NAIC
National Association of Insurance Commissioners

Journal of Insurance Regulation

Cassandra Cole and Kathleen McCullough
Co-Editors

Vol. 39, No. 7

Feasibility Questions About Government-Sponsored Insurance for Business Interruption Losses from Pandemics

Robert W. Klein, Ph.D.
Harold Weston, J.D., CPCU

JIR-ZA-39-07

National Association of Insurance Commissioners

The NAIC is the authoritative source for insurance industry information. Our expert solutions support the efforts of regulators, insurers and researchers by providing detailed and comprehensive insurance information. The NAIC offers a wide range of publications in the following categories:

Accounting & Reporting
Information about statutory accounting principles and the procedures necessary for filing financial annual statements and conducting risk-based capital calculations.

Consumer Information
Important answers to common questions about auto, home, health and life insurance — as well as buyer's guides on annuities, long-term care insurance and Medicare supplement plans.

Financial Regulation
Useful handbooks, compliance guides and reports on financial analysis, company licensing, state audit requirements and receiverships.

Legal
Comprehensive collection of NAIC model laws, regulations and guidelines; state laws on insurance topics; and other regulatory guidance on antifraud and consumer privacy.

Market Regulation
Regulatory and industry guidance on market-related issues, including antifraud, product fi ling requirements, producer licensing and market analysis.

NAIC Activities
NAIC member directories, in-depth reporting of state regulatory activities and official historical records of NAIC national meetings and other activities.

Special Studies
Studies, reports, handbooks and regulatory research conducted by NAIC members on a variety of insurance related topics.

Statistical Reports
Valuable and in-demand insurance industry-wide statistical data for various lines of business, including auto, home, health and life insurance.

Supplementary Products
Guidance manuals, handbooks, surveys and research on a wide variety of issues.

Capital Markets & Investment Analysis
Information regarding portfolio values and procedures for complying with NAIC reporting requirements.

White Papers
Relevant studies, guidance and NAIC policy positions on a variety of insurance topics.

For more information about NAIC publications, visit us at:

http://www.naic.org/prod_serv_home.htm

Printed in the United States of America

NAIC Executive Office
444 North Capitol Street, NW
Suite 700
Washington, DC 20001
202.471.3990

NAIC Central Office
1100 Walnut Street
Suite 1500
Kansas City, MO 64106
816.842.3600

NAIC Capital Markets
& Investment Analysis Office
One New York Plaza, Suite 4210
New York, NY 10004
212.398.9000

Purpose

The *Journal of Insurance Regulation* is sponsored by the National Association of Insurance Commissioners. The objectives of the NAIC in sponsoring the *Journal of Insurance Regulation* are:

1. To provide a forum for opinion and discussion on major insurance regulatory issues;

2. To provide wide distribution of rigorous, high-quality research regarding insurance regulatory issues;

3. To make state insurance departments more aware of insurance regulatory research efforts;

4. To increase the rigor, quality and quantity of the research efforts on insurance regulatory issues; and

5. To be an important force for the overall improvement of insurance regulation.

To meet these objectives, the NAIC will provide an open forum for the discussion of a broad spectrum of ideas. However, the ideas expressed in the *Journal* are not endorsed by the NAIC, the *Journal's* editorial staff, or the *Journal's* board.

Feasibility Questions About Government-Sponsored Insurance for Business Interruption Losses from Pandemics

Robert W. Klein, Ph.D.*
Harold Weston, J.D., CPCU**

Introduction

Widespread economic losses to many businesses due to COVID-19 business closures have led many plaintiffs' attorneys to assert in lawsuits that business interruption (BI) insurance policies cover these losses, while insurers generally contend that their BI policies exclude coverage for a variety of reasons.[1] We explain the basic coverage contentions below. Additionally, several states are considering measures that would retroactively establish coverage for pandemic-caused losses under BI policies. While the resolution of coverage disputes and the legality of retroactive coverage expansions in the courts is uncertain, clearly there is strong interest in making BI pandemic insurance available going forward.

While a few insurers have offered BI pandemic coverage, no firms have purchased it (Lerner, 2020). Further, many insurers are reluctant to expand their BI policies to cover pandemic losses. Hence, there is strong interest in creating a federal government insurance program that would provide BI pandemic coverage.

---

1. These closures have occurred either directly due state and local government orders to close unless designated an essential business, or indirectly by state and local government orders for citizens to stay home except for basic personal necessities.

* Affiliate Senior Research Fellow, Temple University; Emeritus Professor of Risk Management and Insurance, J. Mack Robinson College of Business, Georgia State University; *rwklein@gsu.edu*.
** Clinical Associate Professor and Undergraduate Program Adviser, Robinson College of Business, Department of Risk Management and Insurance; College of Law, secondary appointment; Georgia State University; *hweston@gsu.edu*.

Currently, there are at least two formal proposals to establish such a program. One proposal is the Pandemic Risk Insurance Act of 2020 (PRIA), which was introduced in the U.S. Congress as H.R. 7011; PRIA would establish a Pandemic Risk Reinsurance Program (PRRP) modeled after the Terrorism Risk Reinsurance Program (TRRP) established by the Terrorism Risk Insurance Act (TRIA).[2] Three industry trade associations also have proposed a Business Continuity Protection Program (BCPP) as an alternative to PRIA that is similar in some regard to the National Flood Insurance Program (NFIP).[3]

PRIA intends to create a public and private insurance program that would provide BI insurance for pandemics, with participating private insurers retaining 5% of losses above a deductible. We critique the program contemplated by PRIA and discuss the BCPP. Additionally, we consider a program concept of our own design that would also borrow from the NFIP (but would differ somewhat from the BCPP), as well as a program similar to the federal crop insurance program. We conclude that frameworks based on the NFIP or the federal crop insurance program would have several advantages over PRIA, which has a number of problems, but even these alternative frameworks would face many challenges. This policy brief provides a preliminary review of the PRIA and BCPP drafts, as well as other alternative frameworks, and draws from a longer working paper by the authors (Klein and Weston, 2020).

Background

Before we begin our discussion of PRIA and alternative frameworks for government BI pandemic insurance, it is helpful to provide a brief review of BI coverage as it is currently structured, followed by an overview of TRIA.

Business Interruption Insurance

The standard business income coverage form by the Insurance Services Office (ISO) (CP 00 30 10 12) provides coverage for net income and continuing normal operating expenses incurred, including payroll (if the insured includes payroll in its coverage selection and calculation), when the business is not operating due to a covered cause of loss. Causes of loss are either in the Causes of Loss – Broad Form, or the Causes of Loss – Special Form. Business income is defined as "Net Income (Net Profit or Loss before income taxes) that would have been earned or incurred;

2. The text of H.R. 7011 is available at *https://www.congress.gov/bill/116th-congress/house-bill/7011/text?q=%7B%22search%22%3A%5B%22HR+7011%22%5D%7D&r=1&s=1*.

3. These associations are the American Property Casualty Insurance Association of America (APCIA), the National Association of Mutual Insurers (NAMIC) and the Independent Insurance Agents & Brokers of America (IIABA). A press release concerning the BCPP is available at *https://www.namic.org/news/releases/200521mr01*.

and continuing normal operations expenses incurred, including payroll." The coverage grant states:

> We will pay for the actual loss of Business Income you sustain due to the necessary "suspension" of your "operations" during the "period of restoration." The "suspension" must be caused by direct physical loss of or damage to property at premises which are described in the Declarations and for which a Business Income Limit of Insurance is shown in the Declarations. The loss or damage must be caused by or result from a Covered Cause of Loss.

The Causes of Loss – Broad Form (CP 10 20 10 12) provides named perils coverage for the familiar perils of fire, lightning, explosion, etc.; pathogens of any type are not among these perils. The Causes of Loss – Special Form (CP 10 30 09 17), or perhaps an earlier version, or some insurer's own proprietary version, is open perils coverage. For this coverage, policyholder lawyers assert there is the potential for coverage based on the exclusions, or lack of exclusions, specific to viruses; the form includes an exclusion for "fungus, wet rot, dry to and bacteria." Insurers can add the endorsement specific for viruses – Exclusion of Loss Due to Virus or Bacteria (CP 01 30 07 06). Another relevant exclusion in the special form excludes "loss or damaged caused by or resulting from … Delay, loss of use or loss of market."

The treatise *Commercial Property Insurance* (Robinson & Gibson, 2018) explains that business income interruption insurance is a "time element coverage." They state:

> Time element coverage forms provide coverage for loss of income or increase in operating expenses that result from suspended or makeshift operations while damaged property is being repaired or replaced. The term "time element" is used because the dollar amount of loss suffered by the insured depends on how long it takes to repair or replace the damaged property. Direct damage coverage forms, on the other hand, provide coverage for the repair or replacement of property damaged by a covered cause.

Another treatise explains that business income interruption insurance "is tied to damage or destruction to property used, owned, leased, or operated by the policyholder in its business, property necessary for such operations …, or property at the 'premises' or within a certain distance …. In the absence of such damage, there is no Business Income coverage, whether or not the policyholder's business is suspended or interrupted" (Lewis and Insua, 2020: 3-36 – 3-36.1). The dispute then arises over what constitutes property damage (Lewis and Insua, 2020; 3-36.1).

Policyholders also contend the stay-at-home orders, and related orders to close some businesses, trigger the civil authority coverage of these policies. This coverage, too, depends on property damage by a covered peril.

Whether a virus that can be wiped clean from the surface of personal property—as business firms now do frequently during the day to help assure customers of cleanliness and thus safety to operate a business—causes permanent alteration and contamination to constitute property damage is the question for the courts to resolve, and is beyond this paper to address.

Terrorism Risk Insurance Act

TRIA was enacted in 2002 in response to reinsurers' unwillingness to provide coverage for terrorist events following the 9/11 terrorist attacks.[4] This, in turn, prompted primary insurers to exclude coverage for terrorism in their policies. The program essentially provides a federal reinsurance backstop for private insurers who provide coverage for property damage arising from a terrorist attack. The program comes into effect when an act of terrorism is certified by the secretary of the U.S. Department of Treasury (Treasury) that the act falls under the definition of "terrorism" under TRIA and triggers an event dollar threshold.

All insurers offering commercial lines covered under TRIA are required to offer terrorism coverage, but a firm is not required to buy it. Most commercial lines are covered under TRIA with a number of exclusions, including commercial auto and professional liability insurance, among others. The types of losses covered under terrorism insurance include commercial property, BI and general liability.

The program is triggered when industry total losses from a certified terrorist act reaches $200 million. Each individual insurer retains a deductible of 20% of its direct premiums earned for commercial insurance and 20% of its losses above its deductible. The aggregate industry retention (deductibles and copayments) is capped at an estimated $46 billion in 2020.[5] All losses in a program year for both insurers and the federal government are capped at $100 billion.

The government relies on ex post financing to recover the payments it makes to insurers under the program. TRIA provides for two types of recoupment—mandatory and discretionary—of the federal share of losses under the program. Mandatory recoupment applies when industry losses fall below the aggregate industry retention level. Under this recoupment, insurers are required to impose and remit a premium surcharge on all policies over a specified period of time in TRIA-eligible lines until total industry payments reach 140% of any mandatory recoupment amount. Under discretionary recoupment, the Treasury may require

4. It is likely that several factors caused reinsurers to be unwilling to provide coverage for terrorist events at that time. Arguably, there was considerable uncertainty regarding what the risk of further terrorist events would be after 9/11. Reinsurers were likely concerned about their financial capacity to pay their share of terrorism losses going forward, as well as their ability to accurately assess and price the risk of such events.

5. This amount will be the average of insurers' deductibles over the last three years.

insurers to impose and remit additional premium surcharges for amounts paid by it for losses above the aggregate industry retention level.[6]

Pandemic Risk Insurance Act

The current draft of PRIA has a number of provisions similar to TRIA, but also contains some important differences. Like TRIA, PRIA would be triggered by a declaration by the federal government of a specific calamity. In this case, the triggering event would be a "public health emergency" for an outbreak of an infectious disease or pandemic for which an emergency is declared, on or after Jan. 21, 2021, under the Public Health Service Act and that is certified by the secretary of the U.S. Department of Health and Human Services (HHS) as a public health emergency.

Insurers would be responsible for 5% of their direct premiums earned for specified lines of business for the previous calendar year as a deductible. Additionally, insurers would retain 5% of their losses above their deductibles. There would be no payments to insurers until total industry losses exceed $250 million. Total payments by the program would cease when aggregate insured losses exceed $750 billion.

Interestingly, PRIA lacks specifics on the funding of the federal share of losses. PRIA states that the federal reinsurance payments and administrative costs of the program will be appropriated out of funds in the Treasury not otherwise appropriated.[7] Hence, unlike TRIA, PRIA does not provide a post-event mechanism to recover the reinsurance payments made and other costs of the program. Further, PRIA does not provide a pre-event financing mechanism for the federal government's costs for reinsurance payments and administration using some form of premiums charged by the Treasury. Hence, we presume that general revenues (i.e., taxpayers) would fund the PRRP's costs. Participating insurers would determine their premium rates for the coverage they provide.[8]

Noting that this is a critique of a bill that may be amended, PRIA raises a number of questions and issues. We divide our concerns between two broad categories.

---

6. This surcharge may not exceed 3% of applicable premiums in a given year.

7. We note that in a prior discussion draft of PRIA, the PRRP would rely on ex ante, rather than ex post, financing. Specifically, the program would charge each participating insurer an annual premium for the reinsurance coverage they receive. In that draft, the premium rates would be based on the "actuarial cost" of the reinsurance provided including the program's administrative costs as determined by the secretary of the HHS.

8. The discussion draft states that insurers' premium rates will not be subject to prior approval by the states but presumably states could still regulate these rates if they chose to using a file-and-use or a use-and-file system. This could lead to problems if some states do not allow insurers to charge rates they deem necessary.

Insurance Contract Concerns

One category is insurance contract coverage concerns that go to what the insurance covers. First, what would constitute a covered loss is ambiguous.[9] If a business could only file a claim for losses when forced to completely shut down, this could be relatively straightforward for an insurer to determine. However, the bill requires only a declaration of a public health emergency by the secretary of HHS to trigger coverage, which is not the same as ordering businesses closed. This matters because quarantines and stay-at-home orders are issued by states and municipalities (Swendiman and Jones, 2009: 8–9). These two different jurisdictional triggers need to be connected. Even using public health emergency and state/local orders leaves a gap to the civil authority coverage in existing BI insurance because existing BI insurance requires damage to nearby property which creates a dangerous condition or requires unimpeded access to that damaged other property (typically within one mile of the damaged property but this distance can be altered by endorsement), (ISO Form, CP 00 30 10 12). Individual policies issued to policyholders may, of course, have different conditions for coverage. Therefore, this proposed bill's trigger of a public health emergency does not alone or together with a stay-at-home order fit into, let alone initiate, civil authority coverage under current BI insurance.

Second, the draft bill assumes a pandemic-caused loss is the same as the perils covered by typical BI insurance.[10] That is not the case. There is no obvious reason this new insurance could not create a specific pandemic (viral) cause of loss, subject to their being an income loss, but the bill is ambiguous or misdirected in either assuming or requiring that public health emergencies are part of, or should be part of, all BI policies. A properly crafted bill would create a separate cause of loss for pandemic-caused losses only, in line with terrorism as a separate cause of loss that triggers coverage under TRIA-backed insurance policies.

Third, the draft bill assumes that BI insurance now covers payroll expenses, thus providing income not only to the business for its own net profit but also the income for the workers.[11] That is not how BI insurance works. The choice to cover payroll is entirely discretionary for a business when it purchases a BI insurance

9. In one section, it defines BI insurance as "commercial lines of property and casualty insurance coverage provided or made available for losses resulting from periods of suspended business operations, whether provided under broader coverage for property losses or separately." However, in another section, participating insurers would be required to "make available business interruption insurance coverage for insured losses that does not differ materially from the terms, amounts, and other coverage limitations applicable to losses arising from events other than public health emergencies."

10. "The term 'insured loss' means any loss resulting from a covered public health emergency that is covered by primary or excess business interruption insurance issued by a participating insurer …"

11. "Make available business interruption insurance coverage for insured losses that does not differ materially from the terms, conditions, amounts, limits, deductibles, or self-insured retentions and other coverage grants, limitations, and exclusions applicable to losses arising from events other than public health emergencies."

policy (see, for example, Robinson, 2018).[12] If the draft bill intends that pandemic-caused losses provide income to workers, beyond income to management, then it must specify this requirement. Otherwise, payroll expenses would not be covered, and the resulting unemployed workers would be immediately bumped off to apply for unemployment insurance. If the bill's goal is (in part) to provide income to workers, then it must correct this gaping misassumption about what BI insurance covers.

A fourth issue goes to the "prohibition on duplicative compensation" in the bill, that reduces the "Federal share of compensation for insured losses under the Program … by the amount of compensation provided by the Federal Government to any person under any other Federal program for those insured losses." This is sensible. However, insureds will demand prompt payment by the insurers, and if the insured business can later seek other federal compensation, the burden should be on the federal government to offset that. This draft bill puts the burden on the insurers to determine, in advance of any later federal payment scheme, to reduce the BI insured payment or else face non-reimbursement by the government.

Insurance Fundamentals

The second category of concerns is fundamental to what and how insurance works. One issue in this category goes to the moral hazard of allowing insureds to shutter their businesses without trying to minimize losses. The current pandemic has resulted in some businesses providing alternative services, albeit reduced from pre-pandemic levels. Some businesses have innovated to provide curbside pickup and home delivery; before the pandemic these businesses were complaining about internet businesses cutting into their operations (such as restaurant delivery and grocery delivery businesses) (Yafee-Bellany, 2019; Keng, 2018). Having insurance could reduce the incentives for a business to find ways to serve its customers that would still be allowed. Further, if a business could file a claim for losses arising from restrictions on its activities or for other losses that could be attributed to a

12. "If the policy includes a payroll limitation or exclusion endorsement, the amount of payroll expense that is excluded from coverage should be deducted in determining the estimated business income. The standard business income work sheet (CP 15 15) includes an entry for this deduction, if it applies. Unendorsed, business income coverage forms provide coverage for all of the insured's payroll, to the extent that this expense is 'necessary' for the insured to resume operations with the same level of service that existed before the damage. However, all or part of the insured's payroll can be either excluded from coverage altogether or covered for only a specified number of days after the property damage loss (usually 90 or 120 days) by endorsement."

"Traditionally, payroll limitation or exclusion endorsements have been used to exclude or limit coverage for "ordinary payroll"—the payroll of those employees whose services would not be needed during the shutdown and could be readily replaced afterward without any harm to the insured's operations. … businesses with a relatively large unskilled labor force could save a significant amount of premium without impairing the firm's recovery by limiting or excluding coverage for ordinary payroll."

pandemic, then adjusting claims could be much more challenging and subject to disputes.

A second issue goes to rate-setting and program funding. Lacking either a pre-event or post-event financing mechanism, program costs would be funded by taxpayers and not the businesses that would benefit from having coverage under the program. Insureds would only pay for the portion of losses covered by participating insurers. Hence, arguably, the PRRP would not be a true insurance program. It would only be an insurance program in the sense that federal government would promise to reimburse primary insurers for 95% of the payments they make to their insureds above their deductibles.[13] The bill specifies that funds are appropriated for the payments that would be made to participating insurers, without any obvious mechanism to accomplish this, nor does it specify that the entire amount of payments made by the program are to be funded in the current year that the bill is enacted and then held in a separate account at the Treasury, or in a separate corporation for this insurance. In contrast, the federal crop insurance program has a separate corporation, the Federal Crop Insurance Corporation (FCIC), established for the management and dispersal of funds.

Nevertheless, the PRRP does include an element of cross-subsidization of all insureds in the program, including subsidization by insureds for other property/casualty lines, by setting the insurer's deductible based on 5% of "the value of the participating insurer's direct earned premiums during the immediately preceding calendar year," where the bill defines "direct earned premium for property and casualty insurance issued by any participating insurer for insurance against losses occurring in the United States."

If the draft bill were amended to provide pre-event financing through premiums charged by the Treasury, it would be reasonable to expect that the Treasury and private insurers would be subject to political pressure with respect to the rates they charge. This has happened with the NFIP. Further, studies of state insurance rate regulation indicate that some states have suppressed rates for certain types of insurance (e.g., homeowners insurance in the states subject to hurricanes) for which the cost of coverage is politically contentious (Born et al., 2018).

Additionally, previous studies on the frequency of pandemics shows that predicting the frequency of such losses is nearly impossible. "Scholars tend to give a fairly consistent estimated interval of 10–50 years between influenza pandemics. This is a very broad window, suggesting that pandemics occur with an irregularity that prevents accurate prediction of emergence" (Saunders-Hastings and Krewski, 2016).[14] How an insurer could set aside capital for a loss possibly 50 years in the future, without regulators and policyholders demanding this unused capital be

13. In essence, in this regard, the PRRP would function more like Medicaid that is effectively a welfare program and not an insurance program.

14. See also Huynh, Bruh and Browne (2013) for a discussion of the irregularity of pandemics that have occurred anywhere from two years to 56 years apart, and the range of morbidity and mortality of particular pandemics.

employed to reduce more current rates for other lines, is a regulatory problem not addressed in this bill.

A third issue arises with making participation by insurers voluntary. While this spares insurers from participating in a program that they deem problematic, it raises a question as to how many insurers would elect to participate.[15] If few insurers participate, then some (perhaps many) businesses may find it difficult to obtain coverage. It is possible that less financially sound and responsible insurers may offer this coverage but then some of these insurers may fail to meet their claims obligations if a covered event occurs, unless these insurers bought sufficient reinsurance for this specific exposure. State guaranty funds would then have to pay for the insolvent admitted insurer's covered losses.[16] The reason that this could occur is that insurers concerned about their financial risk may be less likely to participate in the program because their retained losses could drive them into insolvency. On the other hand, insurers that are less concerned about their financial risk may be more willing to participate as they would be able to collect and retain premiums until a pandemic occurs, which could take many years.[17,18]

A fourth issue arises with respect to how many firms would purchase this coverage. As with terrorism insurance, a business would be able to choose whether it buys PRRP-backed pandemic BI insurance or not and, presumably, the amount of coverage it would buy based on the coinsurance provision that it selects.[19] Firms' appetite for BI pandemic coverage is a matter of speculation, but we can consider how many firms currently purchase property BI coverage.

One study found that only 34% of small firms have BI insurance (*Insurance Journal*, 2015). Another study looking at small and medium enterprises that suffered damages due to Superstorm Sandy found 30% of the firms surveyed had BI insurance and only 11.9% had flood insurance (Collier, et al., 2019), thus showing that the lack of insurance for flood losses is separable from regular BI and

15. We can only speculate on how many insurers would choose to participate in the program. This said, given strong industry opposition to PRIA and the analysis we provide below, it is reasonable to anticipate that many insurers would decline to participate.

16. We note that PRIA would allow licensed, as well as nonadmitted, carriers to participate in the program. Generally, licensed insurers are subject to relatively robust financial and market conduct regulation by the states. This is not necessarily the case with nonadmitted insurers though many of these carriers are financially sound and responsible, perhaps stronger than some admitted insurers, and sometimes are owned by admitted insurer holding companies.

17. We saw this occur with insurers that wrote large amounts of property insurance in Florida prior to the 2004–2005 storm seasons without adequate capital and reinsurance. Several of these insurers became insolvent due to their losses from hurricanes in 2004 and 2005 (Grace and Klein, 2009).

18. It is also possible that insurers who underestimate the risk of BI pandemic losses would be more likely to participate in the program.

19. BI insurance has a coinsurance provision, which is the percentage of firm's expenses and net income that could be reimbursed if it is forced to shut down. Generally, the coinsurance provision selected by a business will correspond to how long it would be expected to be shut down. For example, a business that would want coverage for six months of lost income and expenses would choose a coinsurance percentage of 50%. This percentage could be increased to cover higher net income during peak or seasonal periods.

property insurance in place. This study also found that "younger and smaller firms are less likely than older firms and larger firms to insure" (Collier, et al., 2019). We presume a higher percentage of insurance is in place for larger firms, some of which might have the coverage within captive insurers (Wilkinson, 2020).

Affordability is, of course, an issue, and spending money to protect against remote events is a hard decision that businesses must always weigh with cost-benefit and cost of capital concerns (see, for example, Ratliff, 2020). If covered businesses would only be required to pay a small premium relative to the coverage they would receive for pandemic coverage, then the take-up rate for this coverage could be high.[20] If the demand for BI pandemic insurance is high, this could cause concerns among participating companies that would like to limit their risk.[21]

On the other hand, if PRIA is amended to provide for pre-event financing through premiums charged by the Treasury, the cost of these premiums could discourage many businesses from purchasing the coverage. If the take-up rate proved to be low, then the perceived benefits of the program would be reduced. A low take-up rate would also raise issues concerning whether a business could still obtain aid (outside the program) from the federal government for its pandemic-related BI losses if it had not purchased insurance. Allowing businesses to obtain such aid if they did not buy insurance would raise equity concerns, as well as reduce firms' incentives to purchase the coverage going forward. On the other hand, denying aid to businesses that did not purchase insurance could lead to a political firestorm.[22] There is also the question of whether firms could purchase only BI pandemic coverage, if available, versus adding pandemic coverage to a property BI policy.

There are also issues as to how many insurers would be able to bear or feel comfortable with the potential amount of losses they would retain under the program. We performed an initial analysis of what participating insurers' deductibles and pro rata shares of losses could be under different scenarios using company data for 2019. More specifically, we estimated companies' retained losses (i.e., their deductibles and pro rata shares of losses above their deductibles) in relation to their surplus. We used three different scenarios for industry losses: $250 billion; $500 billion; and $750 billion. To determine a company's pro rata share of industry losses, we used its proportional share of the total direct premiums earned for all companies included in our analysis. We employed two different panels of companies for our estimations: 1) the 100 largest writers of the covered lines under PRIA; and 2) the 100 largest writers of commercial multi-peril and fire insurance.[23]

20. We note that the take-up rate among businesses for terrorism coverage is relatively high.

21. Under the current PRIA draft, it is unclear whether a participating insurer could limit the number of policies it would write in order to limit its risk exposure.

22. These issues have arisen when the U.S. Congress has considered providing financial assistance to individuals and firms following a flood.

23. We chose this second panel because BI coverage is most commonly offered in commercial property and multi-peril policies. Hence, insurers that currently write these policies might be more likely to offer BI pandemic coverage than other insurers, all other things equal.

For the first panel of companies, in 2019, their combined direct premiums earned (DPE) were $132.7 billion and their combined surplus was $271.3 billion. Collectively, their deductibles as 5% of their DPE would be $6.6 billion. To illustrate our calculations, consider the case of an insurer with DPE of $800 million and $425 million in surplus, and total industry losses of $500 billion. The industry's retained losses above their deductibles would be 5% of $500 billion minus $6.6 billion, or $24.7 billion. As this company's share of all insurers' DPE would be 0.6%, it would be responsible for 0.6% of $24.7 billion ($148 million) and its deductible would be $40 million. Hence, its share of the losses under its policies would be $40 million plus $148 million. The insurer's retained losses would be $188 million, which would represent 44.2% of its surplus.

We employed the same methodology for our analysis of the second panel of companies. In 2019, the combined DPE for these companies for commercial multi-peril and property insurance was $99.4 billion and the sum of their deductibles was $4.9 billion.

The results of our analysis are shown in Table 1 and Table 2. Each table shows the minimum, maximum, mean and median values, as well as the quintile breaks for the three industry loss scenarios. As can be seen in Table 1 (the 100 largest writers of covered lines), the potential surplus strain becomes a greater problem for more companies as the industry losses get higher. For example, the median value increases from 16.2% for industry losses of $250 billion to 37.6% for industry losses of $750 billion. The fourth quintile break increases from 74.2% for industry losses of $250 billion to 172.9% for industry losses of $750 billion. We see a similar pattern in Table 2 (the 100 largest writers of commercial multi-peril and fire insurance), with the difference being that the surplus strain would be greater for more companies.

Our analysis indicates that even with a relatively low percentage deductible and pro rata share, the potential losses for many companies relative to their surplus could be problematic. If companies' deductibles and pro rata shares were increased, even more companies would face severe financial risk. We note that the actual losses for any company could be significantly different (lower or higher) than what we have calculated. Clearly, participating companies would face a great deal of uncertainty, and it is uncertain as to whether the premiums they would be allowed to charge for their share of the risk would be adequate.

Table 1
Statistics on Companies' Retained Losses as a Percent of Surplus
100 Largest Writers of PRIA Covered Lines

	Total Industry Losses		
Statistic	$250B	$500B	$750B
Minimum	0.3%	0.5%	0.7%
Maximum	1817.9%	3026.4%	4234.9%
Mean	64.9%	108.1%	151.2%
Median	16.2%	26.9%	37.6%
Q1	5.4%	8.9%	12.5%
Q2	11.4%	18.5%	25.9%
Q3	26.0%	43.3%	60.5%
Q4	74.2%	123.5%	172.9%

Source: SNL Financial and authors' calculations.

Table 2
Statistics on Companies' Retained Losses as a Percent of Surplus
100 Largest Writers of Commercial Multi-Peril and Fire Insurance

	Total Industry Losses		
Statistic	$250B	$500B	$750B
Minimum	0.5%	0.9%	1.3%
Maximum	3880.8%	7186.0%	10491.1%
Mean	84.0%	151.9%	219.7%
Median	18.7%	34.1%	48.1%
Q1	5.1%	8.5%	12.0%
Q2	11.1%	20.2%	29.3%
Q3	33.3%	60.2%	87.1%
Q4	74.0%	128.0%	181.9%

Source: SNL Financial and authors' calculations.

Determining the provisions that would govern participating insurers' share of losses under this program presents a conundrum. If private insurers' share of losses would be small, this raises the question of what would be the point of having insurers bear any risk, understanding that even low deductibles and pro rata shares may be problematic for many companies. If the industry's share of losses would be large, then few (if any) responsible companies would likely want to participate. This leads us to consider alternative frameworks based on the NFIP or the federal crop insurance program.

There are further problems with claims handling due to the confusing mechanisms described in the bill, as well as the financial management and solvency of the participating insurers due to unclear timing of such claims payments because insurers might have to advance payments to insureds and await the Treasury's reimbursement, which is even more unreliable unless this program is prefunded. As there are sufficient problems with the conception and design of this program, we defer our concerns with these intertwined problems to our broader paper (Klein and Weston, 2020).

Alternative Frameworks

We now consider alternative frameworks of BI pandemic insurance modeled on the NFIP or the federal crop insurance program. Two of these alternative frameworks would be similar to the NFIP in the sense that the federal government would bear all of the risk and set the rates and terms of coverage. One such program is the BCCP proposed by three major industry trade associations. We also consider a program of our own design based on the NFIP. We will term such a program as the "National Pandemic Risk Insurance Program" (NPRIP). Both programs would have at least two important advantages over PRIA. Specifically, both the BCPP and the NPRIP would not require private insurers to bear any risk. Additionally, both programs would set the terms of and rates for coverage. Nonetheless, even these alternative frameworks would face many challenges that could be difficult to fully address.

Here it is helpful to review key elements of the BCPP. The principal goal of the program is to help keep businesses afloat during a pandemic. In this sense, the program would not work the same as BI insurance, which, among other things, reimburses a business for lost profits. Under the BCPP, businesses could purchase revenue replacement assistance for up to 80% of their payroll and other expenses. Such protection must be purchased 90 days before the declaration of a public health emergency by the president.[24] The desired level of protection could be for up to three months. Payroll coverage would exclude highly compensated employees, employee benefits and operating expenses. The Federal Emergency Management Agency (FEMA) would administer the program.

An important element of the BCPP is its use of the North American Industry Classification System (NAICS) to determine whether a business would be eligible for reimbursement and how much aid it would receive. Businesses in classifications subject to full closure would receive 100% of the reimbursement specified in their policies. Businesses in classifications subject to partial closure would receive something less than 100% of the assistance specified in their policies.[25] These percentages for partial assistance could be adjusted based on the specific industry and how much it is restricted by government orders.

---

24. This provision is intended to mitigate adverse selection.

25. We note that PRIA does not specify whether it would provide coverage for only full closures of business or would also provide coverage for partial closures.

The NPRIP, as we conceive it, would differ from the BCPP in at least one important respect. The NPRIP would reimburse a business for at least a portion of lost profits due to a pandemic. Additionally, the NPRIP could cover a firm's losses for periods of longer than three months. This could make the NPRIP more attractive to businesses, but it would also increase its costs that would necessitate higher premiums. If such a program is proposed, we recommend that what would trigger coverage would be clearly specified, as well as what losses would be eligible for reimbursement.

Another approach would be to model a government BI pandemic insurance program after the federal crop insurance program.[26] We will call this approach the National Pandemic Risk Reinsurance Program (NPRRP). As with federal flood insurance, the government sets the rates and terms for crop insurance. The difference is that the government acts as a reinsurer for private carriers participating in the program, whereas with flood insurance, the NFIP bears risk at a primary level. The minimum loss retentions for participating companies for crop insurance would likely be problematic for BI pandemic insurance. However, this problem could be addressed by allowing participating insurers to negotiate the amount of their retentions with the government.[27] Some insurers could choose higher retention levels than those provided by PRIA; the program administrator would need to ensure that these insurers possess the financial capacity to cover their retained losses. The other problems with a scheme similar to federal flood insurance would still apply to a program modeled on crop insurance.

As with PRIA, an important issue for any program covering BI pandemic losses is exactly what losses would be covered and how they would be determined. A relatively narrow definition of "covered losses" would make claims adjustment less difficult and would limit the scope of losses for which a program would be responsible. This would also make estimation of the risk and pricing less challenging. For example, BI pandemic losses could be those only arising from a complete shutdown of business due to government orders and/or the need to decontaminate the premises of a building. Even decontamination is a problem for this because if decontamination is required repeatedly, then there are recurring losses. We leave that problem to the side for now. If the definition of "covered losses" is broader than this, then the problems discussed above become an issue. In any legislation, the U.S. Congress must articulate its intent as to whether BI insurance for pandemics should protect businesses and their owners only, without regard to employees, or include replacement wages for employees consistent with the current Paycheck Protection Program.

We note that most insurance policies cover losses on an indemnity basis. This means that an insured is only entitled to reimbursement for losses they actually incur and not more. An alternative approach would be to use some form of "parametric" method to determine what would be payable to an insured business. An example of

26. See Klein and Krohm (2009) and the Congressional Budget Office (2017) for reviews of the federal crop insurance program.

27. This raises the question of whether participating insurers could choose to retain no losses.

a parametric method would be the use of a simple formula to determine what an insured business would receive. For example, if a certified public health emergency occurs in designated areas, all insured businesses in these areas would receive a payment equal to some percentage of their revenues or net income in the previous year.[28] Parametric triggers could be employed for any of the programs discussed in this paper.

This approach would make claims adjustment relatively straightforward and reduce the likelihood of any disputes. The problem with this approach is that when a pandemic occurs, some businesses would likely receive more than their actual losses and other business would receive less than what they need.[29] Additionally, with parametric coverage, there would be no assurance that any payments received would, in fact, go to the employees and not be pocketed by a firm.

Even with a narrow definition of "covered losses" or a parametric approach for determining the payments to insured businesses, developing accurate premium rates for either program could be challenging for the reasons discussed in Klein and Weston (2020). To summarize here, the challenge would lie less with modeling the frequency of pandemic but more with its severity. Historically, there have been a number of events involving contagious viruses that have varied widely in terms of their scope.[30] It is also likely that rate-setting would be politicized, as we have seen with federal flood insurance. Program administrators would likely be pressured by the U.S. Congress to charge lower rates than what would be adequate, noting that what would constitute adequate rates would be difficult to determine and contentious.

Assuming that its rates are adequate, it could take a number of years for the programs to accumulate sufficient reserves to pay their claims. Clearly, this would not be a problem if the next pandemic occurs many years from now. It would likely be a problem if the next pandemic occurs within the next five to 10 years. Under this scenario, the programs would likely need to borrow from the Treasury (as the NFIP has done) to be able to meet all of their claims obligations. Loans from the Treasury could be repaid from future premiums (possibly with the help of a premium surcharge) but if a second pandemic occurs within a relatively short time, the programs could be in debt until many years have passed without a pandemic.[31]

---

28. In 2018, Marsh, Munich Re and Metabiota partnered to create PathogenRX that is an insurance product designed to cover economic losses to a firm due to a pandemic that uses a parametric approach. Information on this product is available at *https://www.marsh.com/us/campaigns/pathogenrx.html*. We note that no businesses purchased this product, but the evidence suggests that there has been increased interest in parametric business interruption insurance (Banham, 2020).

29. We note that catastrophe bonds typically use parametric triggers (e.g., total industry losses) or non-parametric triggers (e.g., the actual losses of the insurer issuing the bonds) or a combination of both.

30. Looking forward, one factor that could affect the scope of a pandemic is the timing and effectiveness of government public health measures at the federal, state and local levels.

31. One measure that could be used to at least partially address this problem would be authorizing a program to purchase reinsurance and issue catastrophe bonds as the NFIP has done.

Further, as with PRIA, there is the question of how many businesses would buy coverage offered by these alternative programs. We would expect that the likelihood that a business would purchase the coverage would depend on its owner's perception of their risk and the cost of coverage, among other factors.[32] One of these other factors would be the business owner's expectation that they could obtain government aid for their pandemic-related losses in lieu of insurance. As with PRIA, government aid for businesses that did not buy insurance offered by these alternative programs raises equity issues and could affect the take-up rate for this coverage going forward.[33]

Concluding Thoughts

To summarize, there would be many challenges to creating a viable and efficient government insurance program for pandemic BI risk; Table 3 compares the key features of each program discussed in this paper. Despite these challenges, advocates of such a program might argue that it would still have several advantages relative to the status quo. These advantages might include reducing the uncertainty that many firms face with respect to pandemic-related losses, providing for greater economic stability, and creating a mechanism for pre-event financing.

Table 3
Comparison of Key Features of Programs

Feature	PRRP	BCPP	NPRIP	NPRRP
Risk bearing by private insurers	Yes	No	No	Yes
Reinsurance mechanism	Yes	No	No	Yes
Fully funded by premiums	No	Yes	Yes	Yes
Program sets rates	No	Yes	Yes	Yes
Program sets all coverage terms	No	Yes	Yes	Yes

32. There is an extensive literature on the demand for insurance for catastrophic exposures that indicates that information problems, perceptions, and decision biases cause many individuals and firms to not buy insurance unless they are forced to. Kunreuther et al. (2019) contains several chapters on behavioral factors that influence decision making under risk and uncertainty.

33. This issue has surfaced with respect to federal disaster assistance for individuals and firms that do not have flood insurance.

While we agree that planning for rare and extreme losses such as pandemics is desirable, both as to public health responses and financial and fiscal impacts, our concerns are that government insurance programs such as the one proposed in PRIA would be difficult to administer, subject to political interference, raise equity issues, and could obligate the government to making payments to businesses that would not be adequately funded by its premium revenues and require loans from the Treasury, among others. PRIA, in its current form, is especially problematic, as it neither provides for pre-event or post-event funding by participating businesses and incompletely addresses typical insurance coverage structures. It is understandable that different stakeholders would weigh these pro and cons differently.

In the absence of a government program for insuring BI pandemic losses, where does this leave us? Clearly, the ad hoc discretionary assistance provided to firms and workers due to COVID-19 is unsatisfactory to many. One thing that could be done to address the problems with the status quo would be legislation that would establish a coherent, efficient and equitable framework for providing economic aid to firms and workers in the event of a pandemic, drawing from lessons learned from what has been done for COVID-19. Of course, relying on federal funds to finance such a program raises issues with respect to fiscal policies that are beyond the scope of this brief.

References

Banham, Russ, 2020. "This Insurance Would Have Helped in Coronavirus Crisis But Nobody Bought It," *Insurance Journal*, April 3. Accessed online at *https://amp.insurancejournal.com/news/national/2020/04/03/563224.htm*.

Born, Patricia H., J. Bradley Karl, and Robert W. Klein, 2018. "Does State Rate Regulation Matter? An Assessment of the Effects of More Stringent Regulation on Insurers' Performance in Homeowners Insurance," presented at the American Risk and Insurance Association Annual Meeting; Chicago, IL; August.

Collier, Benjamin, L., Andrew F. Haughwout, Howard C. Kunreuther, and Erwann Michel-Kerjan, 2019. "Firms' Management of Infrequent Shocks," *Journal of Money, Credit, and Banking*, 00(0): 1-31.

Congressional Budget Office, 2017. "Options to Reduce the Budgetary Costs of the Federal Crop Insurance Program," December.

Grace, Martin F., and Robert W. Klein, 2009. "A Perfect Storm: Hurricanes, Insurance Markets and Regulation," *Risk Management and Insurance Review*, 12/1: 81–124.

Huynh, Alex, Aaron Bruhn and Bridget Browne, 2013. "A Review of Catastrophic Risks for Life Insurers," *Risk Management and Insurance Review*, 16(2): 233–266.

Insurance Journal, 2015. "66% of small Business lack Business Interruption Coverage: Survey," Sept. 2. Accessed online at *https://www.insurancejournal.com/news/national/2015/09/02/380367.htm*.

Keng, Cameron, 2018. "Why Uber Eats Will Eat You Into Bankruptcy," *Forbes*, March 26. Accessed online at *https://www.forbes.com/sites/cameronkeng/2018/03/26/why-uber-eats-will-eat-you-into-bankruptcy/#6883601021f6*.

Klein, Robert W., and Gregory Krohm, 2008. "Federal Crop Insurance: The Need for Reform," *Journal of Insurance Regulation*, 26(3): 23–63.

Klein, Robert W., and Harold D. Weston, 2020. "Business Interruption Losses Arising from Pandemics: Are They Insurable?," working paper, Georgia State University.

Kunreuther, Howard, Robert J. Meyer and Erwann O. Michel-Kerjan, eds., 2019. *The Future of Risk Management*, University of Pennsylvania Press.

Lerner, Matthew, 2020. "Marsh Gears Up to Expand Capacity for Pandemic Insurance Product," *Business Insurance*, April 1. Accessed online at *https://www.businessinsurance.com/article/20200401/NEWS06/912333820/Marsh-looks-to-expand-capacity-for-PathogenRX-pandemic-insurance#*.

Lewis, Richard P., and Nicholas M. Insua, 2012–2020. *Business Income Insurance Disputes, Second Edition*, Wolters Kluwer.

Ratliff, Evan, 2020. "We Can Protect the Economy from Pandemics. Why Didn't We?" *Wired*, June 16.

Robinson, Linda G. and Jack P. Gibson, 2018. *Commercial Property Insurance*, International Risk Management Institute.

Saunders-Hasting, Patrick R., and Daniel Krewski, 2016. "Reviewing the History of Pandemics Influenza: Understanding Patterns of Emergence and Transmission," *Pathogens*, 5(4): 66, doi: 10.3390/pathogens5040066.

Swendiman, Kathleen S., and Nancy Lee Jones, 2009. "The 2009 Influenza Pandemic: Selected Legal Issues," *Congressional Research Service*, R40560.

Wilkinson, Claire, 2020. "Captive Owners File Pandemic Claims, Consider Future Coverage," *Business Insurance*, May 6. Accessed online at *https://www.businessinsurance.com/article/20200506/NEWS06/912334435/Captive-insurance-owners-file-COVID-pandemic-claims-#*.

Yafee-Bellany, David, 2019. "No Longer Savoring the Grubhub Effect," *The New York Times*, Oct. 1, B1.

Journal of Insurance Regulation

Guidelines for Authors

Submissions should relate to the regulation of insurance. They may include empirical work, theory, and institutional or policy analysis. We seek papers that advance research or analytical techniques, particularly papers that make new research more understandable to regulators.

Submissions must be original work and not being considered for publication elsewhere; papers from presentations should note the meeting. Discussion, opinions, and controversial matters are welcome, provided the paper clearly documents the sources of information and distinguishes opinions or judgment from empirical or factual information. The paper should recognize contrary views, rebuttals, and opposing positions.

References to published literature should be inserted into the text using the "author, date" format. Examples are: (1) "Manders et al. (1994) have shown. . ." and (2) "Interstate compacts have been researched extensively (Manders et al., 1994)." Cited literature should be shown in a "References" section, containing an alphabetical list of authors as shown below.

Cummins, J. David and Richard A. Derrig, eds., 1989. *Financial Models of Insurance Solvency*, Norwell, Mass.: Kluwer Academic Publishers.

Manders, John M., Therese M. Vaughan and Robert H. Myers, Jr., 1994. "Insurance Regulation in the Public Interest: Where Do We Go from Here?" *Journal of Insurance Regulation*, 12: 285.

National Association of Insurance Commissioners, 1992. *An Update of the NAIC Solvency Agenda*, Jan. 7, Kansas City, Mo.: NAIC.

"Spreading Disaster Risk," 1994. *Business Insurance,* Feb. 28, p. 1.

Footnotes should be used to supply useful background or technical information that might distract or disinterest the general readership of insurance professionals. Footnotes should not simply cite published literature — use instead the "author, date" format above.

Tables and charts should be used only if needed to *directly support* the thesis of the paper. They should have descriptive titles and helpful explanatory notes included at the foot of the exhibit.

Papers, including exhibits and appendices, should be limited to 45 double-spaced pages. Manuscripts are sent to reviewers anonymously; author(s) and affiliation(s) should appear only on a separate title page. The first page should include an abstract of no more than 200 words. Manuscripts should be sent by email in a Microsoft Word file to:

Cassandra Cole and Kathleen McCullough
jireditor@gmail.com

The first named author will receive acknowledgement of receipt and the editor's decision on whether the document will be accepted for further review. If declined for review, the manuscript will be destroyed. For reviewed manuscripts, the process will generally be completed and the first named author notified in eight to 10 weeks of receipt.

Published papers will become the copyrighted property of the *Journal of Insurance Regulation*. It is the author's responsibility to secure permission to reprint copyrighted material contained in the manuscript and make the proper acknowledgement.