ad hoc crisis response.

6 Conclusion

This study set out to use a data-driven approach to finding convergence across countries and their fiscal response to the pandemic. Through a fiscal contract lens, it was primarily interested in mapping ad hoc expansions on the expenditure side against steady revenue collections, particularly the levels of revenue collection that existed prior to the pandemic. Based on a notion of 'who pays' and 'who benefits', it defined fiscal and political feasibility, addressing (1) fiscal space on the collection side and (2) spending diversity amid existing inequality levels on the spending side of the fiscal contract. In addition, it briefly compared the patterns of crisis response across broader measures of the political economy, particularly the equality of resource distribution and particularistic versus public-goods spending index.

The analysis does not come without limitations. First, both fiscal and political feasibility were defined on a more abstract and generic level in order to capture broad patterns across countries and at a global level. This comes at the expense of drawing on more specific measures that can more adequately reflect domestic revenue composition and establish a direct link between taxpayer and social spending, e.g. by using personal income tax statistics. With data availability being lower

for more-specific tax components, more-aggregate measures were chosen to obtain a breadth of information across countries. Second, the assumption that spending diversity will be positively correlated with inequality levels can be contested. One could equally argue that more-specific and targeted measures, and thus fewer and more-effective policies, may tackle inequality more efficiently. Given the high-level nature of this analysis, it would not have been feasible to determine the type and bundle of targeted measures for each country, and the specificities of inequalities and vulnerable population groups can vary across countries. Accordingly, the assumption was adopted that more-holistic approaches are more likely to also capture existing inequalities and vulnerable population groups,. Spending diversity additionally resonated with the resource equality index, suggesting that the way it has been measured resonates with the extent to which resources are equally distributed in a given country. A further analysis which looks at country specifics more closely could be an interesting complement to verify this assumption. Third, the analysis is limited in terms of data availability and disaggregation of measures. While the COVID-19 Stimulus Tracker provides great detail about pandemic relief, such information might be more comprehensive for some countries than others. In addition, disaggregated tax components have a lower availability in the GRD dataset. Overall, data availability is especially lower for poorer economies, which restricts insights into this particular group of countries. Fourth, the key matrices used to establish clusters across countries are chosen in line with the focus on political and fiscal feasibility. However, other or additional metrices could be included, such as prior public spending levels, more-specific patterns of government spending, or welfare financing gaps, to expand the analysis further.

In sum, the analysis demonstrated that the capacity of countries to respond to crises differed vastly across levels of development. This holds true when looking at particular revenue or policy components more closely as well as when clustering countries across such components. LICs persistently ranked lower in pandemic expenditure, number of policies implemented, whether they were supported or financed by government, and spending diversity. While fiscal excess (tax revenue net of government pandemic expenditure) also shows the lowest values for LICs, the differences are not as pronounced in comparison with other country groups. This may be because overall spending on crisis response was lower. While overall domestic non-tax and tax revenues are also lower in LICs (on average 12 per cent of GDP, with 31 per cent in HICs), the share of tax revenue differed less notably (65 per cent, with 78 per cent in high-income countries). Hence it might also reflect different spending priorities of tax revenue during crises across income groups.

To conclude, when considering recent crisis responses as experimental policy designs, a country's capacity to do so in terms of fiscal and political capacity, increases the chance that valuable lessons can be learned from current crises response. However, this seems to hold true mainly for HICs, whereas a majority of low-income, lower-middle income, and upper-middle income countries experienced non-feasible approaches in terms of fiscal capacity, political feasibility, or both. In order to see whether this holds true, it would be important to (1) assess the effectiveness of different policy portfolios over time, taking policy duration and target populations into account, and (2) revisit whether more-comprehensive approaches outperform more-specific ones in the long run by including, for example, comparisons across means-tested versus universalist policies.

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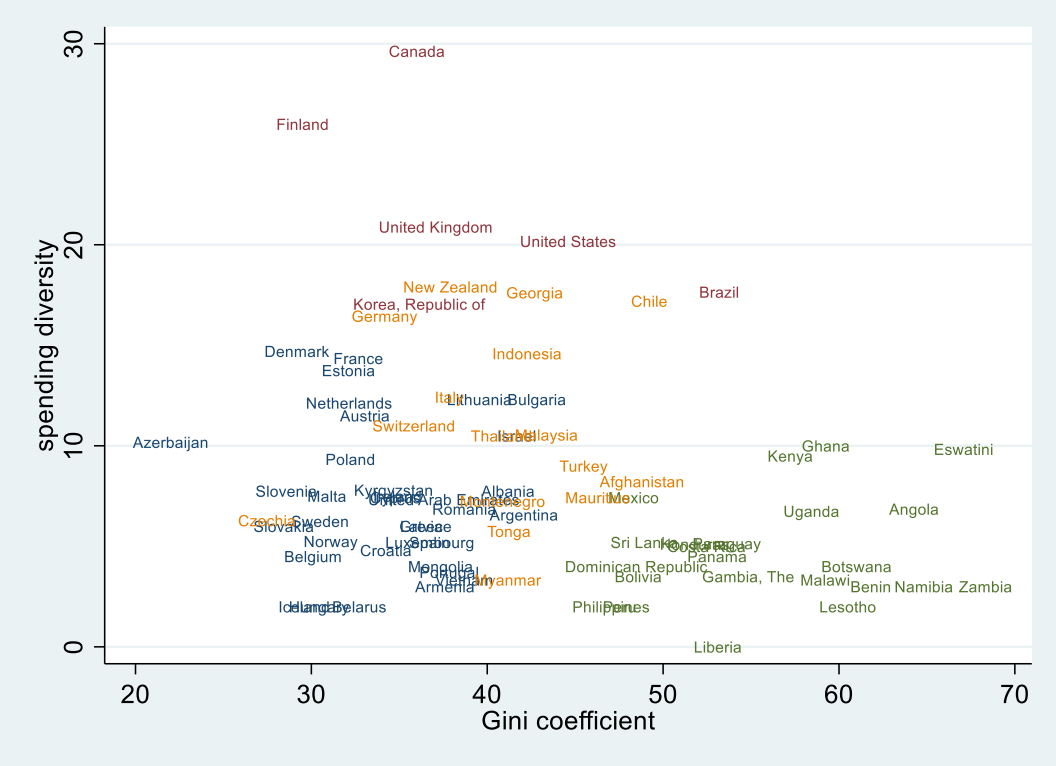
Appendix A: Clustering outcomes across key statistics

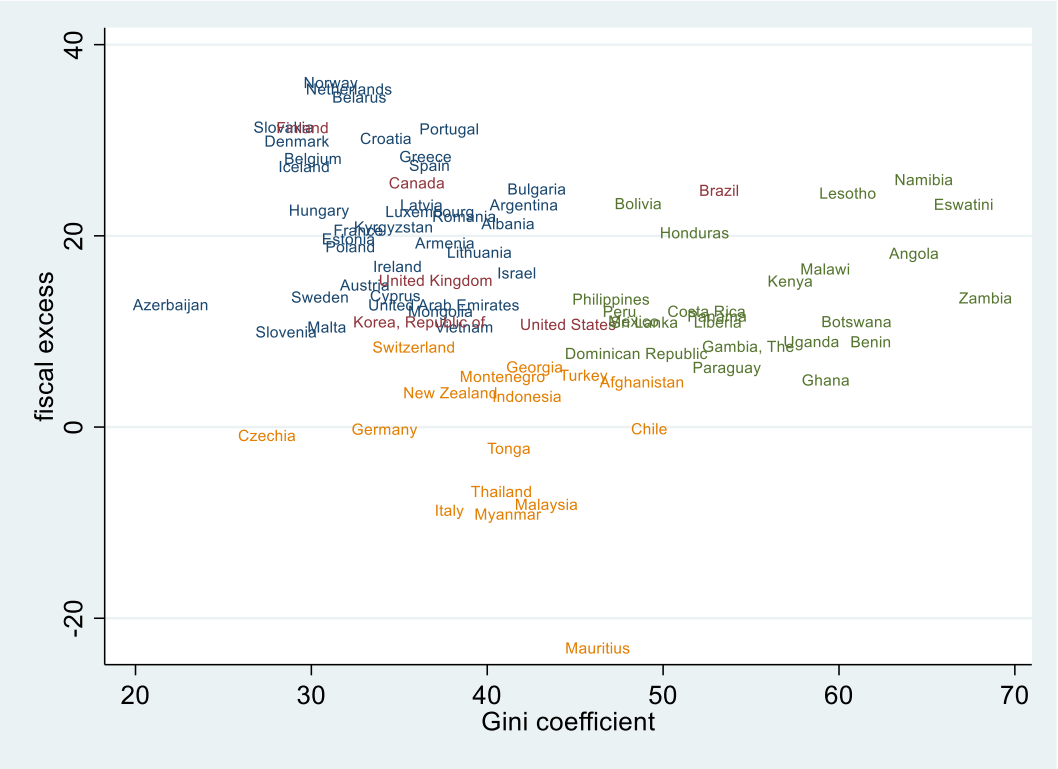
Cluster 1: blue (non-feasible), cluster 2: red (feasible), cluster 3: green (non-feasible), cluster 4: yellow (feasible)

Figure A1: Clustering groups across spending diversity and Gini coefficient



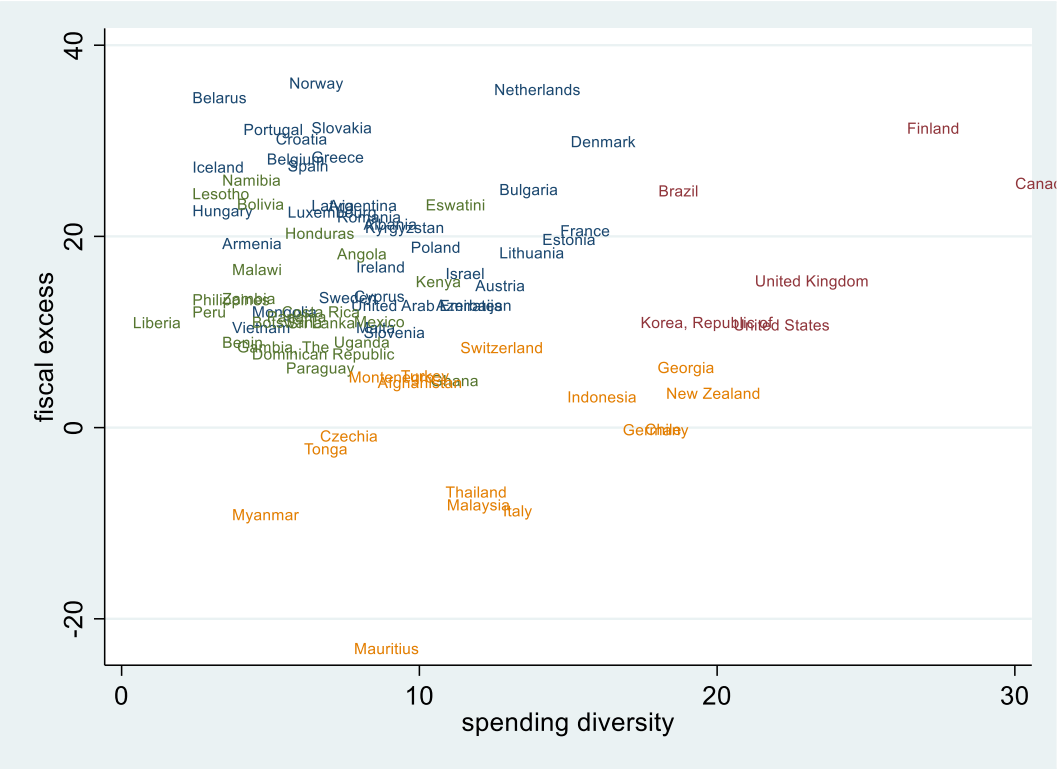
Source: author's construction based on UNESCWA (2021) and UNU-WIDER (2021a, b).

Figure A2: Clustering groups across fiscal excess and Gini coefficient



Source: author's construction based on UNESCWA (2021) and UNU-WIDER (2021a, b).

Figure A3: Clustering groups across fiscal excess and spending diversity



Source: author's construction based on UNESCWA (2021) and UNU-WIDER (2021a, b).

Appendix B: Country lists by cluster

Table B1: Countries by cluster

Country	Fiscal excess	Gini coefficient	Spending diversity	Cluster ID
Poland	18.88548	30.162706	9.333333	1
Romania	22.06143	36.230464	6.857143	1
Croatia	30.21309	32.127419	4.8	1
Argentina	23.26174	39.496716	6.571428	1
Albania	21.29799	39.024142	7.75	1
Lithuania	18.30255	37.070315	12.30769	1
Azerbaijan	12.81997	19.209714	10.18182	1
Belgium	28.11239	27.811587	4.5	1
Estonia	19.70108	29.951737	13.75	1
Bulgaria	24.92546	40.506308	12.30769	1
Belarus	34.53547	30.545967	2	1
Vietnam	10.49147	36.392115	3.333333	1
Austria	14.8739	30.986736	11.5	1
Iceland	27.27109	27.482611	2	1
France	20.61506	30.615816	14.35294	1
Latvia	23.2537	34.406863	6	1
Greece	28.31682	34.358876	6	1
Mongolia	12.13229	34.857844	4	1
Norway	36.05787	28.917443	5.25	1
Kyrgyzstan	20.95332	31.781328	7.8	1
Denmark	29.93318	26.692551	14.70588	1
United Arab Emirates	12.7986	32.585032	7.333333	1
Cyprus	13.76238	32.693527	7.428571	1
Netherlands	35.38153	29.048285	12.13333	1
Sweden	13.61804	28.210621	6.25	1
Armenia	19.27532	35.258977	3	1
Ireland	16.82695	32.868292	7.5	1
Spain	27.39505	34.916086	5.2	1
Israel	16.14386	39.924279	10.5	1
Slovenia	9.974069	26.184397	7.75	1
Hungary	22.70675	28.075117	2	1
Slovakia	31.3889	26.070892	6	1
Luxembourg	22.56194	33.566688	5.2	1
Malta	10.48387	29.132204	7.5	1
Portugal	31.20702	35.504339	3.714286	1
Canada	25.56466	33.764666	29.63158	2

Brazil	24.78199	51.410642	17.65217	2
United States	10.76088	41.218322	20.17391	2
United Kingdom	15.36787	33.189502	20.88889	2
Finland	31.3392	27.368957	26	2
Korea, Republic of	11.01898	31.736352	17.05263	2
Kenya	15.29181	55.300461	9.5	3
Gambia, The	8.461217	51.576098	3.5	3
Lesotho	24.48774	58.239868	2	3
Costa Rica	12.13195	49.606526	5	3
Liberia	11.00182	51.105073	0	3
Namibia	25.90536	62.51434	3	3
Benin	8.942885	60.007085	3	3
Honduras	20.34827	49.17356	5.111112	3
Malawi	16.55642	57.163676	3.333333	3
Botswana	11.04693	58.35806	4	3
Sri Lanka	10.98953	46.371423	5.2	3
Ghana	4.941655	57.243766	10	3
Paraguay	6.258225	51.033304	5.142857	3
Dominican Republic	7.722001	43.776026	4	3
Uganda	8.96551	56.197964	6.75	3
Panama	11.62219	50.738732	4.5	3
Eswatini	23.32026	64.753055	9.833333	3
Peru	12.12018	45.927036	2	3
Angola	18.19644	62.209997	6.857143	3
Mexico	11.10667	46.238318	7.428571	3
Philippines	13.40069	44.19875	2	3
Bolivia	23.39553	46.60649	3.5	3
Zambia	13.52619	66.176109	3	3
Malaysia	−8.058335	40.928155	10.54545	4
Turkey	5.444186	43.466514	9	4
Switzerland	8.384557	32.833594	11	4
Czechia	−0.8552407	25.191934	6.285714	4
Chile	−0.155982	47.539517	17.2	4
Afghanistan	4.740963	45.754728	8.222222	4
Thailand	−6.717975	38.425419	10.5	4
New Zealand	3.611288	34.580764	17.90909	4
Myanmar	−9.084679	38.63045	3.333333	4
Italy	−8.679677	36.373173	12.42857	4
Montenegro	5.313125	37.796886	7.25	4
Georgia	6.307705	40.437088	17.61905	4

Germany	-0.2018284	31.647363	16.45454	4
Tonga	-2.197168	39.35758	5.75	4
Indonesia	3.234536	39.645194	14.58824	4
Mauritius	-23.08595	43.791713	7.428571	4

Source: author's construction based on UNESCWA (2021) and UNU-WIDER (2021a, b).

Appendix C: Equality in means test

Table C1: Equality of means test across clusters: equal distribution of resources index

Test	Statistic	F	Prob >F
Wilk's Lambda	0.559	19.17	0.000
Pillai's Trace	0.441	19.17	0.000
Lawley-Hotelling trace	0.788	19.17	0.000
Roy's largest root	0.788	19.17	0.000

Source: author's construction based on UNESCWA (2021) and UNU-WIDER (2021a, b).

Table C2: Equality of means testing across clusters: particularistic versus public-goods spending

Test	Statistic	F	Prob >F
Wilk's Lambda	0.976	0.61	.6133
Pillai's Trace	0.024	0.61	.6133
Lawley-Hotelling trace	0.025	0.61	.6133
Roy's largest root	0.025	0.61	.6133

Source: author's construction based on UNESCWA (2021) and UNU-WIDER (2021a, b).