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Evaluating the effectiveness of labor market interventions on reducing the impacts of the COVID-19 pandemic

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Abstract

This paper evaluates whether different labour market policy interventions taken in response to the COVID-19 pandemic have been effective in reducing its adverse impacts. We construct a database covering 165 countries and 39 labour market interventions grouped into four pillars: stimulating the economy and jobs, supporting enterprises, employment, and incomes, protecting workers, and social dialogue. The finding is that measures taken under pillars 1, 2 and 3 have reduced the impacts of the pandemic on economic growth, pillar 4 measures were significantly associated with reducing its impacts on employment and pillar 2 measures with lessening its impacts on working hours.

Keywords: Pandemic, labor market measures, cross-country analysis

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1. Introduction

The coronavirus (COVID-19) outbreak emerged in Wuhan, China, in December of 2019 and still persists globally. The COVID-19 pandemic has spread to 213 countries and territories, causing more than 210 million cases and 4.75 million deaths as of the end of September 2021. In addition to human suffering and loss of lives, the outbreak generated a major global economic downturn. Almost all economies, including the world's largest ones, have been affected negatively with mass layoffs, deepened economic inequality and social stratification (Avgar et al., 2020), as well as radical changes in traditional work arrangements due to quarantine arrangements (Hodder, 2020). According to estimates by the International Labor Organization (ILO), 81 percent of the world's workforce witnessed the full or partial closure of their workplaces (ILO, 2020b) at some point during the pandemic. To mitigate the negative effects of the pandemic on the economy, governments have adopted economic packages, including fiscal, monetary, and financial policy measures. These economic measures targeting households, firms, and health systems vary across countries in breadth and scope, however, overall, according to Elgin, Basbug and Yalaman (2020) the average size of the packages is unprecedented in the economic history of the world.

The aim of this paper is to evaluate the effectiveness of these economic packages/different labour market interventions in mitigating the impacts of the COVID-19 pandemic and whether the pandemic has had a greater impact on some countries rather than others. To assess the labour market interventions taken in 165 countries globally, the ILO have been tracking the labour market measures taken by governments' across four pillars: 1) Stimulating the economy and jobs (e.g., financial support to sectors including the healthcare sector), 2) supporting enterprises,

employment, and incomes (e.g., extending social protection, implementing employment retention policies), 3) protecting workers in the workplace (e.g., expanding access to paid leave, strengthening health and safety measures), and 4) using social dialogue between governments, employers, and workers (e.g., tripartite meetings). Examining whether countries had adopted the 39 labour market measures under these four pillars, this paper evaluates whether this influenced the impacts of the pandemic on the labour market of countries, measured here in terms of annual GDP growth, working hours and employment participation rates.

This will reveal that richer countries generally have adopted a wider set of labour market measures and that this lessened the impact of the pandemic on growth rate performance in these countries. Breaking down whether different sets of labour market measures were effective at reducing the negative impacts of the pandemic, the finding is that pillars 1 (measures to stimulate the economy and jobs), 2 (measures to support enterprises, employment, and incomes) and 3 (measures to protect workers in the workplace) were more relevant for mitigating the impact of the pandemic on growth rate performance. Meanwhile, pillar 4 (social dialogue) is significantly associated with mitigating the impacts of the pandemic on employment participation rates. As might be expected, pillar 2 (measures to support enterprises, employment, and incomes) was significantly associated with mitigating the impacts of the pandemic on working hours; less working hours were lost during 2020.

To do this, the paper is structured as follows. The next section reviews economic impact of the pandemic and the adopted policy responses. Section three outlines the data used and empirical methodology adopted. The fourth section then presents the empirical results on the degree to which these labour market interventions have been adopted followed in section five by an evaluation of which labour market interventions were effective at reducing the negative

impacts of the pandemic on growth, working hours and employment. The final section draws conclusions and discusses the implications for future shocks.

2. Economic impacts of the COVID-19 pandemic and policy responses

Across the world, countries have engaged in labour market policy interventions to try to limit the impacts of the pandemic on their economies. These economic interventions targeting households, firms, and health systems have varied across countries in breadth and scope. For example, South Korea introduced cash transfers for quarantined individuals, consumption coupons for low-income households, and wage and rent support for small businesses. Germany expanded access to short-term work subsidies, increased childcare benefits for low-income parents, and provided grants to small business owners and self-employed persons affected by the outbreak. The United Kingdom provided funding for the health service, introduced measures to support businesses including property tax holidays, direct grants for small firms, and introduced for workers employment retention schemes and strengthened the social safety net to support vulnerable groups. Some countries, such as Spain, Singapore, and Turkey banned worker dismissal.

Some efforts have been made since the beginning of the pandemic to keep track of governments' responses in macroeconomic policy (Elgin, Basbug, and Yalaman, 2020) and in non-pharmaceutical public health controls (Hale et al., 2020). On the issue of policy interventions to lessen the impact of COVID-19 on businesses, jobs and the most vulnerable in society, the ILO Policy Tracker website has documented the policy measures taken by governments' across four pillars: 1) stimulating the economy and jobs (e.g., financial support to sectors including the healthcare sector), 2) supporting enterprises, employment, and incomes

(e.g., extending social protection, implementing employment retention policies), 3) protecting workers in the workplace (e.g., expanding access to paid leave, strengthening health and safety measures), and 4) using social dialogue between governments, employers, and workers (e.g., tripartite meetings). Table 1 documents 39 policy measures that can be identified under these four pillars of action identified by the ILO.

Table 1. Labour market policy measures documented by ILO Policy Tracker

Pillar 1: Stimulating the economy and jobs

1- Provision of cheap and easy-to-get loans to Businesses
2- Financial Support to the Healthcare Sector
3- Provision of cheap and easy-to-get loans to consumers
4- Loan Deferrals and Guarantees to Businesses and Consumers
5- Business Licensing Facilitation

Pillar 2: Supporting enterprises, employment and incomes

1- Price Controls of Necessities including Foods
2- Support to the Higher Education Sector
3- Support to Workers with Disabilities
4- Support to the Care of the Aged
5- Childcare Support
6- Rent and Mortgage Support/Deferrals
7- Public Job Creation
8- Support for the Self-Employed
9- Support for the Retired and Pensioners

10- Enhanced Unemployed Benefit

11- Employment Retention Policies

12- Policies towards the Informal Sector

13- Social Protection Packages

14- Reduction and deferrals in social security payments and fees

15- Induced change in production lines

16- Prohibition of Worker Dismissal

17- Tax cuts and Exemptions

18- Child Support

19- Basic Food Support

20- Other direct support for different sectors incl. agriculture

21- New healthcare employment

22- Support for utilities

23- Direct salary subsidy

Pillar 3: Protecting workers in the workplace

1- Support for communication

2- New work arrangements incl. remote work practices

3- Enhanced sick day leave

4- Enhance paid and unpaid leave policies

5- Penalties for employers not complying with measures

6- Prevention of discrimination and exclusion

7- Enhanced access to healthcare system

8- PPE provision to workers

9- Enhancement of other health and safety measures

10- Increased incentives to healthcare workers

Pillar 4: Using social dialogue between government, workers and employers to find solutions

1- Tripartite consultation with employers and unions

Our pillars of action are defined by the ILO to lessen the impact of COVID-19 on businesses, jobs and the most vulnerable members of society.

3. Data and methodology

This paper has analysed the ILO Policy Tracker to identify in each country whether each of these 39 policy measures have been adopted or not. Based on this, what is here referred to as an ILO Labour Market Intervention Index has been constructed.[4] For instance, in the pillar 2 category of supporting enterprises, employment, and incomes, to create a variable entitled employment retention, it has been coded "1" if the country introduced an employment retention policy, "0" if such a policy has not been introduced. As another example, within the category of protecting workers in the workplace, we coded "1" if the country has introduced a paid leave policy and "0" if such policy has not been introduced. The outcome is that the above 39 distinct variables have been generated (5 variables for stimulating the economy and jobs, 23 variables for supporting enterprises, employment, and incomes, 4 variables for protecting workers in the workplace, and 1 variable for social dialogue).

[4] We also used an alternative method of creating this index using a principle component analysis. Our results do not change qualitatively when this alternative method is used.

Having collated the policy measures taken in each country, the next step has been to use other publicly available datasets (ILO, OECD, ourworldindata.org) to enable a comparison of how the adoption of these responses to COVID-19 differ firstly, according to the level of infection and particular country level characteristics, namely GDP per capita (World Development Indicators, 2020), the size of the informal sector (Elgin et al., 2019), unemployment rate (World Development Indicators, 2020) and the stringency index (Hale et al, 2020) . Secondly, a comparison was made between the adoption of these responses to COVID-19 and the level of economic growth, working hours and employment to see which measures lessened the impact of the pandemic on growth, working hours and employment. Table 2 provides the definition of all the variables as well as their sources.

Table 2. Data Definitions

Variable	Definition	Source
ILO Index	An index of measures towards COVID-19	Author's own calculations using ILO Data
Pillar 1	Stimulating the economy and jobs	Author's own calculations using ILO Data
Pillar 2	Supporting enterprises, employment and incomes	Author's own calculations using ILO Data
Pillar 3	Protecting workers in the workplace	Author's own calculations using ILO Data
Pillar 4	Using social dialogue between government, workers and employers to find solutions	Author's own calculations using ILO Data
Infection rate	Infection Rate (% Population)	John Hopkins University
GDP per-capita	Real GDP per-capita (000 USD) in 2019	WDI
Informal Sector	Informal sector size (% GDP) in 2019	Elgin et al. (2019)
Unemployment	Unemployment rate in 2019, total (% of total labor force)	WDI
Stringency Index	COVID-19 Government Response Tracker	Hale et. al. (2020)
Growth	Annual GDP growth in 2020	Haver Analytics
LFPR Diff	The difference between 2020 and 2019 labor force participation rate	ILO
WHL	Working hours lost due to the COVID-19 (%)	ILO
Growth in 2019	Annual GDP growth in 2019	Heritage Foundation
LFPR in 2019	Labor force participation rate (2019)	ILO

Next, Table 3 presents descriptive summary statistics of all variables used in the analyses. In both tables, the top five rows include the ILO index and then its four pillars. Then come several explanatory variables that are used in the regressions of these policy measures. These are the COVID-19 infection rate (total COVID-19 infections as % of population), real GDP per-capita (pre-pandemic level at the end of 2019), informal sector size as % of GDP, unemployment rate, and the government stringency index as a measure of stringency measures taken by governments. We hypothesize that these variables are comprehensive enough to account for the variation in the labor market policy measures governments have taken during the pandemic.

Finally, we also present the data series that will be used in subsequent system estimations, which will help us to evaluate the impacts of these policy measures on three outcome variables. These outcome variables are, the percentage growth rate of GDP in 2020, the difference between the labor force participation rate in 2020 and the one in 2019 and a measure of working hours lost in 2020. We believe that the growth rate and the two labor market variables are good indicators of economic performance during the pandemic year.

Figure 1 provides a global heat map of the index we created and Figure 2 presents its correlation with real GDP per-capita in a scatter plot diagram.

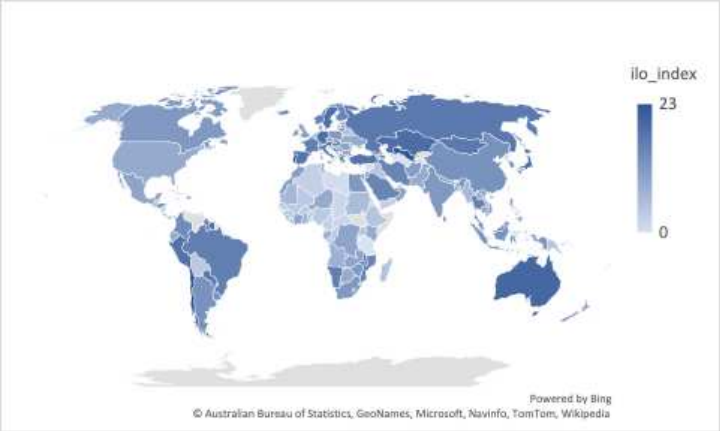

Figure 1. ILO Index across the World

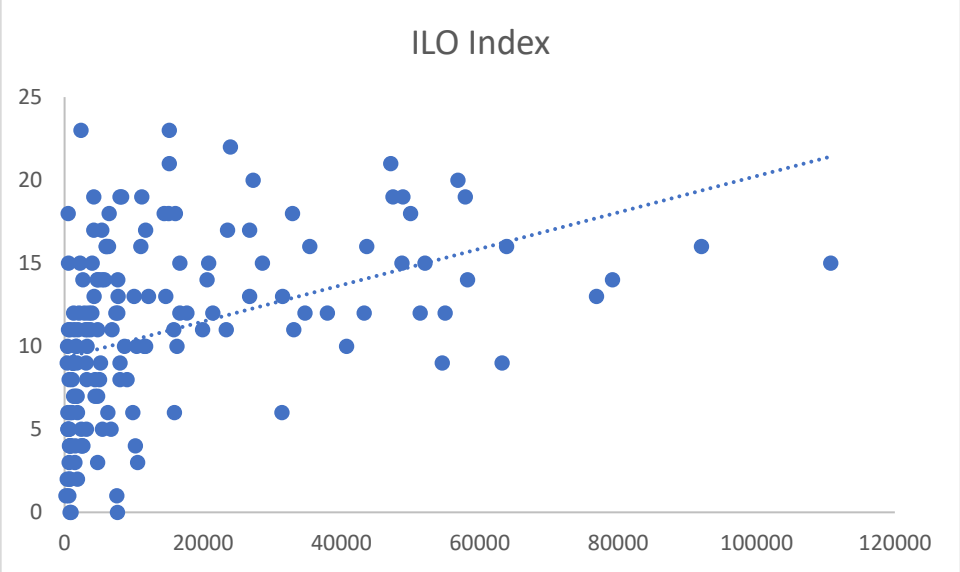

Figure 2. ILO Measures Index vs. GDP per-capita

Figure 1 illustrates that there is a significant variation in the global distribution of the extent of the overall measures. Moreover, according to Figure 2 there is a significant correlation (0.4118) between GDP per-capita and the index of adopted measures.

Table 3. Descriptive Summary Statistics

Variable	Mean	Median	Std. Dev.	Minimum	Maximum	Observations
ILO Index	10.77	11.00	5.42	0.00	23.00	165
Pillar 1	1.95	2.00	1.14	0.00	5.00	165
Pillar 2	5.49	5.00	3.32	0.00	15.00	165
Pillar 3	2.88	3.00	1.73	0.00	7.00	165
Pillar 4	0.46	0.00	0.50	0.00	1.00	165
Infection Rate	2.54	1.49	2.85	0.001	12.66	156
GDP per-cap	14.82	6.04	20.19	0.21	110.74	160
Informal Sector	26.51	26.00	11.72	5.02	58.01	163
Unemployment	6.77	5.00	5.08	1.00	28.00	163
Stringency Index	83.62	87.04	14.20	16.67	100	156
Growth in 2020	-4.69	-3.90	7.78	-59.70	43.40	165
Difference in LFPR	-2.00	-2.00	1.87	-13.00	1.00	163
WHL in 2020	9.09	9.00	5.02	0.00	28.00	163
Growth in 2019	3.37	3.20	2.66	-5.70	17.90	163
LFPR in 2019	62.54	62.00	10.23	38.00	87.00	163

Our empirical methodology consists of two steps. In the first step we regress the index of measures (and the pillars) on several explanatory variables. The primary explanatory variable we particularly want to look at is GDP per-capita. That is, we basically estimate the following equation:

$$Measure_i = \beta_0 + \beta_1 GDPcap_i + \sum_{k=2}^{n} \beta_k X_{k_i} + \epsilon_i$$

In this specification, for country i, we regress the policy measure (ILO index and the four pillars) on GDP per-capita and some control variables (denoted by X). u denotes the error term of the regression. Since ILO index (as well as the sub-measures of the four pillars) is an ordinal

variable and exhibits an ordered structure, we use the ordered logistic regressions as the estimation method here with robust standard errors.

Moreover, in the second step of our analysis, in addition to the regressions of the policy measures, we also provide additional estimation results to see the potential impacts of these measures. To this end, we regress the following system using a systems estimation approach:

$$Outcome_i = \beta_0 + \beta_1 Measure_i + \sum_{k=2}^{n} \beta_k X_{k_i} + u_i$$

$$Measure_i = a_0 + a_1 GDPcap_i + v_i$$

In this specification, for country i, we regress the policy outcome measure on the policy measure index and some control variables (denoted by X). Simultaneously, we also regress the policy measure on GDP per-capita. Here, u and v denote the error terms of the regression equations

4. Results

In this section we report our estimation results.

Table 4. Regression Results

	(1)	(2)	(3)	(4)	(5)
VARIABLES	ILO Index	ILO Index	ILO Index	ILO Index	ILO Index
Infection Rate	0.2048***	0.1339**	0.1264**	0.1465**	0.1381**
	(0.0543)	(0.0537)	(0.0524)	(0.0638)	(0.0638)
GDP per-capita		0.0298***	0.0323***	0.0238**	0.0278**

		(0.0077)	(0.0080)	(0.0107)	(0.0118)
Informal Sector				-1.8829	-1.7516
				(2.0633)	(2.0914)
Unemployment			0.0376	0.0419	0.0382
			(0.0235)	(0.0257)	(0.0269)
Stringency Index					0.0240**
					(0.0115)
Observations	156	153	152	137	135
Pseudo R-squared	0.05	0.04	0.05	0.05	0.05
Wald chi-test (p-value)	0.00	0.0	0.00	0.00	0.00

All regressions include a constant. Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4 presents five regression results, where the dependent variable is the overall ILO index, we have constructed in the previous section. Here, we regress the ILO index on a number of variables including the COVID-19 infection rate, pre-pandemic level of GDP per-capita, informal sector size (as % GDP), unemployment (%), as well as the index of government stringency measures.

The table basically suggests three main results: First, given the significantly positive coefficient of GDP per-capita, richer countries adopted a larger set of measures towards the labor market. Second, given the significantly positive coefficient of the infection rate, countries with a higher infection rate adopted a larger set of measures towards the labor market Finally, we also observe that in countries, where the government stringency index was taking a larger value (implying more stringent policies) adopted a significantly (at 10% though) larger set of measures towards the labor market.

Next, in Tables 5 and 6 repeat the same analysis using the four sub-categories of the ILO index

that are denoted as Pillar 1, 2, 3, and 4 respectively. For the first three pillars we again use the ordered logistic estimator, whereas for the final pillar we simply use the logistic regression, Pillar 4 takes the value of 0 and 1 only 1. Regressions of the first two pillars are presented in Table 4 and regressions of the third and the fourth pillars are in Table 5.

Table 5. Regressions of Pillars 1 and 2

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Pillar 1	Pillar 1	Pillar 1	Pillar 2	Pillar 2	Pillar 2
Infection Rate	0.1492**	0.1316**	0.1340**	0.1701***	0.1588***	0.1544***
	(0.0602)	(0.0617)	(0.0632)	(0.0527)	(0.0527)	(0.0511)
GDP per-capita	0.0223***	0.0267***	0.0261***	0.0245***	0.0277***	0.0302***
	(0.0081)	(0.0091)	(0.0091)	(0.0072)	(0.0079)	(0.0080)
Stringency Index		0.0230**	0.0231**		0.0199	0.0178
		(0.0096)	(0.0097)		(0.0124)	(0.0123)
Unemployment			-0.0149			0.0536*
			(0.0288)			(0.0277)
Observations	153	151	150	153	151	150
Pseudo R-squared	0.05	0.06	0.06	0.04	0.05	0.05
Wald chi-test (p-value)	0.00	0.00	0.00	0.00	0.00	0.00

All regressions include a constant. Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6. Regressions of Pillars 3 and 4

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Pillar 3	Pillar 3	Pillar 3	Pillar 4	Pillar 4	Pillar 4
Infection Rate	0.0461	0.0247	0.0236	-0.1462**	-0.1405**	-0.1485**
	(0.0552)	(0.0550)	(0.0555)	(0.0695)	(0.0707)	(0.0716)
GDP per-capita	0.0181***	0.0213***	0.0214***	0.0400***	0.0401***	0.0424***
	(0.0066)	(0.0067)	(0.0069)	(0.0106)	(0.0112)	(0.0112)

Stringency Index		0.0207**	0.0201**		0.0020	0.0008
		(0.0090)	(0.0093)		(0.0126)	(0.0127)
Unemployment			-0.0041			0.0467
			(0.0296)			(0.0347)
Observations	153	151	150	153	151	150
Pseudo R-squared	0.02	0.02	0.02	0.07	0.07	0.08
Wald chi-test (p-value)	0.00	0.00	0.00	0.00	0.00	0.00

All regressions include a constant. Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In these two tables we observe that the estimated coefficient of GDP per-capita is significant in all regressions. This suggests that richer countries adopted a larger set of measures across all four pillars. Moreover, infection rate is significant in regressions of pillars 1, 2, and 4 but not in the one of the Pillar 3. This means that countries which are more exposed to the pandemic, adopted larger set of measures to stimulate the economy and job, to supporting enterprises, employment and incomes and used social dialogue between government, workers and employers to find solutions. We also observe that the strictness of the stringency measure is a significant predictor of pillar 1 (stimulating the economy and jobs. Moreover, countries which had a higher pre-pandemic level of unemployment rate in 2019 also adopted a larger set of measures indexed by pillar 2 (i.e., those which support enterprises, employment and incomes)

5. Impacts of the Policy Measures

This section evaluates whether the policy measures taken have lessened the impact of the pandemic on: (a) economic growth; (b) working hours and (c) employment participate rates. Tables 7-9 present the results. These provides two system estimations. As described earlier, the first estimation regresses an outcome variable (e.g., economic growth) to the ILO index or one of

the pillars of the index. The second estimation regresses the ILO index or one of the pillars on GDP per-capita using a three-stages least squares technique.

Table 7 examines the correlation between economic growth and the level of adoption of these policy measures. In the first column, it is revealed that there is a significant correlation between the level of GDP economic growth in 2020 and the ILO index; the wider the range of policy measures adopted, the greater has been the level of economic growth in 2020. The control variables used are the infection rate, GDP growth rate in 2019, the maximum level of government stringency measures taken during the pandemic, as well as regional dummies for the following regions: OECD-EU, Austral-Asia, Latin America, MENA, and post-socialist transition economies. In the second column, it is also revealed that richer countries with a higher GDP per capita adopted a significantly wider range of measures to mitigate the impacts of the pandemic. Interestingly, there is no significant correlation between the growth rate in 2020 and 2019. However, there is a significant correlation between the growth rate in 2020 and infection rate; countries with a higher infection rate had a significantly lower growth rate.

Table 7 Correlation between economic growth and range of mitigating policy measures used

VARIABLES	(1) Growth in 2020	(2) ILO_Index
ILO Index	0.3730***	
	(0.1375)	
Infection Rate	-0.5847**	
	(0.2928)	
Growth in 2019	-0.3163	
	(0.2494)	
Maximum Stringency	-0.0662	
	(0.0457)	

GDP per-capita		0.1049***
		(0.0187)
Observations	151	151
R-squared	0.10	0.17
Regional Dummies	YES	NO

All regressions include a constant. Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Overall, therefore, a wider range of policy measures mitigated the impacts of the pandemic on economic growth. Is it the case, however, that all these types of policy measure did so? To answer this, Table 8 examines whether there is a significant association between each of the four types of policy measure and the GDP growth rate in 2020. The finding is that out of the four pillars, pillars 1, 2 and 4 were significantly positively associated with the GDP growth rate in 2020. On the other hand, the coefficient of pillar 3 (i.e., measures to protect workers in the workplace) is not significantly associated with the GDP growth rate in 2020. Moreover, in line with Table 6, that richer countries with a higher GDP per capita adopted a significantly wider range of measures to mitigate the impacts of the pandemic across all these pillars, which were then relevant for the growth performance in 2020.

Table 8. Systems Estimations of Growth

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	Growth (2020)	Pillar 1	Growth (2020)	Pillar 2	Growth (2020)	Pillar 3	Growth (2020)	Pillar 4
Pillar 1	2.7530*							
	(0.5791)							
Infection Rate	-0.6506**		-0.5724**		-0.5701**		-0.5285*	
	(0.2883)		(0.2935)		(0.2917)		(0.2912)	
Growth in 2019	-0.3745		-0.3379		-0.3184		-0.3919	
	(0.2425)		(0.2495)		(0.2486)		(0.2488)	
Maximum Stringency	-0.0766*		-0.0593		-0.0657		-0.0628	
	(0.0444)		(0.0455)		(0.0454)		(0.0490)	

GDP per-capita		0.0178*		0.0610***		0.0199***		0.0062***
		(0.0041)		(0.0117)		(0.0064)		(0.0019)
Pillar 2			0.5526**					
			(0.2205)					
Pillar 3					1.7321***			
					(0.3656)			
Pillar 4							-1.3529	
							(1.2390)	
Observations	151	151	151	151	151	151	151	151
R-squared	0.13	0.11	0..08	0.15	0.03	0.06	0.14	0.06
Regional Dummies	YES	NO	YES	NO	YES	NO	YES	NO

All regressions include a constant. Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9 examines whether the adoption of these policy measures mitigated the impacts of the pandemic on employment participation rates and working hours. This table only reports the statistically significant correlations. The first two columns of Table 9 correspond to the system, where we use the difference between the labor force participation rates of 2020 and 2019 as the outcome variable of the first regression and the last two columns use working hours lost instead.

The first two columns indicate that the pillar 4 is relevant for differences in the labor force participation rate. That is, countries where governments used social dialogue more extensively experienced a larger difference between the labor force participation rates in 2020 and 2019, in the favor of the one in 2020. In addition to the Pillar 4, the labor force participation rate in 2019 and the stringency index are also significant predictors of this difference As for the working hour lost, the significant pillar is the pillar 2. In countries, where the governments have undertaken a larger set of measures supporting enterprises, employment and incomes, less working hours were lost during 2020. Other significant predictors of the working hour lost were

the stringency index and the unemployment rate in 2019. Moreover, in the second regressions of both systems, where we regress the Pillar 4 and 2 on GDP per-capita, the estimated coefficients of GDP per-capita are significantly positive. This indicates that richer countries adopted larger sets of measures as proxied by the pillars 4 and 2, which were then relevant for the two outcome measures of labor force participation differences and working hours lost.

Table 9. Systems Estimations of LFPR and WHL

	(1)	(2)	(3)	(4)
VARIABLES	LFPR Diff	Pillar 4	WHL	Pillar 2
Pillar 4	0.5648**			
	(0.2771)		-0.1873*	
Pillar 2			(0.1035)	
Infection Rate	0.0666		-0.0813	
	(0.0506)		(0.2480)	
Stringency Index	-0.0561***		0.1696***	
	(0.0103)		(0.0201)	
LFPR in 2019	-0.0442***		0.0602*	
	(0.0154)		(0.0349)	
Unemployment	-0.0138		-0.1364**	
	(0.0319)		(0.0650)	
Growth in 2019	0.0745			
	(0.0579)			
GDP per-capita		0.0064***		0.0060***
		(0.0019)		(0.0014)
Observations	150	150	142	141
R-squared	0.2035	0.0644	0.64	0.17

All regressions include a constant. Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6. Conclusions

In this paper we have analyzed whether the different labour market policy interventions taken in response to the COVID-19 pandemic have been effective in reducing its impacts on annual GDP growth, working hours and employment participation rates. To achieve this we assessed cross-national variations in the impacts of the COVID-19 pandemic on economic growth, working hours and employment across 165 countries according to whether they adopted several idenfitied labour market interventions grouped into four pillars: stimulating the economy and jobs (pillar 1), supporting enterprises, employment, and incomes (pillar 2), protecting workers (pillar 3) and social dialogue (pillar 4). The finding is that measures taken under pillars 1, 2 and 3 have reduced the impacts of the pandemic on economic growth, pillar 4 measures were significantly associated with reducing its impacts on employment and pillar 2 measures with lessening its impacts on working hours.

Our study is critical for several reasons. First, we introduce a quantitative dataset where we coded 165 countries' labour market policy responses into 39 distinct variables. Second, we take a descriptive picture of countries' labour market policies against COVID-19 with regard to supporting employment and worker protection. Third, we examine whether several pandemic related characteristics and GDP per-capita is associated with the extent of the measures and show whether the adopted measures have an effect over different outcome variables. Our findings confirm the importance of strong labor market institutions in dealing with public health crises, indicating the urgency of building and strengthening strong industrial relations policies and institutions.

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Table 1. Labour market policy measures documented by ILO Policy Tracker

Pillar 1: Stimulating the economy and jobs

6- Provision of cheap and easy-to-get loans to Businesses
7- Financial Support to the Healthcare Sector
8- Provision of cheap and easy-to-get loans to consumers
9- Loan Deferrals and Guarantees to Businesses and Consumers

10- Business Licensing Facilitation

Pillar 2: Supporting enterprises, employment and incomes

24- Price Controls of Necessities including Foods

25- Support to the Higher Education Sector

26- Support to Workers with Disabilities

27- Support to the Care of the Aged

28- Childcare Support

29- Rent and Mortgage Support/Deferrals

30- Public Job Creation

31- Support for the Self-Employed

32- Support for the Retired and Pensioners

33- Enhanced Unemployed Benefit

34- Employment Retention Policies

35- Policies towards the Informal Sector

36- Social Protection Packages

37- Reduction and deferrals in social security payments and fees

38- Induced change in production lines

39- Prohibition of Worker Dismissal

40- Tax cuts and Exemptions

41- Child Support

42- Basic Food Support

43- Other direct support for different sectors incl. agriculture

44- New healthcare employment

45- Support for utilities

46- Direct salary subsidy

Pillar 3: Protecting workers in the workplace

11- Support for communication

12- New work arrangements incl. remote work practices

13- Enhanced sick day leave

14- Enhance paid and unpaid leave policies

15- Penalties for employers not complying with measures

16- Prevention of discrimination and exclusion

17- Enhanced access to healthcare system

18- PPE provision to workers

19- Enhancement of other health and safety measures

20- Increased incentives to healthcare workers

Pillar 4: Using social dialogue between government, workers and employers to find solutions

2- Tripartite consultation with employers and unions

Table 2. Data Definitions

Variable	Definition	Source
ILO Index	An index of measures towards COVID-19	Author's own calculations using ILO Data
Pillar 1	Stimulating the economy and jobs	Author's own calculations using ILO Data
Pillar 2	Supporting enterprises, employment and incomes	Author's own calculations using ILO Data
Pillar 3	Protecting workers in the workplace	Author's own calculations using ILO Data
Pillar 4	Using social dialogue between government, workers and employers to find solutions	Author's own calculations using ILO Data
Infection rate	Infection Rate (% Population)	John Hopkins University
GDP per-capita	Real GDP per-capita (000 USD) in 2019	WDI
Informal Sector	Informal sector size (% GDP) in 2019	Elgin et al. (2019)
Unemployment	Unemployment rate in 2019, total (% of total labor force)	WDI
Stringency Index	COVID-19 Government Response Tracker	Hale et. al. (2020)
Growth	Annual GDP growth in 2020	Haver Analytics
LFPR Diff	The difference between 2020 and 2019 labor force participation rate	ILO
WHL	Working hours lost due to the COVID-19 (%)	ILO
Growth in 2019	Annual GDP growth in 2019	Heritage Foundation
LFPR in 2019	Labor force participation rate (2019)	ILO

Table 3. Descriptive Summary Statistics

Variable	**Mean**	**Median**	**Std. Dev.**	**Minimum**	**Maximum**	**Observations**
ILO Index	10.77	11.00	5.42	0.00	23.00	165
Pillar 1	1.95	2.00	1.14	0.00	5.00	165
Pillar 2	5.49	5.00	3.32	0.00	15.00	165
Pillar 3	2.88	3.00	1.73	0.00	7.00	165

Pillar 4	0.46	0.00	0.50	0.00	1.00	165
Infection Rate	2.54	1.49	2.85	0.001	12.66	156
GDP per-cap	14.82	6.04	20.19	0.21	110.74	160
Informal Sector	26.51	26.00	11.72	5.02	58.01	163
Unemployment	6.77	5.00	5.08	1.00	28.00	163
Stringency Index	83.62	87.04	14.20	16.67	100	156
Growth in 2020	-4.69	-3.90	7.78	-59.70	43.40	165
Difference in LFPR	-2.00	-2.00	1.87	-13.00	1.00	163
WHL in 2020	9.09	9.00	5.02	0.00	28.00	163
Growth in 2019	3.37	3.20	2.66	-5.70	17.90	163
LFPR in 2019	62.54	62.00	10.23	38.00	87.00	163

Table 4. Regression Results

	(1)	(2)	(3)	(4)	(5)
VARIABLES	ILO Index	ILO Index	ILO Index	ILO Index	ILO Index
Infection Rate	0.2048***	0.1339**	0.1264**	0.1465**	0.1381**
	(0.0543)	(0.0537)	(0.0524)	(0.0638)	(0.0638)
GDP per-capita		0.0298***	0.0323***	0.0238**	0.0278**
		(0.0077)	(0.0080)	(0.0107)	(0.0118)
Informal Sector				-1.8829	-1.7516
				(2.0633)	(2.0914)
Unemployment			0.0376	0.0419	0.0382
			(0.0235)	(0.0257)	(0.0269)
Stringency Index					0.0240**
					(0.0115)
Observations	156	153	152	137	135
Pseudo R-squared	0.05	0.04	0.05	0.05	0.05
Wald chi-test (p-value)	0.00	0.0	0.00	0.00	0.00

All regressions include a constant. Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5. Regressions of Pillars 1 and 2

	(1)	(2)	(3)	(4)	(5)	(6)

VARIABLES	Pillar 1	Pillar 1	Pillar 1	Pillar 2	Pillar 2	Pillar 2
Infection Rate	0.1492**	0.1316**	0.1340**	0.1701***	0.1588***	0.1544***
	(0.0602)	(0.0617)	(0.0632)	(0.0527)	(0.0527)	(0.0511)
GDP per-capita	0.0223***	0.0267***	0.0261***	0.0245***	0.0277***	0.0302***
	(0.0081)	(0.0091)	(0.0091)	(0.0072)	(0.0079)	(0.0080)
Stringency Index		0.0230**	0.0231**		0.0199	0.0178
		(0.0096)	(0.0097)		(0.0124)	(0.0123)
Unemployment			-0.0149			0.0536*
			(0.0288)			(0.0277)
Observations	153	151	150	153	151	150
Pseudo R-squared	0.05	0.06	0.06	0.04	0.05	0.05
Wald chi-test (p-value)	0.00	0.00	0.00	0.00	0.00	0.00

All regressions include a constant. Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6. Regressions of Pillars 3 and 4

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Pillar 3	Pillar 3	Pillar 3	Pillar 4	Pillar 4	Pillar 4
Infection Rate	0.0461	0.0247	0.0236	-0.1462**	-0.1405**	-0.1485**
	(0.0552)	(0.0550)	(0.0555)	(0.0695)	(0.0707)	(0.0716)
GDP per-capita	0.0181***	0.0213***	0.0214***	0.0400***	0.0401***	0.0424***
	(0.0066)	(0.0067)	(0.0069)	(0.0106)	(0.0112)	(0.0112)
Stringency Index		0.0207**	0.0201**		0.0020	0.0008
		(0.0090)	(0.0093)		(0.0126)	(0.0127)
Unemployment			-0.0041			0.0467
			(0.0296)			(0.0347)
Observations	153	151	150	153	151	150
Pseudo R-squared	0.02	0.02	0.02	0.07	0.07	0.08
Wald chi-test (p-value)	0.00	0.00	0.00	0.00	0.00	0.00

All regressions include a constant. Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7 Correlation between economic growth and range of mitigating policy measures used

	(1)	(2)

VARIABLES	Growth in 2020	ILO_Index
ILO Index	0.3730***	
	(0.1375)	
Infection Rate	-0.5847**	
	(0.2928)	
Growth in 2019	-0.3163	
	(0.2494)	
Maximum Stringency	-0.0662	
	(0.0457)	
GDP per-capita		0.1049***
		(0.0187)
Observations	151	151
R-squared	0.10	0.17
Regional Dummies	YES	NO

All regressions include a constant. Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8. Systems Estimations of Growth

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	Growth (2020)	Pillar 1	Growth (2020)	Pillar 2	Growth (2020)	Pillar 3	Growth (2020)	Pillar 4
Pillar 1	2.7530*							
	(0.5791)							
Infection Rate	-0.6506**		-0.5724**		-0.5701**		-0.5285*	
	(0.2883)		(0.2935)		(0.2917)		(0.2912)	
Growth in 2019	-0.3745		-0.3379		-0.3184		-0.3919	
	(0.2425)		(0.2495)		(0.2486)		(0.2488)	
Maximum Stringency	-0.0766*		-0.0593		-0.0657		-0.0628	
	(0.0444)		(0.0455)		(0.0454)		(0.0490)	
GDP per-capita		0.0178*		0.0610***		0.0199***		0.0062***
		(0.0041)		(0.0117)		(0.0064)		(0.0019)
Pillar 2			0.5526**					
			(0.2205)					
Pillar 3					1.7321***			
					(0.3656)			
Pillar 4							-1.3529	
							(1.2390)	
Observations	151	151	151	151	151	151	151	151
R-squared	0.13	0.11	0..08	0.15	0.03	0.06	0.14	0.06

Regional Dummies	YES	NO	YES	NO	YES	NO	YES	NO

All regressions include a constant. Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9. Systems Estimations of LFPR and WHL

VARIABLES	(1) LFPR Diff	(2) Pillar 4	(3) WHL	(4) Pillar 2
Pillar 4	0.5648**			
	(0.2771)		-0.1873*	
Pillar 2			(0.1035)	
Infection Rate	0.0666		-0.0813	
	(0.0506)		(0.2480)	
Stringency Index	-0.0561***		0.1696***	
	(0.0103)		(0.0201)	
LFPR in 2019	-0.0442***		0.0602*	
	(0.0154)		(0.0349)	
Unemployment	-0.0138		-0.1364**	
	(0.0319)		(0.0650)	
Growth in 2019	0.0745			
	(0.0579)			
GDP per-capita		0.0064***		0.0060***
		(0.0019)		(0.0014)
Observations	150	150	142	141
R-squared	0.2035	0.0644	0.64	0.17

All regressions include a constant. Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

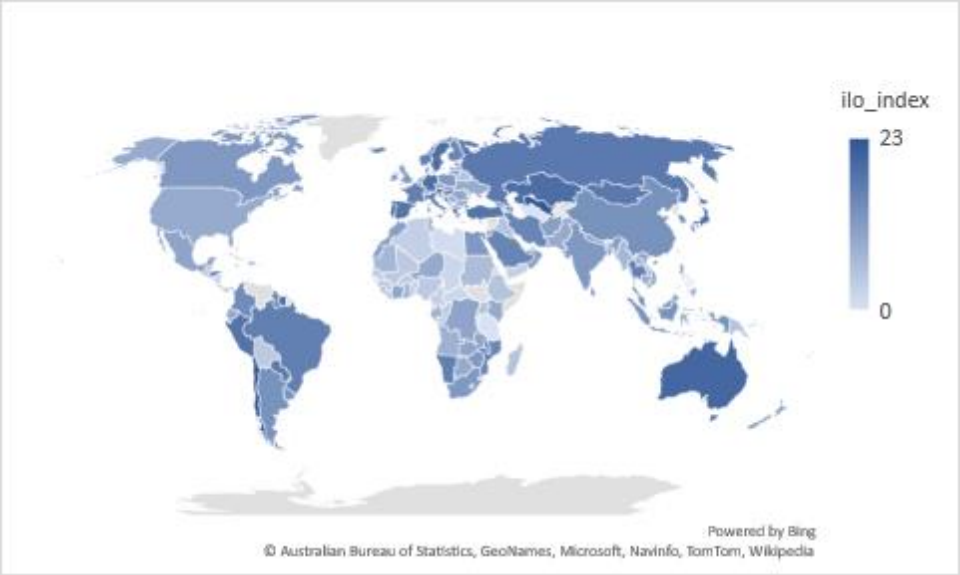

Figure 1. ILO Index across the World

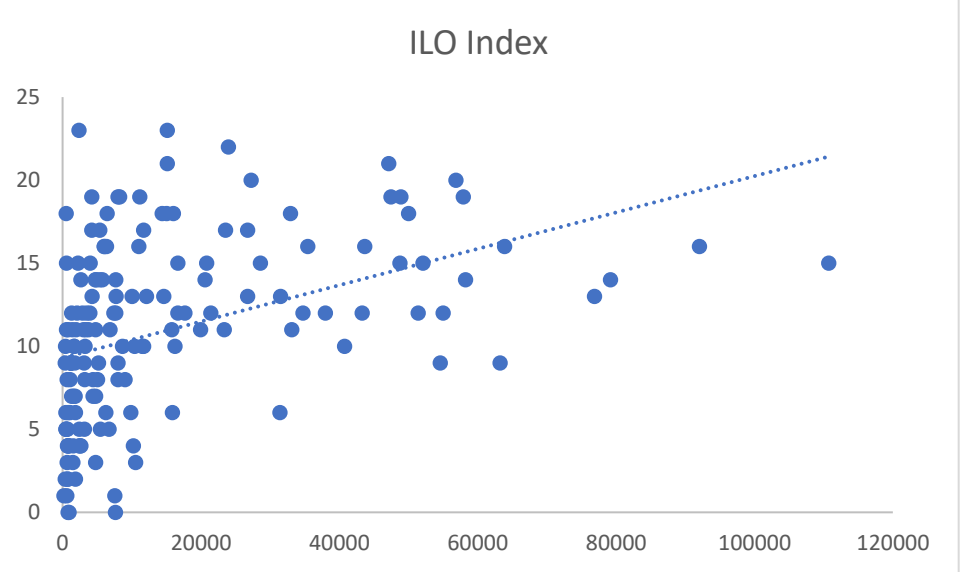

Figure 2. ILO Measures Index vs. GDP per-capita