Ursinus College

Digital Commons @ Ursinus College

Business and Economics Honors Papers

Student Research

4-26-2021

COVID-19: The Impact of a Nation's Political Economic Structure on its Labor Market Spending Policies

Mary Margaret Baldy
Ursinus College, mabaldy@ursinus.edu

Follow this and additional works at: https://digitalcommons.ursinus.edu/bus_econ_hon

 Part of the Business Commons, International Economics Commons, and the Political Economy Commons

Click here to let us know how access to this document benefits you.

Recommended Citation

Baldy, Mary Margaret, "COVID-19: The Impact of a Nation's Political Economic Structure on its Labor Market Spending Policies" (2021). *Business and Economics Honors Papers*. 47.
https://digitalcommons.ursinus.edu/bus_econ_hon/47

This Paper is brought to you for free and open access by the Student Research at Digital Commons @ Ursinus College. It has been accepted for inclusion in Business and Economics Honors Papers by an authorized administrator of Digital Commons @ Ursinus College. For more information, please contact aprock@ursinus.edu.

COVID-19: The Impact of a Nation's Political Economic Structure on its Labor Market Spending Policies

Mary Margaret Baldy

4/26/2021

Submitted to the faculty of Ursinus College in fulfillment of the requirements for Honors in Applied Economics and Politics

Abstract

The onslaught of COVID-19 in March 2020 claimed the lives of millions and caused a global economic downturn marked by vast unemployment. Previous research has focused on how fiscal policy is utilized by advanced developed nations and their objectives with respect to fiscal policy. This paper aims to examine how a given nation's labor market spending policies are impacted by its political economic structure. In order to delineate between and analyze the approaches of different political economic structures, this paper utilizes Nordic, Liberal, and Asian States constructs. In order to investigate the impact of political economic structure on labor market spending, explanatory variables, including GDP growth rate, the unemployment rate, top marginal individual income tax rates, the GINI index, a democracy index, and COVID-19 confirmed cases, will be utilized in a regression analysis to examine the effects on the unemployment benefits replacement rate. A nation's top marginal individual income tax rate is found to have a significant positive effect on a nation's unemployment benefits replacement rate. And of the three constructs (Nordic, Liberal, and Asian states), Liberal is the only significant result, and had a strong negative correlation with a nation's unemployment benefits replacement rate. Moving forward, this has broad implications for Liberal states. Particularly in the U.S., the COVID-19 pandemic has exposed disparities in the labor market for low-income workers. This may prove to be a turning point as policy makers accede to demands for more support to workers in the form of enhanced unemployment benefits.

Background

Notable scientific accomplishments in the 20th and early 21st century have inevitably encouraged a sense of human mastery, reinforcing the illusion that no problem can withstand our technological prowess. In tandem, many developed nations experienced steady growth in economic prosperity and strengthening labor markets that vaulted them over the 2008 recession and brought unprecedented prosperity leading up to the start of 2020. Fast forward to March 2020 and the onslaught of COVID-19, which brought the international community to its knees and threatened the lives of millions, humbling a global economy unprepared for a world-wide pandemic. COVID-19 has killed millions of people and disrupted markets, economies, and the entire social fabric of nations globally. In the U.S, the S&P 500 index dropped 12 percent in the final two weeks of February 2020, obliterating roughly $3 trillion in wealth (Enrich et. al, 2020). Nearly $8.5 trillion in projected global output from 2020-2022 is expected to be lost, effectively undoing the economic gains for the previous four years. Lockdowns have led to the disruption of

supply chains, increased unemployment rates, and lowered consumer demand. The pandemic could fundamentally change interdependence, trade, and globalization, while accelerating digitalization and automation; both of which will further impact the labor force.

While COVID-19's effects on the labor force have been swift, many countries have implemented fiscal stimulus measures (some estimated to be as high as 10 percent of GDP) to minimize the impact of job loss. (UN World Economic Situation and Prospects, 2020). This, however, is by no means the standard, as developing economies have struggled to implement large fiscal packages, averaging less than 1% of GDP (UN World Economic Situation and Prospects, 2020). What is clear is the devastating impact of COVID-19 on the global workforce, specifically unemployment, which has an outsized effect on the world economy. In 2020, 8.8 percent of global working hours were lost relative to the fourth quarter of 2019, equivalent to 255 million full-time jobs (UN World Economic Situation and Prospects, 2020).

The speed of global recovery hinges on a timely and coordinated response. Governments were forced to act quickly to confront COVID-19 in order to offset rising unemployment rates and economic downturn. Not surprisingly, the global response has been neither timely nor coordinated. This provides an opportunity to evaluate how the varied international response to COVID-19 has impacted more developed nations' labor markets. This study will use a nation's commitment to unemployment benefits as a leading indicator of how it sought to mitigate the COVID-19 pandemic's effects on its economy.

With the focus on more developed nations, this paper will further zero in on varying degrees of the Welfare State. The Welfare State theory documents the differences in how the governments of more developed countries spend to support citizens. The Welfare state is defined as a principal institution of post-war capitalism (Esping-Andersen, 1990). This includes the

institutional arrangements, rules and understandings that guide and shape current social policy decisions and expenditure developments (Esping-Andersen, 1990). Welfare states differ qualitatively between nations due to differences in historical institutionalization impacting the approach to short term policies, reforms, debate, and decision-making (Esping-Andersen, 1990). The policies of a welfare state focus on social expenditures, and can include goals to maximize labor force participation, redistribute income, and implement expansionary fiscal policy. A nation's place on the spectrum of welfare policies is not static. In times of crisis brought on by events like COVID-19, there is the potential for a nation's idea of the welfare state to evolve. The tumultuous election year that American voters experienced on top of the economic and social losses incurred by COVID-19 almost guarantees that some heretofore politically untenable stimulus measures may be here to stay. In March 2021, the Senate Finance Committee introduced legislation that would finance six months of wages and support services for eligible unemployed workers (U.S. Senate Committee on Finance, 2021).

It is important to look at the broader implications of these stimulus decisions. This paper will investigate the linkage between political economic structure and social spending. I hypothesize that richer, more democratic nations will spend more on unemployment benefits, which, in the case of COVID-19, helped mitigate the economic downturn and hastened a nation's recovery. The disparities which were exacerbated by the COVID-19 pandemic have revealed vast differences in government spending. While it seems only logical that richer, more democratic states will spend more on unemployment benefits and the broader labor market, it appears that other factors, like political ideology, may be at play. This raises my central question: how does a nation's political economic structure impact the level of support it is willing to invest in unemployment benefits?

This paper utilizes three welfare state constructs: Nordic (social democratic), liberal, and Asian states. The Nordic construct includes Denmark, Norway, Iceland, Finland, and Sweden. The liberal construct: Switzerland, the UK, Ireland, the U.S., and Canada. Finally, the Asian States construct encompasses South Korea, Japan, Singapore, Taiwan, and Hong Kong. Each welfare state construct in this paper has a different approach to welfare and unemployment benefits.

The Nordic construct has a track record of success in combining economic efficiency with a stable labor market. The Nordic construct is characterized by high taxes, significant amounts of income redistribution, and a high level of confidence and trust in the state (Andersen et. al, 2007). However, the long-term sustainability of Nordic policies has been questioned by critics, as globalization and changing demographics of its aging populations will undoubtedly affect the labor market and any attempts at reform (Andersen et. al, 2007).

The Liberal construct emphasizes individualism, a departure from the cultural values associated with Nordic countries (Spicker, 2013). Generally, the liberal state is market-oriented, with a lower level of expenditure on social protection and a higher level of income inequality when compared to the Nordic construct (Spicker, 2013).

Rounding out the study, the Asian states construct is characterized by an emerging welfare state. There is a complementary emphasis on welfare programs for economic development, and an inclination towards health and education over social security (Park & Jung, 2007). In the context of the COVID-19 pandemic, each of these constructs will be particularly interesting to examine, as the impact on each approach has been varied. By analyzing each construct, this paper will seek to measure how well equipped each political economic structure was to handle the supply-shock brought on by COVID-19. First, I examine previous literature on

labor market spending to anticipate which political economic structures will be best equipped to handle COVID-19. Then I present the theory behind this paper's regression analysis, which is followed by results and conclusions.

Literature Review

This section outlines relevant research that investigates the impact of COVID-19 and previous crises on labor markets. Of particular interest are studies of how fiscal policy is utilized by advanced developed nations within the construct (Nordic, Liberal and Asian States) and the objectives they aim to accomplish with fiscal policy. Also included, for comparison purposes, are nations with different political economic structures and the objectives they seek to accomplish through fiscal policy. Although the scale of the COVID-19 pandemic has not been seen since the Influenza Pandemic of 1918, useful and more recent data can be gleaned from the Great Recession and other policy responses to public health crises including SARS, the Swine Flu, and Ebola.

Nordic, Liberal, and Asian States Use of ALMPs to address unemployment

To address how and why different political economic structures vary in how they allocate funding, a paper by Nelson (2012) examined how welfare state regimes spend in order to accomplish their policy objectives. Nelson (2012) introduces the term active labor market policies (ALMPs), consisting of a diverse set of tools that policymakers use to address joblessness. Each nation can tailor these ALMPs to their unique conditions and calibrate them to handle an increase in unemployment differently. Nelson (2012) also acknowledges that partisanship, welfare state regimes, and political economic structure majorly impact spending patterns as well. Not surprisingly, she concluded that partisanship explained differences in fund allocation for direct job creation, training, labor market services, and employment incentives.

Nelson (2012) finds that the Nordic construct tends to spend more on direct job creation than either the Liberal or Asian State constructs. But generally, Nelson (2012) also finds that every country, regardless of their political economic structure, relies on policies that support labor market services (Nelson, 2012). An article by Pontusson & Raess (2012) also examined the role of partisanship, and ultimately acknowledged that while this difference in crisis response could be partially attributed to partisanship divide within governments, it cannot fully explain this shift (p.28).

In order to better understand how fiscal policy is used by different political economic structures to accomplish desired outcomes, Pontusson & Raess (2012) analyzed the responses of Western European countries and the U.S. to the Great Recession of 2008 and the recession that spanned the 1970s/80s. The main objective of the article was to examine and rationalize the shift in response to crises in the last 50 years by looking at metrics including GDP growth, unemployment rates, union density, and fiscal stimulus (Pontusson & Raess, 2012, p.14). This data confirmed that discretionary fiscal policy measures in response to the Great Recession were more expansionary in the United States (Liberal construct) when compared to Western European countries, with Sweden's discretionary stimulus (Nordic construct) being the smallest (Pontusson & Raess, 2012, p.19). But overall, each of the sampled nations used monetary easing during the Great Recession to address unemployment.

To address this difference in response despite partisan and electoral pressure, Pontusson & Raess (2012) asked why European governments have not opted to boost compensation for the unemployed or to improve employment protection in recent recessions. They claimed that this could be attributed, in part, to the recent decline in the political-economic clout of organized labor (Pontusson & Raess, 2012, p.29).

Another reason that responses varied in the Great Recession from previous recessions is that inflationary pressures were slightly less in 2008 compared to the 1970s/80s. This will prove to be a critical part of the COVID-19 pandemic response, as higher inflation in some nations may limit their ability to apply expansionary measures. While Nordic, Liberal, and Asian State countries can reject or temper a Keynesian response to recession and unemployment, Pontusson & Raess (2012) argue that Keynesianism did not end with the recession of the 1970s/80s but can now be divided into liberal and social branches. Social Keynesianism utilizes public spending and redistributive measures to sustain long-term prosperity, while liberal Keynesianism focuses on spurring demand during economic downturns. Liberal Keynesianism, where governments utilize tax cuts over spending increases, is now the standard response for economic crises whether in Nordic, Liberal, or Asian state nations (Pontusson & Raess, 2012, p.31).

Bearing this in mind, it will be interesting to see if this holds true for the countries sampled in this research. These conclusions drawn from Pontusson & Raess' (2012) demonstrate some of the differences in spending choices between Liberal and Nordic constructs. It can be posited that a Nordic nation like Sweden already had sufficient support in place for workers affected by the economic downturn, whereas Liberal economies oftentimes need to supplement with stimulus measures.

Given this, it is anticipated that the Nordic construct will include a high level of support for the labor market and has such been referred to as a blueprint for other countries. A paper by Forslund & Krueger (1997) discussed a Nordic state's, Sweden, successful approach to labor market spending. Sweden has utilized ALMPs, including extensive job training, public sector relief work, recruitment subsidies, youth programs, mobility bonuses, and unemployment benefits, to offset any adverse effects of unemployment and expand employment. Forslund &

Krueger (1997) stated that the duration of Sweden's unemployment benefits was twice the maximum allowed by the U.S. (a liberal nation), not including the extension period that can be granted to workers who participate in public relief jobs or attend retraining (p. 295). While Pontusson & Raess (2012) included Sweden in their study, Forslund & Krueger (1997) concentrated on the effectiveness of Sweden's ALMP's over time, especially given Sweden's success in weathering the adverse oil price shocks of the 1970s/80s. Even so, this confidence in the Nordic construct must be scrutinized, as Forslund & Krueger published their findings in 1997, well after unemployment in Sweden began trending upward beginning in 1991. According to the U.S. Bureau of Labor Statistics, the unemployment rate in Sweden reached 9.5 percent in July 1993, which exceeded the U.S.' rate at the time, 6.8 percent (Forslund & Krueger, 1997, p. 267). It's fair to question the effectiveness of Nordic ALMP's in lowering unemployment rates, as well as whether widespread application of this construct is practical.

Alternatives to ALMPs for Nordic, Liberal and Asian States Nations

If these ALMPs are not as effective as one may anticipate, then what alternatives are preferred? This is critical, as the COVID-19 pandemic has affected labor markets worldwide, and it is presently unknown how far-reaching these conditions will be. Forslund & Krueger (1997) suggest that Sweden's (and subsequently, other Nordic nations) potential shortcoming may be a lack of encouragement for entrepreneurial activity by unemployed workers. This could be in the form of training in business activities, a tax exemption for startups for a set period of time, or other programs. In the U.S., the practice of providing unemployment benefits in a lump sum to individuals who are interested in receiving seed capital to start a business has seen some success (Forslund & Krueger, 1997, p. 296). This could prove to be especially helpful in Nordic nations, which tend to have high marginal tax rates that discourage entrepreneurial ventures

(Forslund & Krueger, 1997, p. 296). Ultimately, Forslund & Krueger (1997) concluded that there is little evidence to indicate that these expenditures have done much to improve productivity in Sweden.

In the case of COVID-19, these findings can be applied as Forslund & Krueger (1997) stated that the immediate benefit of job training in a struggling labor market will likely be smaller than in a strong labor market. Overall, Forslund & Krueger ‘s (1997) analysis implies that there is likely a middle-ground, optimum level of support somewhere between the Nordic and the Liberal approach to ALMPs. Still, keeping the insights from Forslund & Krueger’s (1997) analysis in mind, the Nordic construct in that instance was unsuccessful in preventing high levels of unemployment, so it is unreasonable to always expect large returns from ALMPs.

A report by the UN analyzed the effectiveness of stimulus measures outside of unemployment benefits (United Nations World Economic Situation and Prospects, 2020). In this report, the UN cautions against the use of large fiscal and monetary stimulus measures to spur the quick recovery of equity and bond prices. Resorting to stimulus measures at the expense of productive investments, as the world learned from the Global Financial Crisis in 2008, will not be as effective (United Nations World Economic Situation and Prospects, 2020). This report also stated that stronger international cooperation is critical to recovery, especially to contain the pandemic and extend financial assistance to countries hardest hit by the crisis (United Nations World Economic Situation and Prospects, 2020). According to the World Economic Forum, the two worst-performing economies in the second quarter of 2020 were Peru and India, where GDP shrank by 30.2% and 23.9%, respectively (2020). With this, how can the pandemic preparedness of a given nation’s labor market be measured? It seems that countries which already have a

larger support network for workers will be more successful than those which try to hurriedly implement fiscal or monetary stimulus measures to support workers.

In order to support workers, particularly in the COVID-19 pandemic, it is important to think about the inherent disparities for low-wage workers. A paper by Escudero (2011) addressed this and evaluated the effectiveness of spending on ALMPs in terms of success rate in low-skilled individuals. Ultimately, Escudero (2011) concluded that start-up incentives and the policy cluster were the most effective in reducing unemployment, increasing employment, and for low-skilled workers, raising participation (Escudero, 2011). The importance of Escudero's (2011) research is emphasized in a paper by Lee & Cho (2016). This paper by Lee & Cho (2016) referenced a previous crisis and analyzed the effects of Middle East Respiratory Syndrome (MERS) on the Korean (Asian State) labor market. One insight from this research, called the vulnerability approach, suggests that disasters have different effects based on both physical vulnerability and economic class. Under this line of thinking, low-skilled workers in Korea were affected more by crises (Lee & Cho 2016). Yu et al. explore this disparity further, as their research focuses on the section of the labor market (front-line workers) most likely to become infected. With this, it is important to account for income inequality in order to anticipate the impact that health crises like COVID-19 will have on the labor market.

Another paper by Dingel & Neiman (2020) examined the linkages between worker income and the capability to continue working amidst mass lockdowns. In the U.S., they found that 37 percent of jobs can be performed at home. This metric was lower in lower-income economies. Saltiel (2020) used worker-level data from the STEP Skills Measurement Program to further explore the feasibility of working from home in developing nations. Only 13% of workers in STEP countries could work from home, with education and household wealth being

major contributors to its feasibility (Saltiel, 2020). The implications of this research are that more advanced economies may be less affected by the closure of businesses in lockdowns and may not need the same level of unemployment benefits or stimulus.

This finding is also reflected in research conducted during the Ebola epidemic. Sickness and mortality obviously consume health care resources, but also affect the labor market by removing individuals either temporarily or permanently (World Bank, 2014). Aside from those actually affected, the virus can lead to a "fear of association with others and reduces labor force participation, closes places of employment, disrupts transportation, motivates some governments to close land borders and restrict entry of citizens from afflicted countries, and motivates private decision-makers to disrupt trade, travel and commerce by canceling scheduled commercial flights and reduction in shipping and cargo service" (World Bank, 2014). The World Bank estimates that in the SARS and H1N1 flu epidemics, behavioral effects are estimated to have caused 80-90 percent of the total economic impact. With this, it seems that confidence in one's government plays a major role in epidemics/pandemics. This implies that strong democracies, where citizens tend to have a significant voice in policy making and governance translates to high confidence in the state, have a decided advantage in crises like COVID-19.

Looking at research that applied past epidemics to the current COVID-19 pandemic, McKibbin et al. (2006) estimated that the global economic cost of a Spanish Flu type pandemic would be close to 12.6% of GDP, with the greatest impact on non-OECD countries. In 2020, the same author released an update, stating that a Hong Kong Flu type pandemic would reduce global GDP by around $2.4 trillion USD, while a Spanish flu type outbreak could reduce global GDP by upwards of $9 trillion USD (McKibbin et al., 2020). This updated paper outlined the effects of COVID-19 on the global economy by using the SARS epidemic as a point of

reference. Even beyond the countries badly affected by SARS, other economies were exposed to these macroeconomic shocks. They find that even a contained outbreak could significantly impact the global economy in the short run. Ultimately, these scenarios demonstrate the large costs that might be avoided by greater investment in public health systems.

Which political economies are best equipped to address crises like COVID-19?

Given these insights, which political economies are best equipped to address crises? A paper by Haffajee et al. (2020) examined how COVID-19 has exposed major weaknesses in the United States' federalist system of patchwork public health governance, as the constitutional structure rests primary responsibility for public health with the states. In a standard recession, the U.S. may be well equipped to quickly address issues by implementing fiscal or monetary policy, but COVID-19 adds an additional layer of complication. If the institutional structures, particularly those in healthcare, in Liberal political economies are not equipped to pass measures that will slow the spread of COVID-19, and ultimately, reopen the community, this could prove to be an advantage to the Nordic and Asian states constructs. In contrast to the Liberal U.S. approach, Asian states, South Korea and Taiwan, have prevented widespread community transmission by rapidly implementing a centralized national strategy. Both South Korea and Taiwan focused on disseminating consistent, reliable information in order to limit the spread of misinformation (Tworek, 2020). This communication was facilitated by Presidents Moon and Tsai, who let public health officials take center stage on advising the public on any health guidelines. This seems to have contributed to higher compliance rates and lower rates of transmission in South Korea and Taiwan. Jang et al. (2020) found that South Koreans complied more with health guidelines including social distancing, wearing masks, and hand washing during COVID-19 than the MERS crisis five years prior. This is markedly different than the

approach taken in the U.S., where the Trump administration worked to discredit officials like Dr. Fauci in an effort to shore up the President's base (Abutaleb et al., 2020). This was arguably to deflect blame to others amidst former President Trump's bid for reelection.

The U.S.'s slow initial response to COVID-19 had a swift impact on the labor market, as demonstrated in a study by Cajner et al. (2020) that utilized administrative payroll data from ADP, a U.S. payroll processing company. Although aggregate employment fell by 21 percent through late-April 2020, it performed slightly better by the end of June, as businesses began to reopen (Cajner et al., 2020). As expected, low-wage workers were disproportionately affected by this shock to the economy. The paper found that all of the work to save small businesses in the U.S. has paid off, as late April through June '20, saw small business employment increase by 17 percent (Cajner et al., 2020). When compared to larger business increasing employment by 4-7 percent during the same time period, this focus on small businesses was more effective (Cajner et al., 2020). The U.S. was hard-hit by COVID-19 in 2020, so it may be difficult to accurately predict the results of the Liberal construct that will be used to denote political economic structure.

In sum, irrespective of categorization, Nordic, Liberal and Asian States countries have an increasingly sophisticated set of tools at their disposal that have evolved over time to address unemployment, whether in a financial or pandemic-induced recession. The calculus of which policies to pursue to address unemployment are a complex mix of economic rationality heavily influenced by partisanship and political ideology. This holds true whether looking at Nordic, Liberal or Asian State countries. Each of these papers will serve as useful references in the following data analysis and theory sections.

Data Analysis

The cross-sectional data for analysis in this research paper was compiled from several sources, which are shown below in Table 1.

Table 1:

UNBEN	The proportion of previous in-work household income maintained after 6 months of unemployment in 2020
NOR	Dummy variable representing the Nordic construct, which is comprised of Denmark, Finland, Iceland, Norway, and Sweden
LIB	Dummy variable representing the Liberal construct, which is comprised of Canada, Ireland, Switzerland, the United Kingdom, and the United States
ASI	Dummy variable representing the Asian States construct, which is comprised of Hong Kong, Japan, Singapore, South Korea, and Taiwan
GDPG	2020 Real Gross Domestic Product growth, percent change
UNEMP	2020 Unemployment, total (% of total labor force). Share of the labor force that is without work but available for and seeking employment
INCTAX	2020 Top marginal Individual Income Tax Rates by country
GINI	The degree of income inequality on a scale from lowest for total equality of incomes to highest for total inequality of incomes. 2020 data
DEM	Ranked nations on a scale from 1 (Authoritarian regimes) to 10 (Full democracies). Based on electoral process and pluralism, civil liberties, the functioning of government, political participation, and political culture. 2020 data
COVID	Total confirmed COVID-19 cases per million in 2020
TRUN	A measurement of worker's rights with respect to the degree to which unions and the rights of workers are protected within the country. On a scale from 1 (Sporadic violations of worker's rights) to 5 (No guarantee of rights). 2020 data
HLEXP	Includes both regular budget allocations and allocations to extra-budgetary funds for the COVID-19 health response through November 2020. (in 2018 USD, adjusted to per capita)

The UNBEN data was collected from the Organisation for Economic Co-operation and Development (OECD) Benefits and wages dataset. This indicator, "benefits in unemployment, share of previous income," measures the proportion of previous in-work household income maintained after 6 months of unemployment. The calculations are based off of a childless, single person whose previous in-work earnings were 67% of the average wage. and FDI inflows data was collected from the World Bank's World Development Indicators. In order to examine the differences in spending between political economies, countries will be grouped into three binary dummy variables: NOR (Nordic), LIB (Liberal), and ASI (Asian States), where 1 represents that the country is part of that grouping, and 0 is to denote that it is not. The omitted condition will consist of data from randomly sampled OECD states (see Appendix A). These nations fall outside of the Nordic, Liberal, and Asian States constructs outlined by previous literature. The OECD states have been selected at random to serve as a baseline and ensure that the omitted condition is not correlated with NOR, LIB, or ASI.

Looking at some of the financial metrics, the data for variable GDPG was compiled by the Knoema Corporation and is based on the World Economic Outlook distributed by the International Monetary Fund (IMF). GDPG is the percent change in real Gross Domestic Product Growth. UNEMP represents the unemployment rate and was gathered via the International Labor Organization (ILO). And INCTAX is the top marginal individual income tax rates per country, which was sourced from a major accounting firm, Klynveld Peat Marwick Goerdeler (KPMG, 2021).

The variables, GINI, DEM, and TRUN comprise the social factors of this paper's model. The GINI variable represents the degree of inequality within a nation. This statistic ranks countries based on an estimated Gini index, which measures the degree of income inequality

ranging from total equality of incomes (lowest) to total inequality of incomes (highest). The 2020 Gini coefficient estimate was published on Statista (Statista, 2021). DEM represents the degree of democracy as measured by the Economist Intelligence Unit, with the index ranging from a full democracy (10), to an authoritarian regime (1). The EIU Democracy Index is based on five categories: electoral process and pluralism, civil liberties, the functioning of government, political participation, and political culture (EIU, 2020). The variable TRUN was created using data from the International Trade Union Confederation (ITUC), which measures the degree to which unions and the rights of workers are protected globally (ITUC, 2020). The ITUC's Global Rights Index depicts the world's worst nations for workers on a scale from 1-5 based on the degree of respect for workers' rights. At a rating of 5, workers' rights are absent, whereas at a level 1, violations occur on an irregular basis.

Finally, in order to examine the links between COVID-19 and government spending, the variables COVID and HLEXP will be utilized. The variable COVID represents the number of COVID-19 cases per million in 2020. This data was provided by Our World in Data (OWID), which cites the confirmed cases by Johns Hopkins University (Roser et al., 2020). The variable HLEXP was compiled by the World Health Organization from a variety of sources including the IMF, OECD, European Observatory of Health Systems and Policies, among others (WHO, 2020). The original dataset is comprised of the total government budget allocations for the COVID-19 health response in 2018 USD which were converted using World Bank LCU-USD rates. This paper adjusted this data to reflect per-capita spending in order to control for the size of each country. The population data used to adjust the WHO data to create HLEXP was obtained from the same dataset as the COVID variable, Our World in Data, which originally based it off of the United Nations World Population Prospects (Roser et al., 2020).

Below, Table 2 provides the descriptive statistics of the five metrics that will be analyzed in this section: number of observations, minimum, median, mean, maximum, and standard deviation. Of the sampled nations, there were some that had not yet released 2020 data, which can be observed in the number of observations. Many of these metrics, like UNBEN, GINI, TRUN, and HLEXP, had yet to be released, but these initial summary statistics still provide some valuable insights.

Table 2:

Variables	UNBEN	GDPG	UNEMP	INCTAX	GINI	DEM	COVID	TRUN	HLEXP
N	32	40	39	40	36	40	39	36	37
Min	7.00	-12.80	2.94	10.00	24.84	5.57	33.55	1.00	0.09
Median	60.00	-6.00	5.80	40.00	32.34	7.96	30987.70	2.00	110.45
Mean	54.25	-6.09	6.50	37.43	31.98	7.98	30,738.80	2.19	181.00
Max	86.00	0.00	16.85	56.95	41.78	9.81	74148.21	5.00	875.37
Standard Deviation	21.61	2.61	2.89	12.91	3.85	1.03	19,772.98	1.19	195.30

Based on these initial statistics, none of the variables are particularly homogeneous other than DEM. Ideally, there may have been a wider sampling of more types of regimes that fall below the minimum of 5.57, which represents a hybrid regime, Hong Kong. However, under authoritarian regimes, data starts becoming less trustworthy, so the results would be unreliable. Moving on to the extremes, UNBEN, COVID, and HLEXP in particular had large standard deviations. To reiterate, UNBEN represents the percentage of retained income after 6 months, so the minimum of 7% versus the maximum of 86% are very stark. The minimum and maximum were the U.S. and Luxembourg, respectively. While it was hypothesized that the U.S., as part of the liberal construct, would likely spend less on unemployment benefits, 7% was still very low.

Seeing the current state of unemployment benefits in the U.S. sheds new light on the aforementioned plan set forth by the U.S Senate Committee of Finance, which aimed to offer 100% of income for a subset of workers for 6 months. On the flipside, the Nordic countries were not far behind Luxembourg's generosity, with Denmark offering 82% of wage replacement and the rest of the Nordics leading the pack above the average of 54.25%.

As for the COVID metric, the stark differences in case numbers between nations demonstrate the disparate impacts of the pandemic. The maximum of 74148.21 and minimum of 33.55 cases per million were Luxembourg and Taiwan, respectively. The standard deviation of 19,772.98 further demonstrates the impact of COVID-19 This will serve as a useful metric in investigating how each construct was affected, and if there were linkages between the spread of COVID-19 and political economic structure.

Looking at HLEXP, it is surprising to see how minor health spending was in South Korea in 2020. However, South Korea also had a fairly low number of COVID-19 cases, at 1204.80, so perhaps the countries which were more affected like the U.S. (which was the maximum of $875.37 per capita) needed to allocate more emergency funding for the COVID-19 health response. In general, this was true of all the Liberal states, as Canada, Ireland, Switzerland, and the UK each spent more than the average $181 per capita.

To reiterate, there were some gaps in this data given that it was collected in early 2021, before some nations had reported 2020 data. Unfortunately, fewer observations could be made based on the Asian States construct, as Hong Kong, Singapore, and Taiwan in particular, had not yet reported 2020 data in several instances. In the next section, the theoretical framework will be presented for the quantitative portion of this paper.

Theory

Referencing previous research on political economic structures' varying approaches to accomplishing policy objectives, the following theoretical model has been constructed in order to measure the impact of political economic structure on unemployment benefits. The COVID-19 pandemic has already had an adverse effect worldwide, and this model will seek to measure the impact that these economic and social measures will have on unemployment benefits and the broader labor market.

The regression used the following theoretical model: $UNBEN=\beta_0 + \beta_1 (GDPG)+ \beta_2 (UNEMP) + \beta_3 (INCTAX) + \beta_4 (GINI) + \beta_5 (DEM) + \beta_6 (COVID) + \beta_7 (TRUN) + \beta_8 (HLEXP)+ \gamma_1 d_i (NOR) + \gamma_2 d_i (LIB) + \gamma_3 d_i (ASI) + \varepsilon$

During the COVID-19 pandemic, many nations have opted to implement stimulus measures in order to offset rising unemployment rates and mass lockdowns. However, in order to look at the variance in approaches to labor market spending by different political economic structures, unemployment benefits will be used. A nation that already has comprehensive unemployment benefits in place is unlikely to need stimulus measures. In order to measure unemployment benefits, OECD data on the variable unemployment benefits measured as a share of previous income will be utilized. The significance of the unemployment benefits replacement rate was detailed in Esping Andersen's (1990) paper on Welfare Capitalism. This approach was utilized by Ganong et al. (2020) to look at the impact of the COVID-19 pandemic on the U.S. Another paper by Van Vliet & Caminada (2012), also examined unemployment replacement rates among 34 welfare states. The unemployment benefit replacement rates will provide insight on the degree to which lost income from the COVID-19 pandemic is compensated by each nation.

Table 3:

Independent Variable	Expected Sign
NOR	+
LIB	+
ASI	-
GDPG	+
UNEMP	+
INCTAX	+
GINI	-
DEM	+
COVID	+
TRUN	-
HLEXP	+

The predicted relationships between UNBEN and each respective independent variable are above in Table 3. Each explanatory variable will provide valuable insights to both UNBEN as well each of the dummy variable groupings NOR, LIB, and ASI. Again, each construct in this paper has a different approach to welfare and unemployment benefits. Therefore, the expectations for each explanatory variable are different for each construct.

To recap, the Nordic construct is characterized by high taxes, significant amounts of income redistribution, and a high level of confidence and trust in the state (Andersen et. al, 2007). The Liberal construct tends to be market-oriented, with a lower level of expenditure on social protection and a higher level of income inequality when compared to the Nordic construct, yet still spends a fair amount on social expenditures (Spicker, 2013). Finally, the Asian states construct is characterized as an emerging welfare state, with an emphasis on welfare programs for economic development, and an inclination towards health and education over social security (Park & Jung, 2007). It is anticipated that NOR and the LIB, respectively the Nordic and Liberal constructs, will each spend more on unemployment benefits relative to ASI, hence the negative predicted sign. Park & Jung (2007) stated that Asian states tend to spend less on unemployment benefits in favor of health and education. However, it is expected that the Nordic construct,

characterized by high taxes and significant amounts of income redistribution, will have a stronger positive correlation with UNBEN than the liberal construct (Esping-Andersen, 1990).

GDPG will measure the percent change in real Gross Domestic Product Growth. The predicted sign for GDPG and UNBEN is positive, as it is expected that a nation experiencing growth in its economy will spend more on unemployment benefits. Public expenditure on unemployment benefits generates an input to growth that is increased by a multiplier effect. Looking at the U.S., Gravelle et al.'s (2008) report estimated this effect as a $1 increase in unemployment benefits generating an estimated $1.64 in near-term GDP. However, these calculations vary based on methodology, as a 2010 estimate by the US Congressional Budget Office found that increasing unemployment benefits by $1 increased GDP by between $0.7 and $1.9 from 2010-2015. Across each of the state constructs, NOR, LIB, and ASI, it is anticipated that wealthier countries with a stronger economy will spend more on social programs.

The variable UNEMP measures the unemployment rate. The relationship between unemployment benefits and the unemployment rate is difficult to predict, as heightened unemployment is multicausal. A country that is more prone to a high unemployment rate through other factors may choose to support workers with higher replacement rate unemployment benefits. However, research by Narendranathan, Nickell and Stern (1985) suggests that at least part of the link between unemployment benefit levels and the unemployment rate is causal. Another article by Nickell (1997) states that passive unemployment benefit systems influence unemployment by reducing the fear of unemployment, which directly increases upward pressure on wages from employees. Passive unemployment benefit systems also allow workers to be more selective in new employment opportunities (Nickell, 1997, p. 67). In periods of relative economic prosperity, Nordic countries provide more relief to unemployed workers, so countries

like Sweden or Finland tend to have higher unemployment rates than Liberal or Asian states (Logue, 2019). However, given the widespread lockdowns enacted globally, it is anticipated that 2020 unemployment data will be less affected by nation grouping.

INCTAX represents the top marginal individual income tax rates per country. The predicted sign for INCTAX is positive, as a nation which has higher taxes is expected to fund more comprehensive social programs and as a result, will spend more on unemployment benefits and active labor market policies. A paper by Boix (2001) investigated how economic development and certain political institutions lead to growth of the public sector and includes a discussion on how the taxes which fund the public sector are set (p.2). He posits that the state intervenes to provide certain collective goods including infrastructure, which is followed by industrialization and an aging population. This then leads to increased demand for unemployment benefits, health insurance, and pensions (Boix, 2001). Lindert (2004) also makes this linkage between income taxes and social spending in the form of unemployment benefits. Again, it is predicted that the NOR countries will have higher income taxes, as there is a propensity to use tax revenues to redistribute wealth in the form of other benefits. Relative to NOR, LIB and ASI nations will have lower income taxes (Asen, 2020).

The GINI variable represents the degree of inequality within a nation. This statistic ranks countries based on an estimated Gini index, which measures the degree of income inequality on a scale from the total equality of incomes (lowest), or total inequality of incomes (highest). The expected sign for GINI is negative, as the higher the coefficient, the more inequality present, meaning that it is likely that the government would spend less on unemployment benefits. A paper by Aaberge et al. (2000) investigated the link between income inequality and unemployment benefits. They hypothesized that an increase in unemployment benefits will

counteract more unequally distributed earnings. Aaberge et al. (2000) found that unemployment benefits and income inequality are negatively correlated, as there was evidence of some mitigating effects (p. 95). Again, as some of the main objectives of Nordic countries are to redistribute wealth and create equality, it is anticipated that the NOR construct will have lower GINI values than LIB or ASI.

DEM represents the degree of democracy as measured by the Economist Intelligence Unit, with the index ranging from a full democracy (10) to an authoritarian regime (1). The expected sign for DEM is positive, as it is expected that a democratic regime would be inclined to spend more on unemployment benefits. A paper by Orenstein (2008) stated that the top fifteen developing country welfare states that opted to maintain a relatively high level of social protection were well-functioning democracies. This level of benefit generosity in the West is juxtaposed by the labor-cost pressure that is diverting foreign direct investment further east (Orenstein, 2008, p.91). Again, this is supported by Boix's (2001) paper, where he states that regime type is a critical factor. In democratic regimes, politicians are more subject to the whims of voters, so the public sector grows parallel to the structural changes associated with economic development, whereas in authoritarian countries, the public sector remains small (Boix, 2001, p.2). For DEM, it is expected that Nordic countries will have the highest level of democracy as measured through transparent electoral process and pluralism, civil liberties, the functioning of government, etc., followed by Liberal nations, and then Asian states.

The variable COVID represents the number of COVID-19 cases per million in 2020. The expected sign is positive, as it is expected that a harder hit country will spend more on unemployment benefits in 2020 to offset the adverse economic effects of the pandemic. For example, the U.S., which was one of the hardest-hit countries, implemented the CARES Act.

This also created the Federal Pandemic Unemployment Compensation, which added $600 in weekly unemployment benefits (Rothwell 2020). In Nordic countries, which tend to have stronger healthcare infrastructure and better health outcomes, it is anticipated that there will be lower case numbers than a Liberal nation (Einhorn, 2019).

For TRUN, the expected sign is negative. This variable was created using data from the International Trade Union Confederation, which measures the degree to which unions and the rights of workers are protected globally. Since a 1 on the Global Rights Index represents the best countries for workers, it is anticipated that there will be a negative correlation between TRUN and UNBEN. As referenced above, the article by Nickell (1997) found that pressure from unions led to an increase in worker wages and unemployment benefits. A paper by Gordon (2014) analyzed cross-national data on unemployment benefit generosity and active labor market policy from 1985 to 2005. While the true impact of trade unions has been questioned in recent years, Gordon (2014) argues that variations in unionism are the main factor in unemployment protection spending differences in wealthy democracies. His central argument is supported by union density, union centralization, and relative involvement in unemployment benefit administration (Gordon, 2014). Again, it seems that Nordic countries will have low ITUC global index scores given their emphasis on supporting workers, followed by Liberal and then Asian states, which will be more market-focused. Previous research by Logue (2019) attributed the difference in trade unions between Nordic and Liberal states to a decline in union density in the U.S. and UK. This divergence was initiated by anti-union policies implemented by the Reagan and Thatcher administrations, coupled with increased Nordic unionization.

HLEXP represents health expenditures per capita for each nation. The predicted sign for HLEXP is positive. A country that spends more on health expenditures per person would likely

also spend more on unemployment benefits. As stated above in Boix (2001), the public sector has a tendency to expand as the older cohort of the population expands, as citizens begin to demand inter-generational transfers in the form of health care programs, along with unemployment benefits (p.5). As referenced above in the COVID section, Nordic nations tend to spend more on healthcare, so while it is expected that spending will be fairly high in 2020, Liberal states will likely have higher HLEXP in 2020 to supplement normal healthcare expenditures to combat COVID-19. The section that follows presents the results of the linear regression model.

Results

The estimation results of the baseline model, which was presented in the preceding section, are in Table 4, under Model 1. To reiterate, the predicted relationships between UNBEN were GDPG(+), UNEMP(+), INCTAX(+), GINI(-), DEM(+), COVID(+), TRUN(-), HLEXP(+), NOR(+), LIB(+), and ASI(-) representing positive and negative correlations.

Table 4:

Results

	Dependent variable:				
	UNBEN				
	(1)	(2)	(3)	(4)	(5)
NOR	2.7920	-5.0572	10.1560		
	(15.2349)	(14.6473)	(17.8799)		
LIB	-30.3855	-49.5660***		-48.8772***	
	(21.3946)	(12.5819)		(11.3496)	
ASI	9.8933	3.5814			23.9366
	(27.0172)	(22.7880)			(27.8888)
GDPG	-0.0140	0.8400	0.1936	0.7028	0.3992
	(1.6988)	(1.6322)	(2.0555)	(1.5038)	(1.9740)
UNEMP	0.5658	0.5177	1.1016	0.2685	2.0602
	(1.5731)	(1.5284)	(1.7758)	(1.2881)	(1.7954)
INCTAX	0.3586	0.5451	0.5600	0.6046*	0.3177
	(0.4070)	(0.3857)	(0.4466)	(0.3251)	(0.4692)
GINI	2.1457	1.1664	-0.0125	1.3661	-0.7142
	(1.2824)	(1.1478)	(1.3138)	(0.9693)	(1.2319)
DEM	1.2608	8.7152	0.3204	6.9976	4.8007
	(8.2869)	(6.6233)	(7.9360)	(4.7310)	(6.3828)
COVID	0.0001	0.0002	0.0001	0.0002	0.0002
	(0.0003)	(0.0002)	(0.0002)	(0.0002)	(0.0003)
TRUN	-10.1742*				
	(4.9903)				
HLEXP	-0.0118				
	(0.0348)				
Constant	-19.8211	-71.7355	19.1833	-66.7885	9.0731
	(69.2287)	(53.6724)	(61.9467)	(49.5444)	(60.4537)
Observations	28	32	32	32	32
R^2	0.6389	0.5503	0.2078	0.5471	0.2210
Adjusted R^2	0.3906	0.3664	-0.0233	0.4150	-0.0062
Residual Std. Error	16.9997 (df = 16)	17.1944 (df = 22)	21.8505 (df = 24)	16.5210 (df = 24)	21.6668 (df = 24)
F Statistic	2.5731** (df = 11; 16)	2.9915** (df = 9; 22)	0.8993 (df = 7; 24)	4.1418*** (df = 7; 24)	0.9729 (df = 7; 24)

Note: *p<0.1; **p<0.05; ***p<0.01

In order to analyze different political economic structures' approaches to unemployment benefits in a global pandemic, Model 1 utilized 2020 cross-national data. Looking at the results, the R^2 is .6389, which means that this specification explains 63.89% of the variation in the data. But this high R^2 seems to be due to the number of explanatory variables rather than a true good fit, as the adjusted R^2 for Model 1 is .3906, which is fairly low. However, this was not necessarily unexpected, as in cross-national data, lower R^2s are more common given the large variation in the size of each country. But still, the impact of the explanatory variables on UNBEN will also help explain the fit of the model. Looking at the explanatory variables used in Model 1, only TRUN is significant at the 0.1 level (designated by an asterisk). Based on the correlation coefficient of -10.1742, for every one-unit decrease in the TRUN coefficient, there will be a 10.1742% increase in the wage replacement rate provided by unemployment benefits. This was in line with expectations, as based on the referenced literature, it was hypothesized that TRUN would be negatively correlated with UNBEN, since the lower the TRUN score, the better the degree of protection is for workers and unions in a given country.

Given these largely insignificant results, five different specifications of the model were tested. Since the data is cross-sectional, the number of observations is fairly low, so it seemed that eleven explanatory variables may be too many to see real results. In order to remove variables, rather than just basing it off of significance, the theory and literature behind each variable were referenced. Since the literature behind TRUN and HLEXP was not necessarily as strongly and historically backed as the others, Models 2-5 included neither of these variables. In Model 2, the adjusted R^2 decreased from the initial result of .3906 for Model 1 to .3664. As far as significant variables, LIB was significant at the 0.01 level. The correlation coefficient of LIB was -49.5660. This can be interpreted as: if a country is in the liberal construct, on average, it's

unemployment benefits will be 49.5660% lower than a nation belonging to the rest of the sampled nations (Nordic, Asian states, and the omitted condition of OECD states). This was not necessarily in line with initial expectations. Although social spending is generally lower in Liberal political economic structures than the level seen in Nordic nations, it was expected that LIB would still have a slight positive correlation. However, this was not entirely unexpected, given the more market-based approach that Liberal nations tend to use.

For the final three models, each dummy variable (NOR, LIB, ASI), denoting political economic structure, was isolated. Model 3 only included NOR, whereas Model 4 only included LIB, and Model 5 only included ASI. Of these three models, Model 4 had the highest adjusted R^2 and the most significant explanatory variables. The adjusted R^2 for Model 4 was .4150. LIB and INCTAX were both significant at the 0.01 and 0.10 levels, respectively. Similar to model 2, LIB had a strong negative correlation in Model 4, whereas INCTAX had a positive correlation with UNBEN. The correlation coefficient of .6046 for INCTAX was in line with initial expectations, as it was hypothesized that INCTAX would be positively correlated with UNBEN, given that nations which implement higher taxes will likely redistribute these revenues into areas like unemployment benefits (Asen, 2020). Based on the correlation coefficient of 0.6046, for every one-unit decrease in the INCTAX coefficient, there will be a 0.6046% increase in the wage replacement rate provided by unemployment benefits.

The F-statistic is another indicator to measure the strength of the relationship. Comparing each of the models, the F-statistic was significant based on the varying degrees of freedom in Models 1, 2, and 4. Model 4 had the highest F-statistic of 4.1418, which was significant at the 0.01 level. Finally, looking at the Residual Standard Error (RSE) for each of the different models, it was the lowest for Model 4 at 16.5210, with Model 1's RSE of 16.9997 being the

second smallest. To interpret the Residual Standard Error, the fit of Model 4 is the best, as the RSE is the standard deviation of the residuals, so a smaller RSE is preferred.

Considering the broader implications of these results, they were entirely in line with the expectations set forth in the theory section. The Nordic political economic structure has a demonstrated tendency towards higher social spending and income redistribution, so the expectation was for NOR to be significant with a strong correlation. As for the Asian states construct, there is less literature given that the Asian welfare state is fairly new. In addition to this, there was a limited amount of 2020 data available for Taiwan, Singapore, and Hong Kong in particular. Although it was hoped that a significant result would be obtained, the insignificant results for this construct are unsurprising, given the lack of data.

Finally, the Liberal construct was significant, despite there being an expected positive correlation, with the results showing a strong negative correlation between UNBEN and LIB. However, this was not entirely unexpected, as it was initially predicted that the liberal construct would have a weaker positive correlation since most of the literature ranked its level of social spending behind Nordic states. While the literature and theory seemed to back the initial prediction, the data analysis section was an early indicator of this possible outcome. As a whole, the Liberal states all spent less than the average UNBEN metric. The U.S.' spending was particularly low, as it provided less than ten percent of a worker's income 6 months into unemployment. While not as low as the U.S., each of the other Liberal nations were far below the UNBEN average.

This raises the question: why do Liberal nations spend less on unemployment benefits? To reference the U.S., at the state level, there is a reluctance to raise taxes from employers, so many states opt to cut benefits (Porter, 2021). This could be due to political pressure from voters.

In addition, the variable UNBEN may capture a snapshot of the data, but it does not necessarily show the bigger picture of labor market spending, which will be elaborated on in the conclusion. However, moving forward, this has broad implications for Liberal nations. Particularly in the U.S., the COVID-19 pandemic has exposed disparities in the labor market for low-income workers. This may prove to be a turning point as policymakers are forced to accede to demands to provide more support for workers in the form of enhanced unemployment benefits.

Econometric Tests

Model 1 had a lack of significant variables, so to rectify this error, Model 4 omitted TRUN and HLEXP. Although these TRUN was significant in Model 1, these variables seemed to have the least theory and literature to support their inclusion with so few observations. The fit of Model 4 was slightly better, as evidenced by the criteria in the Results section. Given that the data is cross-sectional, this part of the paper tested for heteroskedasticity, specification error, and multicollinearity. The results are presented below.

The biggest concern with cross-sectional data is heteroskedasticity. Heteroskedasticity violates the Ordinary Least Squares' (OLS) classical assumption that the observations of the error term are drawn from a distribution with constant variance (Studenmund, 2016). Especially given the large variation in the population sizes of countries analyzed in this paper. Initially, to avoid spurious correlation, all of the data was adjusted into per capita metrics to control for size. But still, given the factor of COVID-19, this could have affected smaller nations in unexpected ways. The Breusch-Pagan test was utilized to test for heteroskedasticity. The null hypothesis is homoskedasticity, while the alternative hypothesis is that there is heteroskedasticity in the model.

Figure 1:

```
        studentized Breusch-Pagan test

data:  model4
BP = 9.5584, df = 7, p-value = 0.215
```

The results of the Breusch-Pagan test for Model 4 are above in Figure 1. Given that there are 7 degrees of freedom, the critical Chi-Square value of 14.07, coupled with the p-value of 0.215, tells us that at the 0.05 level, there is not enough evidence to reject the null hypothesis of homoskedasticity.

Next, in order to check that Model 4 is indeed the best specification, the Ramsey RESET test was used. Ramsey RESET tests for specification error in linear regression models. It can tell us if non-linear combinations might better explain the response variable. If non-linear combinations of the explanatory variables have any power in explaining the response variable, the model is misspecified and the data may be better suited to another form. The null hypothesis is that there is no specification error. In Figure 2, the output for the Ramsey RESET test result for Model 4 is shown.

Figure 2:

```
        RESET test

data:  model4
RESET = 0.61524, df1 = 3, df2 = 21, p-value = 0.6127
```

For the RESET test of Model 4, the p-value is 0.6127, meaning that there is not enough evidence to reject the null at the 5% confidence level. It can be concluded that there is no evidence of specification error in Model 4.

Finally, in order to test for multicollinearity, a Variance Inflation Factor (VIF) test was used. VIF testing is a method to detect the severity of multicollinearity by measuring the degree to which an explanatory variable can be explained by the rest of the explanatory variables. It is an index of how much multicollinearity has increased the variance of a coefficient in the model. The results are below in Figure 3.

Figure 3:

LIB	GDPG	UNEMP	INCTAX	GINI	DEM	COVID
1.283089	1.666450	1.777115	2.167332	1.707894	2.155905	1.107623

A high VIF above the absolute value of 5 indicates that there is a collinearity problem. In Model 4, there was no evidence of multicollinearity in any of the explanatory variables. Therefore, it can be concluded that there is no evidence of a multicollinearity problem to consider in Model 4.

Conclusion

The objective of this paper was to analyze the differences in labor market spending based on a state's political economic structure. Looking at the results of the theorized model, the Liberal construct (LIB) and top marginal individual income tax rates (INCTAX) were significant in the preferred specification, Model 4. No other variables were significant. This raises the question of whether or not the remaining variables, NOR, ASI, GDPG, UNEMP, GINI, DEM, and COVID, in Model 4 are relevant variables. While these variables are not necessarily statistically significant, the theory behind their inclusion is solid, as evidenced by the references in the theory section and literature review, particularly Nelson (2012), Esping-Andersen (1990), and Boix (2001). Given these compelling arguments, the final specification of the model includes these variables, as removing them may cause omitted variable bias.

The data collection process for this paper proved to be very difficult, as 2020 data was needed to analyze labor market spending during COVID-19. Available data was often limited to Western nations, which made locating data for the Asian States construct particularly difficult. In this sense, time was a significant limitation, as ideally, the data collection process could have been extended well into 2021 and beyond to locate the best data possible on each country. As referenced in the results section, one major choice that had to be made was how to measure labor market spending with respect to COVID-19. The international response to the crisis was so varied that it would be impossible to find just one variable to represent unemployment benefits. For example, some countries sent out stimulus checks, some extended unemployment benefits, etc., with many implementing a unique combination of policies. Ultimately, using the unemployment benefits wage replacement rate seemed to be the best option, as emergency stimulus measures are not necessary if a given country already has a sufficient safety net in place for workers. However, a future improvement could be to use the change in unemployment benefits from 2019-2020 as the dependent variable. This would further clarify whether or not countries with weak safety nets needed to boost unemployment benefits more in the COVID-19 pandemic compared to countries with strong safety nets.

Undertaking this study did provide several helpful insights and valuable experiences. Considering that COVID-19 has continued to evolve over the course of this venture, real-time adjustments needed to be made in order to build the best model possible under the time constraints. This was both challenging and rewarding. COVID-19 still poses great uncertainty for policymakers around the world, and as their responses evolve, this research is only meant to represent one side of a multifaceted and complex problem. As more data becomes available, future research will be able to measure the impact of political economic structure on labor

market spending during COVID-19 more accurately. And as the global population is vaccinated, the labor market and broader economy will rebound while COVID-19 fades into the background. Undoubtedly, the threat of pandemics will continue in our lifetimes, so future research opportunities will be critical to ensuring policy responses are proactive and appropriately targeted. As the U.S. Health and Human Services Secretary Michael Leavitt said in 2007: "Everything we do before a pandemic will seem alarmist, everything we do after a pandemic will seem inadequate" (OECD, 2020).

References

Aaberge, R., Wennemo, T., Bjorklund, A., Jantti, M., Pedersen, P. J., & Smith, N. (2000). Unemployment shocks and income distribution: how did the Nordic countries fare during their crises?. Scandinavian Journal of Economics, 102(1), 77-99, https://doi.org/10.1111/1467-9442.00185

Abutaleb, Y., Dawsey, J., & McGinley, L. (2020, July 11). Fauci is sidelined by the White House as he steps up blunt talk on pandemic. *The Washington Post*. Retrieved from https://www.washingtonpost.com/politics/2020/07/11/fauci-trump-coronavirus/

Andersen, T. M., Holmström, B., Honkapohja, S., Korkman, S., Tson, S. H., & Vartiainen, J. (2007). The Nordic Model. Embracing globalization and sharing risks. ETLA B, The Research Institute of the Finnish Economy, number 232.

Asen, E. (2020, February 24). Insights into the Tax Systems of Scandinavian Countries. Retrieved from https://taxfoundation.org/bernie-sanders-scandinavian-countries-taxes/

Bahn, K. (2020, March 30). The Good Economics Behind Generous Unemployment Benefits. *Barron's*. Retrieved from https://www.barrons.com/articles/the-good-economics-behind-generous-unemployment-benefits-51585594272

Beblavý, M., Marconi, G., & Maselli, I. (2015). A European Unemployment Benefits Scheme: The rationale and the challenges ahead. CEPS Special Report, 19.

Boix, C. (2001). Democracy, development, and the public sector. American Journal of Political Science, 1-17, https://doi.org/10.2307/2669356

Cajner, T., Crane, L. D., Decker, R. A., Grigsby, J., Hamins-Puertolas, A., Hurst, E., ... & Yildirmaz, A. (2020). *The US labor market during the beginning of the pandemic*

recession (No. w27159). National Bureau of Economic Research, https://doi.org/ 10.3386/w27159

Chodorow-Reich, G., & Karabarbounis, L. (2016). The limited macroeconomic effects of unemployment benefit extensions (No. w22163). National Bureau of Economic Research, https://doi.org/10.3386/w22163

Dingel, J. I., & Neiman, B. (2020). How many jobs can be done at home?. *Journal of Public Economics*, *189*, 104235, https://doi.org/ 10.3386/w26948

The Economist Intelligence Unit (2020), Democracy Index 2020: In sickness and in health? (indicator), https://www.eiu.com/topic/democracy-index (Accessed in March 2021).

Einhorn, E. S. (2019, February 25). Healthcare in the Nordics. Retrieved from https://nordics.info/show/artikel/healthcare-in-the-nordic-region/

Enrich, D., Stewart, J. B., & Phillips, M. (2020, March 06). Spiraling Virus Fears Are Causing Financial Carnage. *The New York Times*. Retrieved from https://www.nytimes.com/2020/03/06/business/coronavirus-stock-market.html

Escudero, V. (2018). Are active labour market policies effective in activating and integrating low-skilled individuals? An international comparison. IZA Journal of Labor Policy, 7(1), 1-26, https://doi.org/10.1186/s40173-018-0097-5

Esping-Andersen, G. (1990). The three worlds of welfare capitalism. Princeton University Press.

Forslund, A., & Krueger, A. B. (1997). An evaluation of the Swedish active labor market policy: new and received wisdom. In The Welfare State in Transition: Reforming the Swedish Model (pp. 267-298). University of Chicago Press.

Ganong, P., Noel, P., & Vavra, J. (2020). US unemployment insurance replacement rates during the pandemic. Journal of Public Economics, 191, 104273, https://doi.org/10.1016/j.jpubeco.2020.104273

Gordon, J. C. (2015). Protecting the unemployed: Varieties of unionism and the evolution of unemployment benefits and active labor market policy in the rich democracies. Socio-Economic Review, 13(1), 79-99, https://doi.org/10.1093/ser/mwu029

Gravelle, J. G., Hungerford, T. L., & Labonte, M. (2009, November). Economic stimulus: issues and policies. LIBRARY OF CONGRESS WASHINGTON DC CONGRESSIONAL RESEARCH SERVICE.

Haffajee, R. L., & Mello, M. M. (2020). Thinking globally, acting locally—The US response to COVID-19. *New England Journal of Medicine*, *382*(22), e75, https://doi.org/10.1056/NEJMp2006740

Hagedorn, M., Karahan, F., Manovskii, I., & Mitman, K. (2013). Unemployment benefits and unemployment in the great recession: the role of macro effects (No. w19499). National Bureau of Economic Research, https://doi.org/10.3386/w19499

Hall, P. A., & Soskice, D. (Eds.). (2001). *Varieties of capitalism: The institutional foundations of comparative advantage*. OUP Oxford, https://doi.org/ 10.1093/0199247757.001.0001

Haufe, M. (2005). The Emergence of the East Asian Welfare State. GRIN Verlag.

Heckman, J. J., LaLonde, R. J., & Smith, J. A. (1999). The economics and econometrics of active labor market programs. In *Handbook of labor economics* (Vol. 3, pp. 1865-2097). Elsevier, https://doi.org/10.1016/S1573-4463(99)03012-6

International Trade Union Confederation (2020), ITUC Global Rights Index (indicator), https://www.ituc-csi.org/IMG/pdf/ituc_globalrightsindex_2020_en.pdf (Accessed in March 2021).

Jang, W. M., Jang, D. H., & Lee, J. Y. (2020). Social distancing and transmission-reducing practices during the 2019 coronavirus disease and 2015 Middle East respiratory syndrome coronavirus outbreaks in Korea. Journal of Korean medical science, 35(23), https://doi.org/10.33 46/jkms.2020.35.e220

Knoema Corporation (2020), Real GDP Growth, Percent Change (indicator), https://knoema.com/nwnfkne/world-gdp-ranking-2020-gdp-by-country-data-and-charts (Accessed in March 2021).

KPMG (2021), Individual Income Tax Rates Table (indicator), https://home.kpmg/xx/en/home/services/tax/tax-tools-and-resources/tax-rates-online/individual-income-tax-rates-table.html (Accessed in March 2021).

Lee, A., & Cho, J. (2016). The impact of epidemics on labor market: identifying victims of the Middle East Respiratory Syndrome in the Korean labor market. *International journal for equity in health*, *15*(1), 1-15, https://doi.org/10.1186/s12939-016-0483-9

Lindert, P. H. (1994). The rise of social spending, 1880-1930. Explorations in Economic History, 31(1), 1-37, https://doi.org/10.1006/exeh.1994.1001

Lindert, P. H. (2004). Growing public: Volume 1, the story: Social spending and economic growth since the eighteenth century (Vol. 1). Cambridge University Press.

Logue, J. (2019, February 15). Labour markets in the Nordics. Retrieved from https://nordics.info/show/artikel/labour-markets/

Logue, J. (2019, February 18). Trade Unions in the Nordic countries. Retrieved from https://nordics.info/show/artikel/trade-unions-in-the-nordic-region/#:~:text=Trade%20unions%20play%20a%20more,well%20as%20in%20collective%20bargaining.

Porter, E. (2021, January 21). How the American Unemployment System Failed. *The New York Times*. Retrieved from https://www.nytimes.com/2021/01/21/business/economy/unemployment-insurance.html

McKibbin, W., & Fernando, R. (2020). The global macroeconomic impacts of COVID-19: Seven scenarios. Asian Economic Papers, 1-55, https://doi.org/10.1162/asep_a_00796

Narendranathan, W., Nickell, S., & Stern, J. (1985). Unemployment benefits revisited. The Economic Journal, 95(378), 307-329, https://doi.org/10.2307/2233212

Nelson, M. (2013). Making markets with active labor market policies: The influence of political parties, welfare state regimes, and economic change on spending on different types of policies. European Political Science Review, 5(2), 255-277, https://doi.org/10.1017/S1755773912000148

Nickell, S. (1997). Unemployment and labor market rigidities: Europe versus North America. Journal of Economic perspectives, 11(3), 55-74, https://doi.org/10.1257/jep.11.3.55

OECD Policy Responses to Coronavirus (COVID-19): A Systemic Resilience Approach to Dealing with Covid-19 and Future Shocks. (2020, April 18). Retrieved from https://www.oecd.org/coronavirus/policy-responses/a-systemic-resilience-approach-to-dealing-with-covid-19-and-future-shocks-36a5bdfb/

OECD (2021), Benefits in unemployment, share of previous income (indicator), https://doi.org/10.1787/0cc0d0e5-en (Accessed in March 2021).

Orenstein, M. A. (2008). Poverty, inequality, and democracy: Postcommunist welfare states. Journal of Democracy, 19(4), 80-94, https://doi.org/10.1353/jod.0.0038

Park, C. U., & Jung, D. (2007). The Asian welfare regimes revisited: The preliminary typologies based on welfare legislation and expenditure. In 4th International Conference on 'Restructuring care responsibility. Dynamics of welfare mix in East Asia.

Pontusson, J., & Raess, D. (2012). How (and why) is this time different? The politics of economic crisis in Western Europe and the United States. Annual Review of Political Science, 15, 13-33, https://doi.org/10.1146/annurev-polisci-031710-100955

Roser M., Ritchie H., Ortiz-Ospina E., and Hasell J. (2020) - "Coronavirus Pandemic (COVID-19)". *Published online at OurWorldInData.org.* Retrieved from: 'https://ourworldindata.org/coronavirus' (Accessed in March 2021).

Rothwell, J. (2020, May 27). The effects of COVID-19 on international labor markets: An update. Brookings Institution. Retrieved from https://www.brookings.edu/research/the-effects-of-covid-19-on-international-labor-markets-an-update/

Saltiel, F. (2020). Who can work from home in developing countries. *Covid Economics, 7*(2020), 104-118,

Sandher, J., & Kleider, H. (2020, June 30). COVID-19 could change the welfare state forever. World Economic Forum. Retrieved from https://www.weforum.org/agenda/2020/06/coronavirus-welfare-state-covid19/

Spicker, P. (2012). Liberal welfare states. Greve, Bent (Hg.): The Routledge Handbook of the Welfare State. London, 193-201.

Statista (2021), Gini index worldwide 2020 (indicator), https://www.statista.com/forecasts/1171540/gini-index-by-country (Accessed in March 2021).

Studenmund, A. H. (2016), Using Econometrics: A Practical Guide. Pearson.

Tworek, H. (2020, October 06). Lessons Learned from Taiwan and South Korea's tech-enabled COVID-19 communications. *Brookings Institution*. Retrieved from https://www.brookings.edu/techstream/lessons-learned-from-taiwan-and-south-koreas-tech-enabled-covid-19-communications/

United Nations (2020), World Economic Situation and Prospects. Retrieved from https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/WESP2020_FullReport.pdf

U.S. Senate, Committee on Finance. (2021, March 17). Wyden, Baldwin, Van Hollen, Bennet, Booker Introduce Bill to Jumpstart Economic Recovery, Fund Six Months of Wages (A. Schapitl, Author) [S. Rept.]. Retrieved from https://www.finance.senate.gov/chairmans-news/wyden-baldwin-van-hollen-bennet-booker-introduce-bill-to-jumpstart-economic-recovery-fund-six-months-of-wages

Van Vliet, O., & Caminada, K. (2012). Unemployment replacement rates dataset among 34 welfare states, 1971-2009: an update, extension and modification of the Scruggs' welfare state entitlements data set, http://dx.doi.org/10.2139/ssrn.1991214

World Bank. (2014). The economic impact of the 2014 Ebola epidemic: short-and medium-term estimates for West Africa, https://doi.org/10.1596/978-1-4648-0438-0

World Bank (2020). Global Economic Prospects, June 2020. Washington, DC: World Bank, https://doi.org/10.1596/978-1-4648-1553-9. License: Creative Commons Attribution CC BY 3.0 IGO.

World Bank (2021), Unemployment, total (% of total labor force) (modeled ILO estimate) (indicator), https://data.worldbank.org/indicator/SL.UEM.TOTL.ZS (Accessed in March 2021).

World Health Organization, (2020). Global spending on health 2020: Weathering the Storm. Geneva: World Health Organization; 2020. License: CC BY-NC-SA 3.0 IGO.

World Health Organization (2020), Total government budget allocations for COVID- 19 health response (2018 USD) (indicator), https://docs.google.com/spreadsheets/d/1sH_xgamKFJnCTIysll21OBjd58ZwKtKc/edit#gid=1248687740 (Accessed in March 2021).

Yu, Z., Xiao, Y., & Li, Y. (2020). The response of the labor force participation rate to an epidemic: Evidence from a cross-country analysis. *Emerging Markets Finance and Trade*, *56*(10), 2390-2407, https://doi.org/ 10.1080/1540496X.2020.1787149

Appendix A

Nordic	Liberal	Asian States	OECD				
Denmark	Canada	Hong Kong	Australia	Cyprus	Greece	Luxembourg	Portugal
Finland	Ireland	Japan	Austria	Czech Republic	Hungary	Malta	Romania
Iceland	Switzerland	Singapore	Belgium	Estonia	Italy	Netherlands	Slovakia
Norway	United Kingdom	South Korea	Bulgaria	France	Latvia	New Zealand	Slovenia
Sweden	United States	Taiwan	Croatia	Germany	Lithuania	Poland	Spain