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The Cost of Coronavirus Shutdown Orders

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KEY TAKEAWAYS

States representing 95 percent of the economy are subject to state-wide public health–motivated shutdowns to fight COVID-19.

An eight-week shutdown could raise the unemployment rate to as much as 23 percent and decrease economic output by as much as $2 trillion (about 9 percent).

Policymakers should consider the economic and public health costs of severe slowdowns when determining the breadth of shutdown orders.

In an effort to stem the spread of COVID-19, approximately 42 governors have issued "lockdown," "shutdown," "stay-at-home," or "shelter-in-place" executive orders over the past four weeks.[1] Others have closed schools and urged residents to stay in their homes. A few have taken less intrusive actions such as prohibiting large gatherings and closing bars, restaurants, and other entertainment-oriented businesses. In general, these shutdown executive orders close all "non-essential" business workplaces and require that individuals stay in their residences except for specific narrow purposes such as going to the grocery store or the pharmacy or seeking medical attention.[2]

These orders have important potential public health benefits, but they also impose substantial costs on millions of ordinary Americans and businesses. As officials learn more about COVID-19 and discuss

strategies that allow for the relaxation of these executive orders, they should also consider the economic costs of their decisions to impose or retain lockdown orders or other restrictions. This paper illustrates the magnitude of those costs in terms of lost output, lost employment, and the corresponding unemployment, all of which reflect the extent to which Americans are no longer able to live their lives.

We do not consider social or public health costs such as increased child abuse, suicides, drug abuse, alcoholism, domestic violence, and other crimes that may be associated with the substantial economic reverses that the United States is enduring. Although difficult to quantify, these are likely to be significant. The illustrations provided are not projections. They merely provide a richer context through which to view the range of potential costs of the recent efforts to suppress the spread of the coronavirus. What ultimately will happen to our economy and our society is largely a function of the policy choices that will be made over the next two or perhaps three months.

Naturally, as the restrictions imposed by governments become broader and of longer duration, the social and economic costs will escalate. More extreme proposals, such as those that would entail a national lockdown lasting for many months, are beyond the scope of this analysis. Those types of policies would dramatically reduce incomes for many millions of people for many years to come; cause a substantial share of U.S. businesses to fail; exacerbate the fiscal problems faced by federal, state, and local governments; harm retirement savings and pension plans; and reduce the ability of both government and the private sector to respond to the economic, social, and national security challenges of the future. Rather than analyze these longer-term issues, this analysis focuses on the short-term costs associated with the current COVID-19 response and illustrates that these costs are substantial.

Summary of State COVID-19 Cases and Executive Orders

As of April 14, there were 598,670 confirmed cases of COVID-19 and 24,485 deaths caused by COVID-19 in the United States according to data from the Center for Systems Science and Engineering at Johns Hopkins University.[3] Although all U.S. states have reported cases of COVID-19, the distribution is quite uneven across states and counties. For instance, as of April 14, 45 percent of all reported cases were in New York (mostly New York City) and New Jersey according to the Centers for Disease Control and Prevention (CDC).[4] The CDC further reports that as of April 14, 44 percent of the total reported COVID-19 deaths were in New York State and that

nearly 80 percent of those deaths were in New York City.[5] The geographical concentration of the epidemic has remained largely unchanged as the virus has spread.[6]

The government response to the COVID-19 epidemic has varied by state. As of April 7, 2020, 42 states had issued shutdown orders.[7] Another three states have cities or regions that are subject to shutdown orders, and 95 percent of the U.S. population lives in states that are subject to statewide shutdown orders. Another 2 percent lives in states where a substantial portion of the state has been shut down.[8] Thus, only 3 percent of the population lives in states that have not had shutdown orders put in place. Although decisions have been made by state and sometimes local officials, the United States is effectively subject to a national lockdown order.

The Economic Effect on GDP

The following is a basic short-run analysis that necessarily abstracts from some of the differences between various state orders. Rather than rely on a long-run macroeconomic model, the analysis simply uses Bureau of Economic Analysis (BEA) data to illustrate the near-term cost of shutting down economic activity.

Gross domestic product (GDP) is the value of all of the final goods and services produced in a country or state. Table 1 shows the GDP of the 20 largest states.[9] They account for 78 percent of U.S. GDP. The top 10 states account for 57 percent of GDP. They are all subject to lockdown orders.

The numbers provided in Table 2 show the reduction in GDP associated with either four weeks or eight weeks of either lockdown orders or lesser restrictions. We assume that the composition of the economy in the largest 20 states that make up 78 percent of GDP is representative of the entire economy. Appendix Table 1 provides the full list of assumptions used for each industry, but the shutdown percentages range from a low of 5 percent for information-related industries to 95 percent for schools, arts, entertainment, recreation, accommodation, and food services.

Because there is no purely objective way to estimate the portion of each state's industry that is "shut down," we present two different sets of illustrations. The first assumes a "lesser restriction" scenario similar to many of the initial gubernatorial executive orders and those that are likely to be put back in place during the reopening of the economy. These orders closed large venues, entertainment establishments, dine-in restaurants, and the like. The second assumes a more severe shutdown similar to those currently in place in most of the country where all "non-essential" businesses are forced to shut down and people are required generally to stay at home.

TABLE 1

GDP in 20 Largest States, Q4 2019

Rank	State	GDP (millions)	Share of U.S. Total
1	California	$3,183,251	14.6%
2	Texas	$1,918,065	8.8%
3	New York	$1,751,674	8.1%
4	Florida	$1,111,378	5.1%
5	Illinois	$908,913	4.2%
6	Pennsylvania	$824,603	3.8%
7	Ohio	$706,764	3.3%
8	New Jersey	$652,412	3.0%
9	Georgia	$625,329	2.9%
10	Washington	$610,488	2.8%
11	Massachusetts	$604,208	2.8%
12	North Carolina	$596,383	2.7%
13	Virginia	$561,846	2.6%
14	Michigan	$548,568	2.5%
15	Maryland	$434,312	2.0%
16	Colorado	$396,367	1.8%
17	Minnesota	$385,907	1.8%
18	Tennessee	$385,741	1.8%
19	Indiana	$381,733	1.8%
20	Arizona	$372,522	1.7%
	Top 10 states	$12,292,878	56.6%
	Top 20 states	$16,960,463	78.1%
	U.S. Total	**$21,729,124**	**100.0%**

SOURCE: Bureau of Economic Analysis, "Gross Domestic Product (GDP) by State: All Industry Total (Millions of Current Dollars)," https://apps.bea.gov/itable/drilldown.cfm?reqid=70&stepnum=40&Major_Area=3&State=00000&Area=XX&TableId=526&Statistic=1&Year=2019&YearBegin=-1&Year_End=-1&Unit_Of_Measure=Levels&Rank=0&Drill=1 (accessed April 15, 2020).

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Under both scenarios, the figures assume various shutdown percentages for a four-week period and an eight-week period, respectively, thus providing two ranges. It is unlikely that an eight-week shutdown will correspond to exactly twice the cost associated with a four-week shutdown. The effects are unlikely to be linear because business failures will accelerate as financial reserves are exhausted. We somewhat arbitrarily increased the

eight-week cost figures by an additional 20 percent. A recent U.S. Chamber of Commerce poll of business owners indicated that 24 percent of businesses believe they will have to close permanently if the lockdowns last more than two months.[10] The authors acknowledge that this exercise is extremely imprecise and invite readers to make their own assumptions utilizing the data set by means of an online calculator.[11]

The numbers presented merely serve as an illustration to provide policymakers with an idea of the scope of economic costs involved in the current shutdowns. These illustrations are not predictions and do not account for the many economic and social factors that will undoubtedly affect the true total economic costs.

As the results on Table 2 show, the cost estimates for a four-week shutdown range from $326 billion for less restrictive orders to $847 billion for a more severe stay-at-home lockdown. These estimates represent a drop in annual GDP of between 1.5 percent and 3.9 percent. For an eight-week shutdown, the estimates range from a decline of $804 billion to $2.0 trillion (in percentage terms, a reduction in annual GDP from 3.7 percent to 9.4 percent). By way of comparison, the annual GDP decline from the third quarter of 2008 to the third quarter of 2009 during the Great Recession was 2.8 percent.[12]

Naturally, these GDP figures should not be used as the sole metric of citizens' welfare. Nonetheless, in terms of lost economic output, these costs should be expected to rise and be more difficult to predict the longer the shutdowns last. Moreover, it is unlikely that the economy will "snap back" immediately to the level before the crisis because reopening will take time; the behavior of consumers, workers, and firm management will no doubt change even absent legal requirements; and some firms will have failed.

A Snapshot of the Employment and Income Costs of the COVID-19 Shutdowns

Prior to the COVID-19 crisis, the U.S. economy exhibited very low unemployment, and a recession did not appear to be imminent. The crisis resulted in a dramatic change. For instance:

- The unemployment rate was only 3.5 percent in February and had been on a downward trend for nearly a full decade. However, for the week ending March 21, the number of initial unemployment insurance claims was 3.3 million, the highest level of seasonally adjusted initial claims ever recorded by the Bureau of Labor Statistics (BLS) and an increase of more than 3 million.[13]

TABLE 2

GDP Losses from Lockdowns and Lesser Restrictions

	LOCKDOWN		LESSER RESTRICTIONS	
Duration	**GDP Loss (billions)**	**% Loss**	**GDP Loss (billions)**	**% Loss**
Four Weeks	–$847	–3.9%	–$326	–1.5%
Eight Weeks	–$2,043	–9.4%	–$804	–3.7%

NOTE: Percentage changes are calculated based on the change in GDP from the top 20 states ($16,812 billion). The GDP loss is then normalized to national GDP.
SOURCE: Authors' calculations using data from Bureau of Economic Analysis, "GDP by State," Q3 2019 data, https://www.bea.gov/data/gdp/gdp-state (accessed April 15, 2020), and the shutdown assumptions shown in the appendix.

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- Then, for the week ending March 28, seasonally adjusted initial unemployment insurance claims rose to 6.6 million, shattering the record set the previous week.[14]

- For the week ending April 4, there were another 6.6 million seasonally adjusted initial unemployment compensation claims.[15]

- For the week ending April 11, there were an additional 5.2 million seasonally adjusted initial unemployment compensation claims.[16]

These changes indicate that the unemployment rate has risen to approximately 10.7 percent.[17] The BLS has also reported that from February to March, employment declined by 3 million, from 158.8 million to 155.8 million, and the unemployment rate rose to 4.4 percent.[18] One Federal Reserve economist estimates that the COVID-19 shutdowns could result in an unemployment rate that exceeds 30 percent.[19]

Table 3 provides estimated losses in employment and their corresponding unemployment rates based solely on the GDP reductions in Table 2. That is, we assume that the basic capital-to-labor ratio in the economy is unchanged over this short-run period and that a given percentage change in GDP will correspond to the same percentage change in employment.[20] For an eight-week shutdown, the estimates range from a decline of 5.6 million to 14.3 million, corresponding to an unemployment rate that ranges from

10.8 percent to 16 percent.[21] Given the fact that most states are on lockdown status, the lesser restrictions figure is an estimate of what would probably have happened with lesser restrictions.

Naturally, there are other ways to estimate the unemployment impact. For instance, a basic rule of thumb known as Okun's law suggests that for every 1 percent drop in GDP, unemployment increases by approximately 2 percentage points.[22] Applying this rule of thumb to the estimates in Table 2, the eight-week lockdown would result in an unemployment rate of about 23 percent. Similarly, examining the ratio of employment losses to GDP losses in the Great Recession implies unemployment rates of 14 percent to 20 percent after eight weeks of lockdown.[23]

While these estimates illustrate the near-term impact that the shutdowns might have on national employment, other data made available by Homebase show that a pronounced change in the employment situation has already occurred for many smaller service-based companies. These data cover 60,000 businesses and 1 million hourly employees and capture mostly Main Street businesses consisting primarily of individually owned and operated shops in the restaurant, food and beverage, retail, and service sectors.

Homebase provides estimates of the effect that the COVID-19 crisis has had on Main Street businesses by calculating a rate of change for a given day after March 1 versus a given day in January.[24] For instance, compared to the typical Sunday in January, the data show that hours worked by hourly employees decreased 17 percent for March 15.[25] Similarly, compared to the typical Monday in January, hours worked by hourly employees decreased 60 percent for April 6.

This month-to-month comparison has shown a generally increasing trend throughout the second half of March and the beginning of April, reaching a maximum decline of 68 percent for April 4 and April 5. Using the same month-to-month comparison, the data show a similar trend in the number of local businesses open, with a 7 percent decline on March 15, a 45 percent drop for March 22, a 52 percent decrease on March 29, and a 54 percent decline for April 5. The Homebase data also show that there was a 12 percent decline in the number of hourly employees working for March 15, a 60 percent decline for March 22, a 66 percent decline for March 29, and a 67 percent drop for April 5.[26]

The Homebase data also provide an estimate of what these employment declines and business closures mean in terms of lost income for employees of small businesses. For example, using the same month-to-month comparison as described previously (comparing to a typical day in January), the data show a $387 per worker loss of monthly income for March 15, a loss

TABLE 3

Employment Losses from Lockdowns and Lesser Restrictions Lasting Eight Weeks

Total employment in the U.S. was 152.5 million as of February 2020.

	LOCKDOWN		LESSER RESTRICTIONS	
	Jobs Lost (millions)	**% Loss**	**Jobs Lost (millions)**	**% Loss**
Employment	–14.3	–9.4%	–5.6	–3.7%
Implied unemployment rate	16.0%		10.8%	
Unemployment rates using alternative methods	14%, 20%, 23%		8%, 10%, 11%	

SOURCE: Authors' calculations based on data from Bureau of Labor Statistics, "Current Employment Statistics," Table B–1a, February 2020 data, https://www.bls.gov/web/empsit/ceseeb1a.htm (accessed April 15, 2020).

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that rose to $1,559 per month for March 29 and $1,585 for April 5.[27] On an industry basis, the Homebase data suggest that restaurant workers have been particularly hard hit, an unsurprising finding given the number of localities that have restricted restaurants to takeout and delivery.

The Homebase data also reveal a great deal of variation in losses across different states. For example, the data show that from February 24 to March 25, the aggregate monthly wage losses among these smaller establishments were $5.6 billion in California, $3.4 billion in New York, $291 million in Oklahoma, and $64 million in Wyoming.[28] This is about 66.6 percent of monthly sales for California, 73.9 percent for New York, 44.0 percent for Oklahoma and 41.9 percent for Wyoming.[29]

Responding to the Challenge Constructively

What we are experiencing is not a normal recession. Unemployment, business shutdowns or failures, and financial market declines are not a result of imbalances in the economy, changes in monetary policy, or external shocks to the demand for or supply of goods and services. They are the result of deliberate government decisions to shut down the economy.

Some of the policy responses to the economic distress have been highly constructive. Policies designed to address public health objectives, facilitate business continuity, and promote continued employee attachment to employers are constructive. These would include tax credits for paid leave for those who have contracted COVID-19 or are caring for those with the disease and payroll support mechanisms such as the forgiveness provisions in the enhanced Section 7(a) loan program.[30] Others, unless changed, will exacerbate the duration and severity of the downturn. These would include unemployment insurance benefits that are higher than or nearly as high as workers' wages.[31]

As public health officials gain a better understanding of the virus and increasingly large numbers of people recover and therefore have virus antibodies protecting them from infection, the U.S. will be able to shift to a more targeted approach of mitigating the impact of the virus. As less severe restrictions are implemented, the employment situation can be expected to recover somewhat rapidly. This recovery will be hampered, however, unless unemployment compensation benefits are modified so that people have a continuing connection to their employers and a financial incentive to work.[32] These policies run the risk of prolonging any economic downturn and making it more difficult for people to obtain the goods and services they need or want.

If, however, widespread shutdowns extend for much more than a few more weeks, it is reasonable to expect the employment situation to worsen. In an increasingly large number of cases, employers will fail and people will not have jobs to which they can return.

Conclusion

Although the shutdowns analyzed in this paper are a function of state and local executive orders, the United States is effectively subject to a national lockdown order. States representing 95 percent of the economy are subject to statewide shutdown orders. These orders have been motivated by legitimate public health concerns.

Lockdown orders lasting eight weeks could reduce economic output by as much as $2 trillion (about 9 percent). Under an eight-week shutdown, employment is likely to decline by around 9.5 percent. The unemployment rate is likely to reach 16 percent and may reach as high as 23 percent. Less restrictive orders will have substantially less impact. A longer shutdown would have a substantially greater adverse impact. The economic losses from shutdown orders accelerate over time because employers exhaust their financial reserves and fail. Workers will not have jobs to which they can return.

Policymakers need to consider these costs and the public health costs of severe economic reverses when determining the breadth and duration of public health–motivated shutdown orders or lesser restrictions.

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Appendix

Assumptions for results in Table 2: The respective percentages used under the lesser restrictions and lockdown scenarios are uniform across all states in the analysis.

APPENDIX TABLE 1

Assumptions Regarding Lockdown and Lesser Restriction Effects, by Industry

Figures shown represent the assumed portion of industry activity that has been "shutdown" due to the various state executive orders.

Industry Categories	Lesser Restrictions	Stay-at-Home/ Lockdown
Agriculture, forestry, fishing, and hunting	5%	10%
Mining, quarrying, and oil and gas extraction	5%	25%
Utilities	5%	5%
Construction	5%	50%
Manufacturing		
Durable goods manufacturing	20%	50%
Nondurable goods manufacturing	20%	50%
Wholesale trade	30%	60%
Retail trade	25%	70%
Transportation and warehousing	25%	50%
Information	5%	10%
Finance and insurance	10%	20%
Real estate and rental and leasing	25%	80%
Professional, scientific, and technical services	25%	70%
Management of companies and enterprises	10%	25%
Administrative and support and waste management and remediation services	25%	80%
Educational services	80%	95%
Health care and social assistance	5%	10%
Arts, entertainment, and recreation	75%	95%
Accommodation and food services	50%	95%
Other services (except government and government enterprises)	50%	95%
Government and government enterprises	10%	35%

Endnotes

1. See Sarah Mervosh, Denise Lu, and Vanessa Swales, "See Which States and Cities Have Told Residents to Stay at Home," *The New York Times*, updated April 7, 2020, https://www.nytimes.com/interactive/2020/us/coronavirus-stay-at-home-order.html (accessed April 15, 2020). See also CNN.com Wire Service, "List: When Stay-at-Home Orders Are Set to Expire in all 50 States," *The Mercury News*, updated April 16, 2020, https://www.mercurynews.com/2020/04/15/coronavirus-list-when-stay-at-home-orders-are-set-to-expire-in-all-50-states/ (accessed April 16, 2020). For examples of these orders, see State of California, Executive Order N-33-20, March 19, 2020, https://covid19.ca.gov/img/Executive-Order-N-33-20.pdf (accessed April 15, 2020); State of New York, Executive Order No. 202.7, "Continuing Temporary Suspension and Modification of Laws Relating to the Disaster Emergency," March 19, 2020, https://www.governor.ny.gov/news/no-2027-continuing-temporary-suspension-and-modification-laws-relating-disaster-emergency (accessed April 15, 2020), and Executive Order No. 202.8, "Continuing Temporary Suspension and Modification of Laws Relating to the Disaster Emergency," March 20, 2020, https://www.governor.ny.gov/news/no-2028-continuing-temporary-suspension-and-modification-laws-relating-disaster-emergency (accessed April 15, 2020); State of Illinois, Executive Order No. 2020-10, "Executive Order to Expand Telehealth Services and Protect Health Care Providers in response to COVID-19 (COVID-19 Executive Order No. 8)," March 20, 2020, https://www2.illinois.gov/Pages/Executive-Orders/ExecutiveOrder2020-10.aspx (accessed April 15, 2020); Commonwealth of Pennsylvania, "Order of the Governor of the Commonwealth of Pennsylvania Regarding the Closure of All Businesses That Are Nor Life Sustaining," March 19, 2020, https://www.governor.pa.gov/wp-content/uploads/2020/03/20200319-TWW-COVID-19-business-closure-order.pdf (accessed April 15, 2020); and State of Florida, Executive Order No. 20-91, "Essential Services and Activities During COVID-19 Emergency," April 1, 2020, https://www.flgov.com/wp-content/uploads/orders/2020/EO_20-91-compressed.pdf (accessed April 15, 2020).
2. These orders vary from state to state. They almost all broadly follow federal guidance, and some explicitly incorporate that guidance by reference. See U.S. Department of Homeland Security, Cybersecurity and Infrastructure Security Agency, "Guidance on the Essential Critical Infrastructure Workforce: Ensuring Community and National Resilience in COVID-19 Response," Version 2.0, March 28, 2020, attached to "Advisory Memorandum on Identification of Essential Critical Infrastructure Workers During COVID-19 Response" from Christopher C. Krebs, Director, CISA, March 28, 2020, https://www.cisa.gov/sites/default/files/publications/CISA_Guidance_on_the_Essential_Critical_Infrastructure_Workforce_Version_2.0_Updated.pdf (accessed April 15, 2020).
3. Johns Hopkins University, "Coronavirus COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE), https://www.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6 (accessed April 15, 2020).
4. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, "Coronavirus Disease 2019 (COVID-19): Cases in U.S.," updated April 14, 2020, https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html#2019coronavirus-summary (accessed April 15, 2020).
5. For provisional counts see Table 5, "Deaths Involving Coronavirus Disease 2019 (COVID-19) and Pneumonia Reported to NCHS by Jurisdiction of Occurrence, United States. Week Ending 2/1/20 to 4/11/20," in U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, "Provisional Death Counts for Coronavirus Disease (COVID-19)," data as of April 14, 2020, https://www.cdc.gov/nchs/nvss/vsrr/COVID19/ (accessed April 15, 2020). County-level data are also available at USAFacts, "Coronavirus in the United States: COVID-19 Map by County and State," data last updated April 14, 2020, https://usafacts.org/visualizations/coronavirus-covid-19-spread-map/ (accessed April 15, 2020). For a summary of these data and the above percentages, see Kevin D. Dayaratna and Norbert J. Michel, "The Challenges of Forecasting the Spread and Mortality of COVID-19," Heritage Foundation *Backgrounder* No. 3486, April 15, 2020, https://www.heritage.org/public-health/report/the-challenges-forecasting-the-spread-and-mortality-covid-19.
6. Although the distribution can still change, the heavily concentrated nature of the number of cases is unlikely to change because just a handful of the worst-hit metro areas account for nearly one-fifth of the U.S. population. See U.S. Department of Commerce, U.S. Census Bureau, "Metropolitan and Micropolitan Statistical Areas Population Totals and Components of Change: 2010–2019," last revised March 26, 2020, https://www.census.gov/data/tables/time-series/demo/popest/2010s-total-metro-and-micro-statistical-areas.html#par_textimage_1139876276 (accessed April 15, 2020). See also Doug Badger and Norbert J. Michel, PhD, "Coronavirus: Policymakers Should Augment Hospital Capacity Where Needed, Not Mandate Permanent Excess Capacity," Heritage Foundation *Backgrounder* No. 3487, April 16, 2020, http://report.heritage.org/bg3487.
7. Mervosh, Lu, and Swales, "See Which States and Cities Have Told Residents to Stay at Home."
8. See U.S. Department of Commerce, U.S. Bureau of the Census, "State Population Totals: 2010–2019, Population, Population Change, and Estimated Components of Population Change: April 1, 2010 to July 1, 2019 (NST-EST2019-alldata)," last revised December 30, 2019, https://www.census.gov/data/tables/time-series/demo/popest/2010s-state-total.html (accessed April 15, 2020). The states that had no stay-at-home orders as of April 7, 2020, are North Dakota, South Dakota, Nebraska, Iowa, and Arkansas. The states with partial, regional, or major city orders are Oklahoma, Wyoming, and Utah. South Carolina instituted a statewide order effective April 7, 2020.
9. U.S. Department of Commerce, Bureau of Economic Analysis, "Regional Economic Accounts, GDP and Personal Income, Drilldown: Gross Domestic Product (GDP) by State: All Industry Total (Millions of Current Dollars)," last updated April 7, 2020, https://apps.bea.gov/itable/drilldown.cfm?reqid=70&stepnum=40&Major_Area=3&State=00000&Area=XX&TableId=526&Statistic=1&Year=2019&YearBegin=-1&Year_End=-1&Unit_Of_Measure=Levels&Rank=0&Drill=1 (accessed April 15, 2020).
10. MetLife and U.S. Chamber of Commerce, "Special Report on Coronavirus and Small Business," April 3, 2020, p. 4, https://www.uschamber.com/sites/default/files/metlife_uscc_coronavirus_and_small_business_report_april_3.pdf (accessed April 15, 2020).

11. The data set has been used to create a calculator that allows users to make adjustments to see how much GDP would be lost based on reductions to various industries over the weeks to come. See "Calculating the Costs of Declining Industries," Heritage Foundation *Data Visualization*, April 10, 2020, https://www.heritage.org/data-visualizations/markets-and-finance/calculating-the-costs-of-declining-industries/?fbclid=IwAR0A1rTyQMwThJhXfT46dj3RSFmV-9NACN_pL0RsvjKpXaiyZNxOrwEaJTg.
12. $14,835 billion in Q3 2008 to $14,420 in Q3 2009. Table 1.1.5, "Gross Domestic Product," in U.S. Department of Commerce, Bureau of Economic Analysis, "National Data: National Income and Product Accounts," last revised March 26, 2020, https://apps.bea.gov/iTable/iTable.cfm?reqid=19&step=2#reqid=19&step=2&isuri=1&1921=survey (accessed April 15, 2020). The decline for the nine months from Q3 to Q2 in 2009 was 3.3 percent.
13. News release, "Unemployment Insurance Weekly Claims," U.S. Department of Labor, Employment and Training Administration, March 26, 2020, https://www.dol.gov/sites/dolgov/files/OPA/newsreleases/ui-claims/20200510.pdf (accessed April 15, 2020).
14. News release, "Unemployment Insurance Weekly Claims," U.S. Department of Labor, Employment and Training Administration, April 2, 2020, https://www.dol.gov/sites/dolgov/files/OPA/newsreleases/ui-claims/20200551.pdf (accessed April 15, 2020).
15. News release, "Unemployment Insurance Weekly Claims," U.S. Department of Labor, Employment and Training Administration, April 9, 2020 https://www.dol.gov/sites/dolgov/files/OPA/newsreleases/ui-claims/20200592.pdf (accessed April 15, 2020).
16. News release, "Unemployment Insurance Weekly Claims," U.S. Department of Labor, Employment and Training Administration, April 16, 2020 https://www.dol.gov/sites/dolgov/files/OPA/newsreleases/ui-claims/20200632.pdf (accessed April 16, 2020).
17. Ibid. Insured unemployment (not seasonally adjusted) as of April 4 of 12,526,711 plus initial claims (NSA) of 4,971,823 equals 17,498,534, which is 10.7 percent of the civilian labor force level of 162.9 million (as of the end of March).
18. The Bureau of Labor Statistic data are as follows:

	February	March
Civilian Labor Force Level	(A)164.5	162.9
Employment Level	(B)158.8	155.8
Unemployment Level	(C) 5.8	7.1
Unemployment Rate	(C÷A) 3.5%	4.4%

See U.S. Department of Labor, Bureau of Labor Statistics, "Databases, Tables & Calculators by Subject," https://www.bls.gov/data/ (accessed April 15, 2020). See also news release, "Employment Situation Summary: The Employment Situation—March 2020," U.S. Department of Labor, Bureau of Labor Statistics, April 3, 2020, https://www.bls.gov/news.release/empsit.nr0.htm (accessed April 15, 2020).

19. Miguel Faria-e-Castro, "Back-of-the-Envelope Estimates of Next Quarter's Unemployment Rate," Federal Reserve Bank of St. Louis On The Economy Blog, March 24, 2020, https://www.stlouisfed.org/on-the-economy/2020/march/back-envelope-estimates-next-quarters-unemployment-rate (accessed April 15, 2020).
20. For the calculations on Table 3, we estimated the post-crisis employment figure by multiplying the pre-crisis employment level by the ratio of post-crisis GDP to pre-crisis GDP (presented on Table 2). We then estimated the post-crisis unemployment rate by adding the change in employment to the pre-crisis unemployment level and dividing by the labor force (we assumed that the labor force is unchanged over this short-term interval and relied on the following equation: Labor Force (L) = Employment (E) + Unemployment (U)). We also assumed that the production function remained unchanged (i.e., the capital/labor ratio is unchanged). Therefore, a given percentage decline in GDP will result in the same percentage decline in employment. Take μ to be the ratio of post-crisis GDP to prior GDP where $\mu < 1$ (from Table 2), post-crisis employment = E1, pre-crisis employment = E0, post-crisis unemployment = U1, and pre-crisis unemployment = U0. Therefore, E1 = μE0. U1 = U0 + (E0 - E1).
21. Although it may be unrealistic to assume that the decline in the employment level for the eight-week scenario will be more than double that of the four-week scenario, there simply is no good precedent to guide this calculation. During the Great Recession, for instance, the monthly decline in employment seemed to be leveling off in March through June of 2008 but soon surpassed the previous losses. Employment losses continued until December 2009. Thus, at some point, the drop in employment during the COVID crisis can be expected to decline, but that point in time is very difficult to predict. Moreover, the COVID crisis is very different from previous recessions.
22. Juan M. Sánchez and Constanza S. Liborio, "The Relationships Among Changes in GDP, Employment, and Unemployment: This Time, It's Different," Federal Reserve Bank of St. Louis *Economic Synopses* No. 13, posted May 18, 2012, https://research.stlouisfed.org/publications/economic-synopses/2012/05/18/the-relationships-among-changes-in-gdp-employment-and-unemployment-this-time-its-different/ (accessed April 15, 2020). 9.5 x 2 +3.5 = 22.5 percent (lockdown). 3.7 x 2 + 3.5 = 10.9 percent (lesser restrictions).
23. BEA data show that GDP declined by 3.25 percent from 3Q 2008 to 2Q 2009. BLS data show that the employment level declined 5.85 percent over the 25-month period from November 2007 to December 2009. BLS data also show that the employment level declined by 3.49 percent during the nine-month period that BEA data show GDP to be in decline. The ratios of employment decline to GDP decline are 1.8 and 1.07 for these two periods, respectively. Table 2 shows a 9.4 percent GDP decline for an 8-week lockdown. The unemployment rate entering the crisis was 3.5 percent. (9.4 x 1.07) + 3.5 = 13.6. (9.4 x 1.8) + 3.5 = 20.4. Note also (regarding lesser restriction losses) that (3.7 x 1.07) + 3.5 = 7.5 and (3.7 x 1.8) + 3.5 = 10.2.

24. Specifically, the rate compares a given day of the month against the median for that same day of the week during the period January 4, 2020, to January 31, 2020. Thus, for instance, the rate on Thursday, March 12, 2020, would compare against the median value for all Thursdays between January 4 and January 31.
25. Homebase, "COVID-19 Impact on US Local Businesses and Hourly Employees," last update April 14, 2020, https://joinhomebase.com/data/covid-19/ (accessed April 15, 2020). Homebase graciously provided this data set to Heritage; it is available upon request.
26. These figures should not be taken as representative of the entire economy or of larger businesses because the Homebase data skew toward smaller firms. There are likely important differences in hours worked and leave policies among, for example, employees at independently owned neighborhood coffee shops and Starbucks.
27. Homebase, "COVID-19 Impact on US Local Businesses and Hourly Employees." As with other figures using Homebase data, these estimates are not representative of the entire economy or of larger businesses.
28. Ibid.
29. For a point of reference, based on the U.S. Census Bureau's Quick Facts, the average monthly total sales in the *accommodation and food service* industries for these states (adjusted for inflation to 2019 using the CPI) were as follows: California, $8.4 billion; New York, $4.6 billion; Oklahoma, $660.8 million; and Wyoming, $152.6 million. See U.S. Department of Commerce, U.S. Census Bureau, "Quick Facts: United States," https://www.census.gov/quickfacts/fact/table/US/PST045219 (accessed April 15, 2020).
30. Romina Boccia, Lindsey Burke, David R. Burton, Rachel Greszler, Adam Michel, Norbert J. Michel, Jude Schwalbach, Parker Sheppard, and Paul Winfree, "Congress Should Focus on Pandemic Control and Fix the CARES Act for an Economic Rebound," Heritage Foundation *Backgrounder* No. 3484, April 2, 2020, https://www.heritage.org/sites/default/files/2020-04/BG3484.pdf; Lindsey Burke, David R. Burton, Marie Fishpaw, Rachel Greszler, Adam Michel, Norbert J. Michel, Parker Sheppard, and Paul Winfree, "The Senate's Coronavirus Bill: Bailouts, Missed Opportunities, and Positive Reforms," Heritage Foundation *Backgrounder* No. 3479, March 20, 2020, https://www.heritage.org/sites/default/files/2020-03/BG3479_0.pdf; David R. Burton, Marie Fishpaw, Norbert J. Michel, Parker Sheppard, and Paul Winfree. "The "Third Inning": Next Steps for Congress in Addressing the Coronavirus," Heritage Foundation *Backgrounder* No. 3477, March 17, 2020, https://www.heritage.org/sites/default/files/2020-03/BG3477_1.pdf; David R. Burton, Norbert J. Michel, Parker Sheppard, and Paul Winfree, "Sound Policy Responses to the Economic Consequences of the Coronavirus," Heritage Foundation *Issue Brief* No. 5046, March 11, 2020, https://www.heritage.org/sites/default/files/2020-03/IB5046.pdf.
31. Ibid.
32. Rachel Greszler, "Unemployment Claims Just Spiked 1,000%. How the Left's Approach Will Make It Worse," The Daily Signal, March 26, 2020, https://www.dailysignal.com/2020/03/26/unemployment-claims-just-spiked-1000-how-democrats-approach-will-make-it-worse/. See also press statement, "Winfree: Keep Americans Attached to Jobs, Not Government Programs," The Heritage Foundation, March 25, 2020, https://www.heritage.org/press/winfree-keep-americans-attached-jobs-not-government-programs.