Economic Insurance and Protest Mobilization

Timothy R. McDade

tim.mcdade@duke.edu

Department of Political Science

Duke University

April 6, 2022

Abstract

Why do protests occur in response to some economic conditions and not others? I argue that individuals gain utility separately from income and what I will call "insurance": a stock of funds that can be used as income when income suddenly drops. Although protests arise from shocks to either income or insurance, they also arise from the interaction between the two: income shocks are more likely to lead to protest when individuals have less insurance because insurance helps smooth consumption. I test my hypothesis in two ways: first, in the aggregate, assessing the relationship between macroeconomic indicators and protest counts in Europe, and second, at the individual level, using survey data from both Europe and the United States. The empirical evidence supports my hypothesis. My results help explain why protests occur in response to changes in some economic indicators and not to others: although wealth and income can affect protests independently, their effects change based on the availability of the other. My work adds nuance to a literature prone to link protests with vague "bad economic times" by showing that protests relate to more aspects of economic well-being than just income. I also connect the concept of insurance to a different method of political participation than is commonly considered in the literature: protest rather than voting.

Contents

List of Figures

1 Introduction

Protests emerge in response to economic issues as varied as increasing prices of goods, financial crises, and poor employment prospects. Protest dynamics are well studied in the literature, but we still know little about why protests occur in response to some economic conditions and not others. For example, protests erupted from government removal of subsidies in Indonesia in 1998 and 2018, Bolivia in 2011, and Ecuador in 2019 (Maduz, 2011; Varagur, 2018; Romero, 2011; Valencia, 2019). Each of these protest events were substantial enough to force the government to reinstate the subsidy or even topple the regime. However, the removal of subsidies did not result in substantial protests in China in 2019, New Zealand in the 1980s, India in 2018, or even in Indonesia again in 2015 (AFP, 2019; Vitalis, 2007; Ross and Edwards, 2012; Saberin, 2018; Owen, 2015). If protests aim to resolve an unfavorable policy, why did protests emerge in response to some of these subsidy removals and not to others?

This paper seeks to answer the more general question: why do individuals protest under some economic conditions and not others? Research on protests provides a broad assessment that "bad economic times" are associated with more protest. However, the literature is quite unclear about what "bad economic times" actually are. I leverage the academic literature on government-funded social insurance to provide a richer account of why certain economic circumstances lead to protests and not others. The social insurance literature shows that individuals can compensate for a loss of labor market income with funds from elsewhere, allowing them to smooth consumption. I apply this logic to protest by arguing that when individuals cannot smooth consumption, they turn to an immediately available form of political participation: protest.

Before the mid-2000s, protests were limited to public demonstrations. But subsequent technological advances have enabled protests to arise on digital platforms (Kuran and Romero, 2018). For several reasons, I limit my conception of protest to the old-fashioned public demonstration. First, such protests are not constrained by exogenous timelines like voting is. Second, public demonstrations are more costly than social media posts. Third, such conception allows theoretical generalizability to both pre- and post-social media eras. Fourth, public demonstrations, however costly, are still possible

in political environments that constrict digital expression.

To some readers, a connection between individual economic circumstances and protest might not be surprising. An abundant literature studies the relationship between economics and protest. However, this literature conceives of individual economic circumstances as only one-dimensional, consisting of only income; for many people, economic well-being is dependent on accumulated assets or support from the government in addition to income. This intuitive concept remains an assumption that has not been tested. I address it in this paper.

I argue that individuals gain utility separately from income and what I will call "insurance", which can be either private (wealth) or public (social insurance). I define insurance to be a stock of funds that can be used as income when income suddenly drops. Although wealth and social insurance are not governed by an insurance policy, in general terms they both function similarly to car insurance: a stock of available funds grows by contributing money incrementally – albeit by personal savings or tax contributions instead of monthly premia – and can be liquidated and used as income if needed. If one's available insurance is negatively shocked, so is one's ability to smooth consumption. If one cannot adequately mitigate the shock via consumption smoothing, one can try to improve one's circumstances through political mobilization. Although protests may emerge from negative shocks to either income or insurance, I argue that the salience of an income shock to an individual is contingent upon her available insurance. If she has enough insurance to smooth consumption after an income shock, she is less likely to resort to protest.

I perform two tests of my hypothesis. In the first, set in Europe, I use a Panel Vector Error Correction model to show that increases in macroeconomic wealth indicators decrease the extent to which income shocks correlate with aggregated protest counts. In the second, I conduct two survey analyses, set in Europe and the United States (US), to show that income shocks do indeed motivate different protest behavior in individuals with different levels of insurance. Both tests find evidence consistent with two notions: first, that individuals protest when under economic stress, and second, that private wealth can compensate for lost income. My results help shed light on why protests occur in response to changes in some economic indicators and not to others: both insurance and income can affect protests independently, but each attenuates the effect of the other. I broaden the literature

on economics and protest by showing that protests relate to wealth as well as social insurance and income. I also connect the concept of insurance to a different method of political participation than currently studied in the literature: protest rather than voting.

The next section of this paper will describe existing scholarship on economics and protest and explain its shortcomings. The third section will describe my theoretical framework in more detail and explain how it helps address these shortcomings. The fourth section will describe my empirical approach and the fifth will discuss results and robustness. The final section will conclude.

2 Background

Under a utility-maximizing framework, rational, self-interested individuals may have incentives to engage in costly political action (Lohmann, 1993). Therefore, much of the literature examining the relationship between economics and protest assumes that individuals use protest as a tool to remedy economic hardship. In support, it finds evidence correlating "bad economic times" and increased protest. However, there is one major issue with this literature's imprecise definition of "bad economic times": it usually ignores the role of other economic assets available to an individual. To capture economic well-being, work relying on survey data usually measures economic circumstances by respondent-reported income (Brady, Verba and Schlozman, 1995) or perception of economic circumstances (Muñoz and Tormos, 2015; Rüdig and Karyotis, 2014) while other research only discusses income with no mention of accumulated assets (Solt, 2008, 2015). This shortcoming muddies this literature's conclusions: no observer of contemporary politics would suggest that private wealth cannot fund political mobilization or that, holding income constant, protests cannot emerge in response to sudden drops in financial markets that torpedo savings or investment accounts. Because it ignores wealth, the literature also generally ignores the relationship between protest and an individual's ability to smooth consumption. It does not answer, for example, whether two individuals of the same income but different wealth endowments might assess differently the decision to protest upon being fired from their jobs.

The idea that "bad economic times" lead to protest has featured prominently in the social psychological literature as Relative Deprivation Theory (RDT). RDT anticipates mobilization to be most

likely when expectations of advancement exceed actual experience or when development gains are sharply reversed (Gurr, 1970).[1] However, empirical adjudication of RDT has come to varying conclusions. While Snyder and Tilly (1972) find no evidence of correlation between mass discontent and collective violence in France between 1830 and 1960,[2] Opp (1988) finds that "grievances have a causal effect on [social movement participation] but not a direct cross-lagged effect on protest." Still others find evidence that high income inequality makes citizens less likely to engage in politics (Solt, 2008). In an attempt to reconcile these seemingly conflicting findings, Kurer et al. (2019) find that structural economic disadvantages demobilize individuals, but deterioration of economic prospects increases political activity. This hodgepodge of findings fails to explain why protests arise in response to downturns in some economic conditions and not others. Perhaps RDT is hindered by a theoretical framework that fails to distinguish income from wealth.

Of the major schools of thought connecting economics and protest, Resource Mobilization Theory (RMT) comes the closest to meaningfully engaging with the concept of wealth. McCarthy and Zald (1977), early proponents of RMT, argue that social movements must compete for resources with individuals' other needs such as food, shelter, and savings. However, the authors make no further mention of individual wealth beyond this and instead focus on characteristics of social organizations. A later modification of RMT called Civic Voluntarism Theory argues that individuals participate in politics if they have the resources and opportunity to do so; in particular, Brady, Verba and Schlozman (1995) argue that an individual can draw upon both time and money to participate in politics. Except for a passing reference to money's ability to be saved, the authors do not discuss the concepts of wealth or consumption smoothing; they define "money" as income and move on.

By deciding to protest, an individual forgoes other potential benefits that she could have accrued during the time spent protesting. Numerous scholars have shown that education, wages, and employment are sources of opportunity cost (Jenkins, Jacobs and Agnone, 2003; Kimeldorf, 2013; Collier and Hoeffler, 2004; Dahlum, 2019). The concept of "biographical availability" sheds some light on the relationship between opportunity cost and protest. McAdam (1986) defines biographical availability as "the absence of personal constraints that may increase the costs and risks of move-

---

[1]Davies (1962) applies a similar theory, J-curve theory, to revolutions; it is also applicable to protests.
[2]As cited in Kuran (1991).

4

ment participation, such as full-time employment, marriage, and family responsibilities." Hurst and O'Brien (2002) and Wallace and Weiss (2015) find evidence for protests emerging among biographically available individuals in China; McAdam (1986) and Amenta and Zylan (1991) find evidence for the same concept in the United States. Brady, Verba and Schlozman (1995) argue that while biographical availability depends on attributes such as age or gender, it is orthogonal to income or education. The authors find evidence that those with free time have higher civic participation than those without. Taken together, this scholarship suggests that upon losing one's job, even though it might depend on demographic characteristics, one's opportunity cost to protest decreases regardless of what job one has lost or how much money one made beforehand.

The above are all important contributions to understanding a phenomenon as complex as protest. However, they gloss over the important distinction between income and wealth. It is important to disentangle wealth and income because the pain of an income shock can be lessened by liquidating wealth to compensate for lost income (i.e. smoothing consumption). One nuanced take on this distinction stands alone: Ozarow (2014) shows that consumption smoothing, particularly via the possession of capital assets, matters to how the poor weathered one particular economic crisis in Argentina. Specifically, Ozarow mentions that the "corralito" policy in Argentina prevented savings withdrawals in an economic downturn and thereby restricted consumption smoothing. He further shows that the poor who possessed other forms of capital (e.g., physical, human, social, or non-savings financial) had greater flexibility during the early 2000s economic crisis.

In addition to neglecting the concept of wealth, the scholarship examining economics and protest also fails to apply lessons from literature examining the role that economic insurance plays in individual decision-making. Kuran and Romero (2018) omit reference to insurance affecting protest in their otherwise thorough review of the topic. Likewise, Aytaç and Stokes (2019), despite a thorough theoretical treatment of the determinants of political participation, omit economic insurance from their answer to the question "Why Bother?". Perhaps the reason for its omission from these major reviews is that the major schools of thought on the topic do not explicitly link economic insurance to protest activity.

The political economy literature examining social insurance provides a more systematic approach

to understanding the relationship between income and wealth. Moene and Wallerstein (2001) and Iversen and Soskice (2001) distinguish between income and some source of consumption smoothing. In the authors' theories, individuals treat government welfare spending as insurance against losing labor market income.[3] This is the distinction missing from the literature on economics and protest: individuals may have other sources of economic prosperity beyond labor market income such as social insurance, private wealth, or a partner's income. Although the social insurance literature does not explicitly state that individuals use wealth to smooth consumption, it makes one assumption that points in that direction. By stating that the rich have less need for government welfare spending, Moene and Wallerstein (2001) implicitly assume that the rich smooth their own consumption when faced with an employment shock. Zimmerman and Carter (2003) find evidence for exactly this: when faced with income loss, the rich usually liquidate assets to smooth consumption while the poor more likely sacrifice consumption to conserve assets.

Although it considers political participation via voting instead of protest, the social insurance literature helps clarify the relationship between shocks to income and public fiscal safety nets. Moene and Wallerstein (2001) seek to explain why government welfare spending is higher in some unequal countries and not others. If voters view welfare spending as redistribution from rich to poor, more unequal societies should have higher redistribution (Meltzer and Richard, 1981). However, if voters view welfare spending as social insurance, more unequal societies should demand less of it. The authors find that when welfare benefits are targeted only at the unemployed, welfare spending behaves like social insurance against income loss rather than redistribution from the rich to the poor. This could be because employed voters who aren't eligible for benefits decrease their support for this kind of welfare spending policy. In other words, only individuals who cannot adequately insure themselves privately against shocks seek policy redress. The authors clarify this finding in their 2003 paper, finding evidence that demand for social insurance rises with the risk of a negative shock to income (Moene and Wallerstein, 2003). Other authors have found corresponding empirical support

---

[3]Moene and Wallerstein (2003: p. 486) give a clear analogy of the important conceptual difference between redistribution and social insurance. "[A]ll insurance policies are redistributive in the sense that fire insurance redistributes resources from those lucky enough to never experience a fire in their house to those who have the misfortune of experiencing such. Nevertheless, fire insurance is not redistributive ex ante. We do not expect fire insurance to be more popular among the poor than among the rich."

for this concept as well. Rueda (2005: p. 64-65) finds survey evidence that individuals at higher risk of unemployment (a negative income shock) generally support more robust unemployment insurance and are willing to pay more taxes for it.[4]

These findings in the social insurance literature point toward an important analytical distinction between income and other sources of economic well-being that can be used as insurance. This distinction is important for the relationship between economics and protest because it suggests economic crises can trigger income shocks, wealth shocks, or both. This difference might help explain why protest happens in some places at some times and not others.

Other literatures on political economy, sociology, and behavioral psychology explain the process of how individuals form preferences over social insurance. Iversen and Soskice (2001) and Ansell (2014) find that personal wealth affects preferences over social insurance. Carnes and Mares (2013) find, similarly, that these preferences stem from the level of satisfaction with the financial performance of existing social insurance systems. The same literature has also found that these preferences manifest in the political realm via participation in protests. People protest if their economic circumstances are uncertain, especially when they are subject to a less generous social insurance scheme (Dodson, 2016; Schmalz, Sommer and Xu, 2017). This collective action is motivated by a fear that results from economic uncertainty (Shi, 2019).

However, none of these papers note the conceptual similarity between an individual's available social insurance and her private wealth. Because of this, they leave unanswered the general relationship between broadly-construed "insurance" and protest. While this literature illuminates a variety of different correlates of protest, it begs the question: why is the interaction between insurance and income important to an individual's likelihood to protest?

3   Argument

The aforementioned literature shows a relationship between an income shock or perceptions of "bad economic situations" and spikes in protest. I further develop this strand of literature by arguing that when individuals cannot smooth consumption, they turn to an immediately available form of political

---

[4]For other survey evidence, see also Boeri, Börsch-Supan and Tabellini (2001), as cited in Rueda (2005).

participation: protest. I argue that individuals gain utility separately from income and "insurance", which can be either private (wealth) or public (social insurance). Either kind of insurance can be used as income when income drops. If one's available insurance is negatively shocked, so is one's ability to smooth consumption to compensate for income loss. If one cannot adequately mitigate the income shock via consumption smoothing, one can turn to political mobilization to try to improve one's circumstances. Although protests may emerge from negative shocks to either income or insurance, I argue that the salience of an income shock to an individual is contingent upon her available insurance. If she has enough insurance to smooth consumption after an income shock, she is less likely to resort to protest. I develop the literature in two ways. First, I add nuance to the conception of "bad economic times" and its relationship with protest by showing that protests connect to wealth as well as social insurance and income. Second, I connect the concept of social insurance to a different method of political participation: protest rather than voting.

Explanations for social phenomena can be structural or individualistic. I offer an individualistic explanation of behavior in situations that can arise due to structural factors. To grasp this clearly, consider two hypothetical coworkers who lose their jobs because of layoffs induced by industrial automation. The two workers have the same income, but one has large savings and the other does not. Although the cause of their job loss is structural, I expect that the one without savings is more likely to protest because of her individual economic situation. I do not offer an explanation for when protests occur in general. Rather, my model offers a more restricted prediction: the distribution of protest across a broad swath of people affected by some economic shock.

Two fundamental premises underlie this argument. First, individuals are rational actors gaining utility from income and wealth. Second, individuals calculate their own utility before engaging in collective action. In addition to these two premises, this paper will borrow one concept and one assumption from the social insurance literature. I will refer to income and wealth similarly to the way this literature distinguishes between income and social insurance. In line with the findings of Ansell (2014), Iversen and Soskice (2001), and Zimmerman and Carter (2003), I will assume that the rich have no need for publicly financed insurance because they can use wealth to smooth consumption during an income shock.

8

I will then build upon this literature by explaining how wealth plays a similar role to social insurance in smoothing consumption. Similarly to the social insurance literature, I will argue that individuals express preferences about government intervention in the economy via political means. There are four key differences between my argument and the social insurance literature. First, I focus on protest instead of voting. Second, I focus on policy outcomes that can include any form of government intervention in the economy, not just fiscal spending on social insurance. Third, I expand the pool of available funds for consumption smoothing to include private wealth as well as social insurance benefits. Fourth, I argue that protesters are motivated by income and wealth shocks instead of by mechanisms in the existing social insurance literature such as income inequality and skill specificity.

Protests are a tool to maximize one's utility under the constraints of current economic conditions.[5] By protesting, an individual aims to pressure the government into implementing policy that increases her economic well-being. Formal social insurance need not be the kind of policy protesters seek to be implemented: changes in subsidies, price levels, taxes, or bailouts can satisfy protest demands. Indeed, protests have arisen under various kinds of economic dissatisfaction. In 2011, protesters rallied against policies reducing income like austerity measures in Greece and the removal of a fuel subsidy in Bolivia (Donadio and Kitsantonis, 2011; Romero, 2011). Protests emerged in Thailand and Indonesia in response to dropping financial markets during the Asian Financial Crisis of 1997 (Maduz, 2011). These protests were consequential: although the Greek protests failed to persuade the government to dial back austerity, the Bolivian protests succeeded in pressuring the government to maintain the fuel subsidy and the Thai and Indonesian protests both resulted in government transitions.

The variety of circumstances under which protests arise hints that the individuals participating in them might have different reasons for doing so. When deciding to participate in a protest, individuals weigh costs and benefits. There are two kinds of benefits individuals could receive from protesting. First, some social benefit such as social recognition or catharsis could arise merely from participating. Second is the chance of some policy benefit that alleviates the economic shock, which inherently includes the possibility, however small, that one's participation will influence the policy outcome at

---

[5]I will use the Oxford English Dictionary's definition 6c: "Of a (large) number of people: to express collective disapproval or dissent publicly, typically by means of an organized demonstration; to engage in a mass protest, usually against a government policy or legal decision" OED. (2020).

the margin.[6]

For a given circumstance, individuals have idiosyncratic thresholds for how much effort is appropriate to attempt to shift policy via protest. This threshold is the cost of protesting that individual will tolerate. To protest, one must forego other activities, travel to and participate in the protest, and submit to any consequences of doing so. The cost of protesting takes two forms: transaction costs and opportunity costs. Each type of cost can vary across individuals by income, employment status, and location. For example, research indicates that the opportunity cost of protesting decreases with unemployment (Brady, Verba and Schlozman, 1995; Jenkins, Jacobs and Agnone, 2003; Collier and Hoeffler, 2004; Thyne, 2006; Costa, 2011; Kimeldorf, 2013; Dahlum, 2019). The transaction costs of protest vary based on location, technology availability, regime type, and repression of the protest (Rüdig and Karyotis, 2014; Wallace and Weiss, 2015; Chenoweth et al., 2017). These costs also vary systemically across countries. For example, transport costs of attending a protest are most likely lower in a dense city such as Hong Kong than in a rural country such as Afghanistan. Strong authoritarian central governments are more likely to repress protests than governments with weak capacity or governments of countries with strong protections on individual rights of expression. The cost of protesting bears on which individuals protest and consequently on the overall scale of protest movements.

These idiosyncratic cost thresholds imply that individuals gain economic utility from multiple sources. I identify two main sources: income and insurance.

An individual's real income is the purchasing power of her current nominal income. Nominal income consists of labor market income minus tax. Two constraints operate on real income: the nominal value of income and the prices of goods and services in the economy. In the immediate term, nominal income itself is constrained by wages and employment. Rising nominal wages, all else equal, result in higher real income. On the other hand, real income falls when nominal wage growth is outpaced by rising prices in goods or services. In the extreme, it falls to zero under unemployment.

Insurance is a stock of assets that, when exchanged, function as income at some point in the future. Insurance can take two forms: private and public.

---

[6]It is also possible that the government could react to a protest by implementing a policy that harms rather than helps the protester, in which case the policy benefit becomes a cost.

Private insurance, also called wealth, is an individual's stock of accumulated assets. It has value because it can be exchanged for cash, goods, or services in the future. Wealth derives this value from two important properties: the real value of accumulated assets and the liquidity of the market to exchange those assets for cash, goods, or services. An individual can become more (less) wealthy by holding a constant stock of assets that increase (decrease) in value or by increasing (decreasing) holdings of assets that maintain a constant value. Her ability to exchange assets for cash, goods, or services is higher in liquid markets. This ability to exchange wealth at some point in the future could take the form of smoothing consumption: relying on liquidated wealth to purchase goods and services instead of uncertain or decreasing income.

Wealth is an important source of insurance for many individuals. Furthermore, its accumulation over time is psychologically salient (Davies, 1962; Shi, 2019). A sudden drop in the value of one's savings is traumatizing and can have long-term effects on one's financial position. Although a negative wealth shock may not affect one's ability to eat, it detracts from wealth's ability to serve the purpose for which it was accumulated: to spend at a later date, donate to charity, or pass on to one's heirs.

Public insurance is funded by the government but fills the same role as private insurance: funds that become available in the case of income loss. I will follow the convention of much of the literature in referring to it as social insurance. Although social insurance differs from wealth in its source and distribution across society, it has the same ability to smooth consumption under an income shock for those who receive it.

Although both income and insurance contribute to an individual's economic well-being, the two are theoretically distinct. Income is a flow while insurance is a stock. Income, private wealth, and social insurance are functions of different inputs: real income is a function of nominal income and price levels, wealth is a function of financial market valuation and liquidity, and social insurance is a function of government policy. Furthermore, each individual treats income and insurance differently because she depends on them differently from her neighbor. Even those who may not have any wealth still likely have income. Income is therefore highly salient for those who depend on it exclusively, who number far more than those who depend on wealth but not income. Someone with little wealth

McDade

relies heavily on income while someone unreliant on income places more importance on the value of wealth. While real income affects one's capacity to eat this month, insurance affects one's medium-term capacity to insure one's family against shocks.

To illustrate this, Figures 1 and 2 show several circumstances where income and wealth might not move together. First, price increases reduce real income (all else equal) but might not affect the value of non-cash wealth tied to land or other asset prices: for example, as shown in Figure 1 inflation rose in tandem with the ATX stock market in Austria between 2015 and 2020. In this situation, a household's net worth could have increased because of the rise in the ATX while its real income decreased because of inflation. Second, shrinking liquidity in financial markets need not contribute to shrinking wages or higher unemployment. From 2016 to 2020, the Federal Reserve increased U.S. interest rates slowly, while unemployment decreased and wages rose. The better labor market likely increased the real income of many households, while increasing interest rates made borrowing more difficult.[7]

Although insurance and income are distinct, the two are related. Insurance becomes income when it is liquidated for cash that can be exchanged for goods or services. For example, an individual who loses her job can smooth consumption by enrolling in unemployment insurance. If one has wealth, one can smooth consumption by selling wealth for cash and using that cash to buy goods or services. At this point, liquidated wealth or unemployment checks become constrained by price level, one of the constraints on real income. The income-shocked individual still has enough money to eat if her insurance provides enough to smooth consumption; her reaction to an income shock will be more intense if she cannot. Social insurance benefits and wealth are both sources of consumption smoothing for income loss.

Negative economic shocks cause shifts in the costs and benefits of protest. As noted in the literature, the opportunity cost of protesting decreases with a negative shock to income. A negative shock to wealth would most likely not affect the opportunity cost of protesting. On the benefit side, shocks to either income or wealth increase an individual's potential policy gain from a protest. Simultaneous shocks to wealth and income increase policy benefits even more than one shock alone because

---

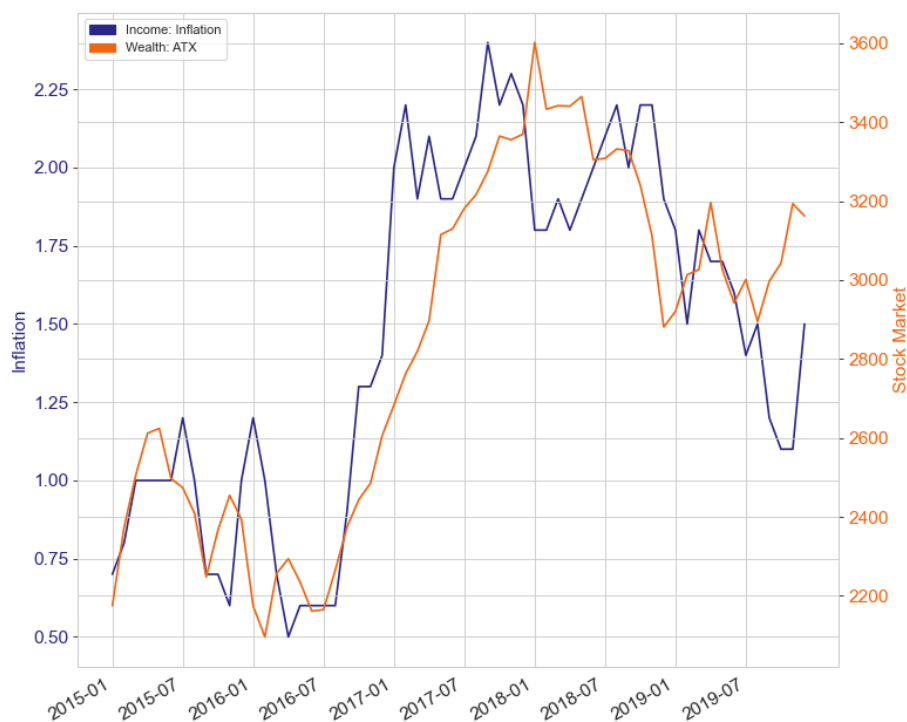[7]All data from TradingEconomics (2020).

12

Figure 1: Income (inflation) and wealth (the stock market, ATX) moving in different directions in Austria.

in addition to decreasing the opportunity cost of protest, the individual's reduced ability to smooth consumption compounds her increased potential policy benefit. Moreover, social benefits could grow more salient as the community of affected citizens grows. These forces all push the individual in the direction of protest under economic shocks.

The salience of an income shock to an individual is contingent upon her available insurance, be it private or public. Even during normal times, individuals smooth consumption to adjust for small variations in income, a concept which becomes far more important when income drops suddenly. Smoothing consumption is much harder when a negative shock to asset valuation or market liquidity prevents wealth from being exchanged for cash, goods, or services. If an individual has enough wealth to smooth consumption after an income shock, she is less likely to resort to protest because her potential benefit from a policy intervention does not heavily outweigh the costs of protest. If her government provides enough social insurance to smooth consumption, her policy benefit is likewise low. However, if her insurance is insufficient to smooth consumption, she has less confidence in her
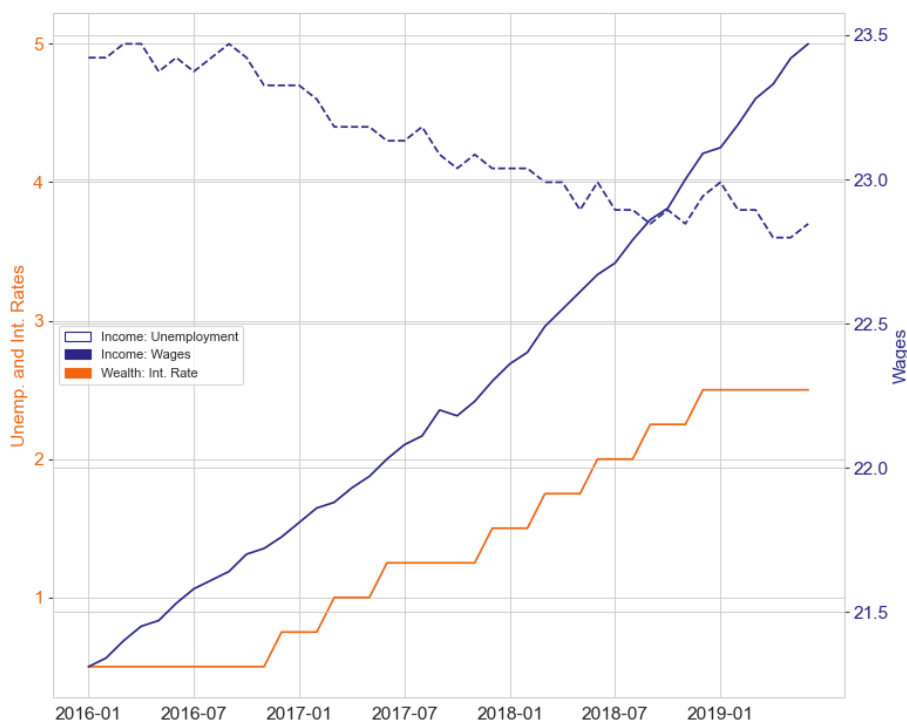
Figure 2: Income (unemployment and wages) and wealth (the interest rate) moving in different directions in the US.

ability to make ends meet; her potential benefit from a policy intervention more likely exceeds the costs of protest.

Protest is more appealing than other political options to address economic issues for three reasons. First, individuals can protest immediately, while other forms of political participation such as voting operate on fixed long-term time schedules. Second, individuals are usually unable to marginally affect policy on their own but know that collective action can pressure the government to implement policy. Third, individuals gain social benefits from protesting (Kuran, 1991; Rüdig and Karyotis, 2014).

However, one individual's decision does not a protest make. Few political processes operate only at the individual level: most are more accurately characterized as an interaction between the individual and her social network (Campbell, 2013). This is especially true of protest (Siegel, 2011; Aytaç and Stokes, 2019). From this viewpoint, the protest literature explains why multiple individuals mobilize simultaneously. One of the most common ways to model collective action is a threshold model, commonly seen in the economic and sociological literature, where an individual's willingness to

14

protest is related to her belief that others will mobilize (Schelling, 1971; Granovetter and Soong, 1988; Kuran, 1991; Braun, 1995; Yin, 1998; Siegel, 2011; Hollyer et al., 2015; Aytaç and Stokes, 2019). Such social determinants of protest as peer pressure come into effect logically after an individual decides she is dissatisfied with her situation, and only when she is deciding what to do about her dissatisfaction.[8] What conditions contribute to the formation of these thresholds?

In the language of Kuran (1991: p. 18), the social threshold at which an individual will protest varies according to external circumstances that affect the relationship between the size of the opposition and the individual's external payoff for supporting the opposition. Economic circumstances could certainly change this threshold. For example, a large segment of the population simultaneously experiencing an income shock could increase both the number of individuals opposed to government economic policy and each individual's payoff for supporting this opposition. Such a shock would alter the utility calculations of many individuals simultaneously, coordinating many individual-level rational choice decisions. Some of these individuals decide upon the same reaction. This shock would thereby be a mechanism for overcoming the collective action problem typically associated with mass mobilization. Such economic crises are therefore a coordinating device for collective action. Thus, a story about individual utility calculations scales into a public protest demanding policy change.

In contrast to the existing literature on economics and protest, I argue that income and insurance are different inputs into an individual's utility. The severity of an individual's reaction to an income shock depends on her insurance. One implication of this story is that economic outcomes bearing on income and insurance likely affect protest. Because of its importance as an insurance mechanism and the difficulty accumulating it, I expect protests to arise from negative wealth shocks. As a result of income's immediate usefulness, salience, and likely relationship with opportunity cost of protest, and in agreement with the literature, I hypothesize that protests are likely under negative shocks to income. Most importantly, I also hypothesize that income shocks are more likely to lead to protest when individuals have less insurance.

This theory is in line with the social insurance literature. In that literature, the rich do not need public insurance because they have enough wealth to smooth consumption themselves. Middle-

---

[8]Being asked to protest and previous protest participation are the strongest predictors of protest (Schussman and Soule, 2005; Rüdig and Karyotis, 2014).

income and poor people cannot always do so: they require compensation for their lower insulation against future shocks. This compensation is the policy benefit protesters seek. Furthermore, the literature shows that individuals support social insurance more when they make less money; in other words, they seek insurance when they are at risk of not being able to smooth consumption under an income shock. I argue the same: under an income shock, one smooths consumption by liquidating wealth if one can and protests for policy relief if one cannot.

Of course, there are a lot of contextual features that are likely to facilitate the dynamics in the economic environment. For example, the literature provides evidence that democracy facilitates collective action in protests (Bellinger Jr and Arce, 2011; Jo and Choi, 2019) and that regime suppression can neutralize protests up until a point, beyond which it incentivizes further micromobilization (Opp and Roehl, 1990). An individual's consumption threshold will be conditional on regime characteristics: the political and economic development of a country can affect the incidence of protest by making resources available to protesters (Dalton, Van Sickle and Weldon, 2010; Arce and Rice, 2009). My argument does not preclude protests by the middle class, a phenomenon visible in some protests led by students or the working class. Such a protest could result from a shock to a portion of the economy particularly salient to one section of the population, perhaps due to a resource endowment specific to that sub-population. In the empirical models below, I will include control variables to account for these explanations.

4   Research Design

I conduct a two-stage empirical analysis to evaluate these hypotheses. In the first stage I predict the count of protesters that demonstrate in a country during a particular month using macroeconomic indicators of wealth and income. During the time period in question, I set my analysis in 11 countries in Western Europe that encompass a broad variety of social movements and economic conditions. These countries also are a good setting to test my hypotheses because of their history of social mobilization, variety of welfare states, and strong data reporting. The choice of these countries will further facilitate comparison with other social insurance literature that analyzes OECD countries (Moene and

Wallerstein, 2001, 2003; Rueda, 2005).[9]

In the second stage, I use two sets of individual-level survey data to show that income shocks do indeed motivate different protest behavior in individuals with different levels of insurance. I predict an individual's protest participation by whether someone close to her has recently become unemployed and whether she has access to economic insurance via possession of material wealth.

4.1 Aggregate Data

Four categories of data contribute to the aggregate analysis: protest data, macroeconomic data, social insurance data, and data to allow for alternate explanations. This evaluation will cover the afore-mentioned 11 countries in Western Europe between 2005 and 2015, the latest time period for which accurate protest data is available.

4.1.1 Protest Data

I source protest data from the PolDem data set, which contains data for 31 European countries since 2005 (Kriesi et al., 2020). The dependent variable p is the weighted number of participants in all protests that occurred in country c during month t. PolDem obtains this count by collecting over five million English-language newswire reports, removing duplicate reports and reports on events in countries outside Europe, and applying a supervised document classifier to filter relevant reports from irrelevant ones. They then once more discard duplicates and finally apply a supervised protest mention classifier. PolDem then weights the estimated count of participants in each event to com-pensate for sample selection, newswire selection, and country population size. These adjustments allow comparison between participant counts in events in large countries that are covered well in English-language newswires (like France) and events in small countries that are more neglected by English-language newswires (like Portugal). While the PolDem data set includes entries for each

---

[9]Although this literature includes analysis of non-European OECD members (Australia, Canada, Japan, New Zealand, and the United States), I limit my analysis to Europe because of protest event data availability. I begin with the 18 OECD countries analyzed by Moene and Wallerstein (2001). I then exclude the five mentioned non-European countries. In addition to being excluded from the protest event data set, Australia and New Zealand have ceased reporting Money Supply M2, a key input into the *Savings* variable. I also exclude Belgium and the Netherlands because they do not report wage data. These exclusions result in an analysis covering Austria, Denmark, Finland, France, Germany, Italy, Norway, Portugal, Sweden, Switzerland, and the United Kingdom.

protest event, I aggregate to the monthly level to match the level of analysis of the economic data. Figure 3 shows the sum of the weighted protester counts over time aggregated across all countries and Figure 4 shows the same country-month counts as a density plot. It is clear in Figures 3 and 4 that counts of protesters increased through the mid-2000s and reached a steady state around the 2008 Financial Crisis.
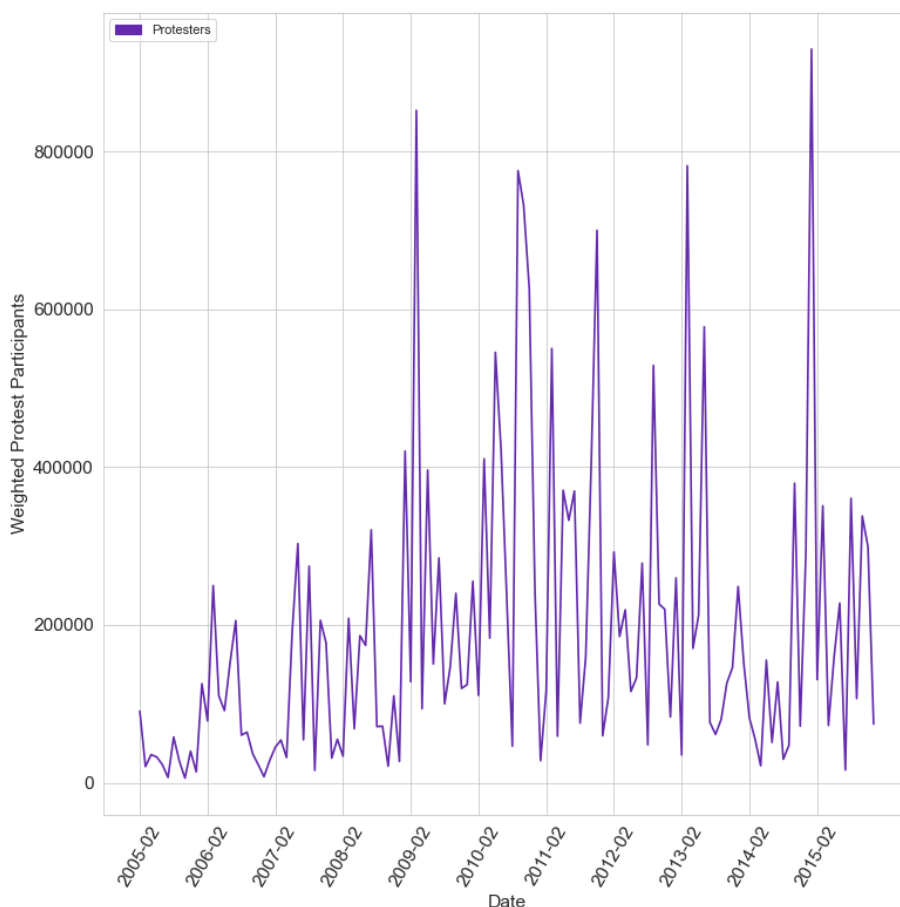
Figure 3: Aggregate Monthly Protester Counts. The weighted count of protesters increases in early 2009.

Figures 4 and 5 provide further insights about the protester counts. Countries are prone to stay within a certain range of protest behavior. The vast majority of data points are well below 5,000 weighted protesters per month. High monthly protester counts (say, over 300,000 protesters) are not distributed evenly across all countries; they only occur in several countries (France, Portugal, and the United Kingdom). In Figure 5, the distribution of protesters across *SI* is also striking: there are far
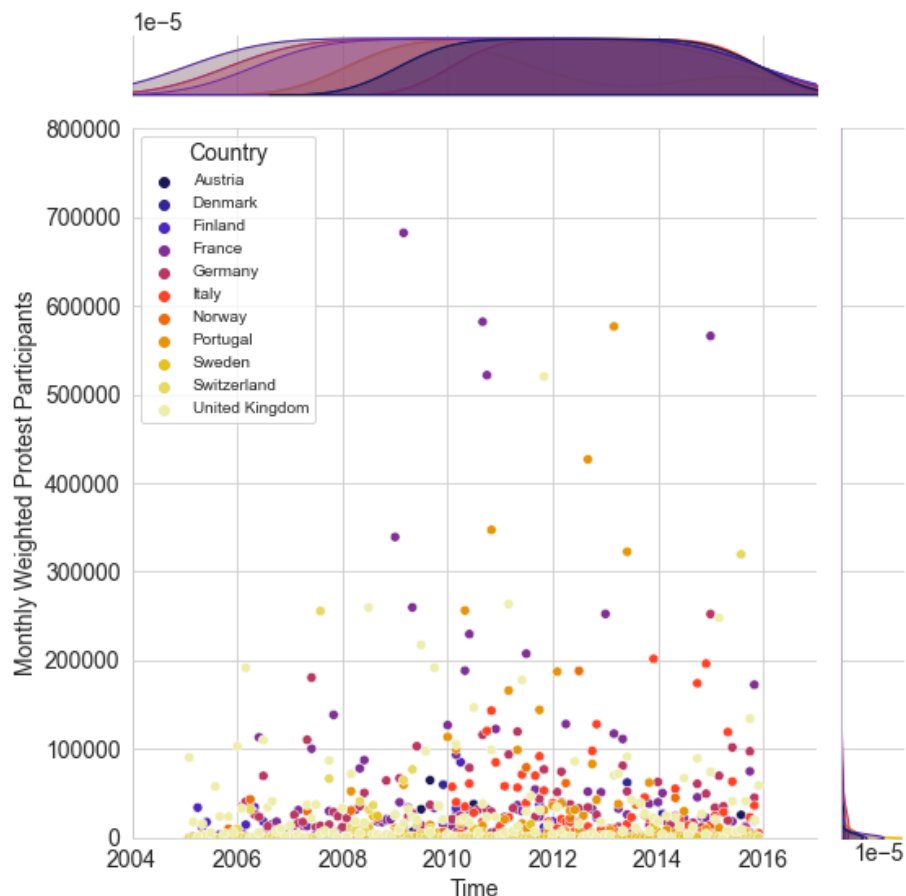
Figure 4: Monthly Protesters Over Time by Country. High monthly protester counts only occur in France, Portugal, and the United Kingdom.

fewer protesters in the higher range of generosity than the lower range. The variation of *SI* within countries is also interesting: countries usually stay in a particular range of spending but do vary within that range.[10]

4.1.2 Economic Data

Modern economists have access to measurements of every conceivable facet of economies. Some of these indicators bear on real income and others on wealth, two of the key theoretical concepts to identify for this study. Such economic indicators, sourced from TradingEconomics (TE) at the country-month level, are my independent variables in the aggregate analysis. TE is an economic

---

[10]See Figure 6 for *SI* by country over time.
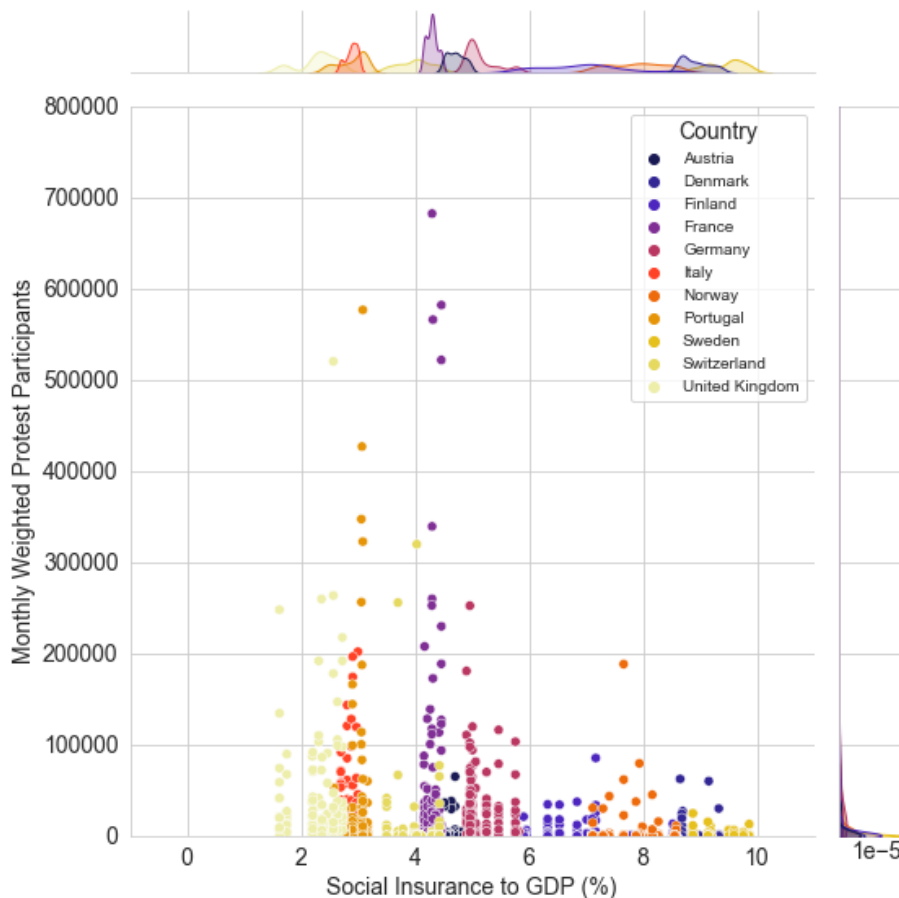
Figure 5: Monthly protesters by country and *SI* level. There are far fewer protesters in the higher range of *SI* generosity than the lower range.

reporting platform that sources a wide variety of economic indicators from every country across the world over modern history. Each country reports a subset of all possible economic indicators that varies over time. Naturally, the reported indicators vary by country: for example, the United States reports more indicators than Mali does. The frequency at which a particular indicator is reported also varies between countries. A strength of this data vis-a-vis existing protest literature is its high frequency. To the extent that people's lives happen in real time and not in annual increments, data more frequent than annual aggregations allows closer pinpointing of relationships.

The independent variables of interest are two vectors of TE indicators for country c in month t. The first is composed of those indicators j bearing on individual real income and is denoted by $Y_{ct} = (y_{1ct}, y_{1ct}, \ldots, y_{jct})$. The second is comprised of those indicators k bearing on wealth and

is denoted by $W_{ct} = (w_{1ct}, w_{1ct}, \ldots, w_{kct})$. The theoretical distinctions between income and wealth inform choices of w_{kct} and y_{jct}.

Measures such as GDP per capita, often used as a stand-in for economic well-being, can be aggregated both in time and location to the country-year level. These general measures are commonly reported by almost all countries, but their aggregated nature means that they gloss over more detailed views of the economy. Indicators more directly important to households, such as the price of housing or the level of the stock market, are not always reported frequently by a broad variety of countries across a long period of time. As a result, insisting on high-frequency economic data that is directly relevant to households restricts both the sample of countries and the number of points in time for which each country reports the indicator.

Inherent in choosing economic indicators is the possibility of introducing sample bias. It is possible that countries that report more economic indicators more frequently have higher state capacity than those that do not. Fortunately, most countries in Europe for which protest data is available are OECD countries; they therefore have robust reporting structures. The analysis will use indicators that more precisely measure the theoretical concepts in pursuit of improved construct validity, giving preference to indicators that matter directly to households and are reported more frequently. For example, both interest rates and money supply (M0, for instance) could be indicators of liquidity. Households are exposed directly to interest rates when transacting with banks, but are further removed from the overall money supply.

I define Y_{ct} to include unemployment rate (*Unemp*), an annual indicator, to measure the fraction of the employed or job-seeking population without labor market income. The consumer price index (*CPI*), reported monthly, measures the price of a bag of goods relative to a reference time period and can be interpreted as the purchasing power of nominal income. Wages (*Wages*), reported quarterly, measures the average nominal monthly earnings. These indicators taken together measure real income, theorized as labor market income relative to prices.[11]

I define W_{ct} to include aggregate national savings (*Savings*), calculated as the difference between money supplies M2 and M1, which encompasses savings deposits, money market, mutual funds, and

---

[11]I omit taxes because I use country fixed effects and panel empirical specifications where all compatriots are subject to the same tax regime.

other time deposits like CDs. Spikes in *Savings* occur during times when individuals guard safe assets, perhaps out of fear of drops in the prices of other other assets. The housing index (*Housing.Index*), reported monthly, measures a significant source of an individual's wealth: the market prices of new and existing residential housing.[12] I include a country's stock market (*Stock.Market*), which is an important measure of the asset values of individuals' invested wealth. The interest rate (*Int.Rate*), reported daily but aggregated to monthly, measures liquidity: the ease or difficulty of borrowing money. Borrowing money allows individuals to smooth consumption using borrowed funds. Higher rates increase the cost of this consumption smoothing, pricing some out of the market.

Analytically, these indicators correspond to the theoretical definitions of wealth and income established above. I have backfilled those indicators reported less frequently than monthly into the months since the last report: for example, an indicator reported quarterly would see April's value backfilled into February and March.

4.1.3 Social Insurance Data

Some kinds of social insurance benefits target only those who are not employed, and other kinds target everyone. The former is the relevant kind of benefit for this paper ("social insurance" henceforth refers to government-funded social insurance against income loss). To measure the breadth of a country's social insurance against income shocks, I duplicate the *Spending on Insurance Against Income Loss* measure from Moene and Wallerstein (2001), which captures at the country-year level the share of GDP or total government expenditures a country targets at the unemployed. I call this measure *SI* for social insurance. It measures government-funded social insurance that functions as income to smooth consumption for those who have undergone income shocks and is shown in Figure 6. As an alternative to liquidating wealth to smooth consumption, it is an important control variable. *SI* sums government and mandated private expenditures on disability cash benefits, occupational injury and disease, sickness benefits, services for the disabled and elderly, survivors benefits, active labor market programs, and unemployment insurance. To ensure the figure does not cover benefits that

---

[12]Home ownership rates vary across Europe, but are usually high. Among the 21 countries included in this analysis, the only two countries with low values are Germany and Switzerland, which both hit lows in late 2015 of 51.9% and 43.4%, respectively. Ownership rates between 65 and 85% are more common.

include the employed or planned reductions in income, the measure excludes old age cash benefits, family benefits, housing benefits, pensions, and benefits for other contingencies. Although Moene and Wallerstein (2001) include a manipulated version of healthcare spending in their measure of social insurance, I exclude it because the countries in my sample have healthcare funding schemes with varying degrees of public and private funding, making it difficult to distinguish how much government healthcare funding targets the unemployed (OECD, 2020). *SI* is likely to be robust to the ideological composition of country governments: Moene and Wallerstein (2003) find evidence that patterns of spending on unemployment insurance do not vary systematically across government partisanship in Western Europe.[13]
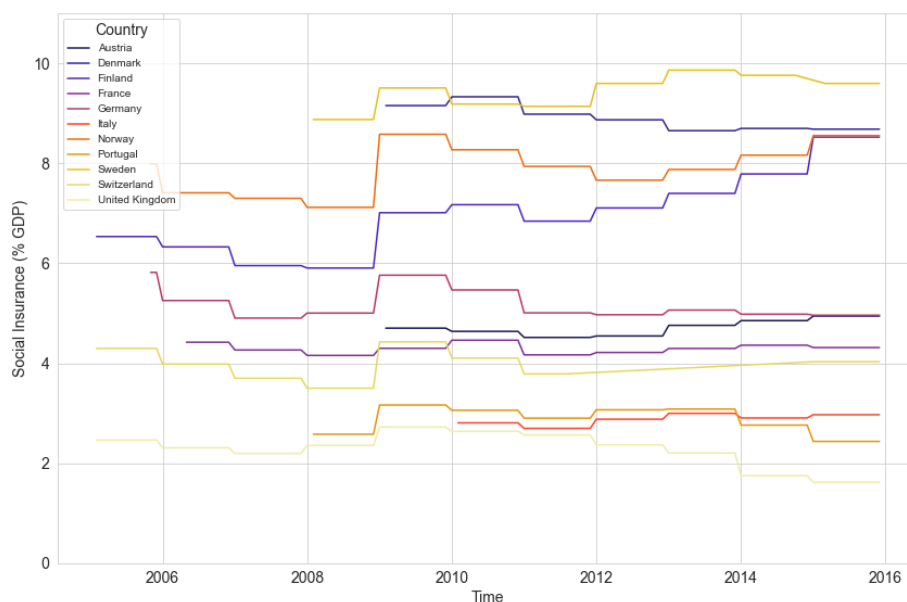
Figure 6: *SI* by Country Over Time. Within-country *SI* level changes over time,
but between-country *SI* ordering stays fairly constant.

4.1.4 Alternative Explanations

The literature on institutional and social determinants of protest shows that citizen coordination and the size of the protest is important to influence an individual's decision to participate. I therefore

---

[13]Rueda (2005: p. 70) finds evidence that government partisanship does not significantly affect the provision of active labor market policies, an important part of social insurance in these countries. This also implies that the beneficiaries of such policies do not change with elected governments.

control for characteristics of the state that influence citizen coordination. I use the Polity V and Polity State Failure data sets to control for government capacity to oppress, ability to turnover politically, government responsiveness to past demands, repression of information, and establishment of private sector. In some empirical specifications these variables are co-linear.

4.2   Survey Data

In addition to the relationship between macroeconomic conditions and aggregate protests, I conduct two survey analyses to more precisely adjudicate the individual-level relationship between economic circumstances and likelihood to protest.

4.2.1   Europe Survey Data

I first consider this phenomenon in the same 11 European countries as above, sourcing survey data from the European Social Survey (ESS) (NSD, 2020). The survey asked respondents questions about their views on social, economic, and political matters. I construct several variables to isolate the theoretical concepts of interest. The first is the dependent variable *Protest*: whether the respondent has taken part in a lawful public demonstration in the past 12 months. I code all respondents who are currently unemployed but had a paid job one year ago or more recently as experiencing a recent income shock (*RecentEmpShock*). I code all respondents whose primary source of household income is unemployment benefits as relying on publicly funded social insurance (*SIIncome*).

The ideal measurement of private insurance would be some tally of liquid assets upon which the respondent can easily draw in the case of an income shock. Such assets could be cash, stocks, bonds, or other relatively liquid financial or non-financial assets. But surveys tend to ask about respondent possession of more illiquid assets such as houses and businesses. So, to measure respondent wealth, and in line with Ansell (2014), I consider respondents who own a home to have a form of material wealth that can serve as "self-supplied insurance" (Ansell, 2014: p. 383). I define the binary variable *HomeOwner* to be one for respondents who own their home outright or have some equity in their home, but make monthly mortgage payments. Unfortunately, the home ownership question was only asked during the 2004 wave of the ESS, restricting the time scope of my analysis.

But what if the respondent's decision to (not) protest is not a function of their economic insurance, but rather is influenced by their social circles? Kuran (1991) and others have shown that an individual's network affect her willingness to protest: if others are protesting, an individual is more likely to do so themselves. Although the literature finds substantial evidence for this phenomenon, I expect economic insurance to provide a reason notwithstanding the network effects of information. So, to isolate the effect of economic insurance, I account for the transmission of information through an individual's network by including a measurement of whether respondents have a close friend with whom they can discuss intimate matters (*CloseDiscuss*) and a measurement of how many days in the week prior to the survey the respondent was socially active (*SocialDays*).

I include the standard demographic control variables gender, age, education, and political partisanship. I also control for union membership because literature has found evidence connecting union membership and protest (See, *inter alia*, Ebbinghaus and Visser, 2000; Hamann, Johnston and Kelly, 2013; Engels, 2015).

The literature on consumption smoothing also suggests that rich and poor individuals cope with income loss differently. Zimmerman and Carter (2003) find that when faced with income loss, poor individuals are more likely to sacrifice consumption to conserve assets while rich individuals generally liquidate assets to smooth consumption. This suggests that when experiencing an income shock, poor individuals likely benefit more from government social insurance than rich individuals. In the absence of a sufficient social insurance scheme, poor individuals might be particularly risk-averse and preemptively choose a reliable but low level of income to avoid any potential shock (Morduch, 1995; Chetty and Looney, 2006). I include household income *HHIncome* in my analysis.

However, the ESS has several drawbacks. First, *HomeOwner* is only available for one wave of the survey. Second, the ESS lacks a question explicitly measuring the network effects of political discussion. Although I construct variables measuring if the respondent has "anyone to discuss intimate and personal matters with" and if so how many people, these measures do not explicitly measure political networking effects.

4.2.2 US Survey Data

The American National Election Survey (ANES), run during even-numbered years since 1968, remedies both of these problems. I source individual-level survey data from the 2020 wave, which included questions in both areas the ESS omits. The ANES' major advantage is explicitly asking respondents how many days in the week prior to the survey the respondent discussed politics with their family or friends. I include a measurement of this (*TalkPolitics*) to account for the transmission of political information through an individual's network.

The ANES data does have one big downside, however. It does not include information about whether the recipient received any social insurance from the government. I therefore focus on examining the effect of private insurance on protest in this analysis. However, to accommodate the state-level variation in US social insurance programs, I use state-level fixed effects.

Although individuals make their own political choices about voting and protesting, individuals do not operate in isolation within households; households usually share finances and discuss politics. Any income loss in a household is important, not just the respondent. Furthermore, the respondent isn't always employed or the dominant wage earner of the household. To best reflect this, I measure income shocks by considering a variable measuring whether any family member or close personal friend of the respondent has lost a job within the 12 months preceding the survey. I code all respondents who answer in the affirmative as having a recent income shock (*AnyLostJobs*).

Like in the ESS, I include the demographic control variables age, education, income, marital status, children, gender, race/ethnicity, and political party identification. I also control for various aspects of an individual's connection with social networks that may make her more likely to protest. I also include measures of household union membership, whether the respondent feels close to a political party (*CloseToParty*), and how close they feel to that party (*HowClose*).

5   Results

5.1   Aggregate Results

I first look for evidence supporting my hypothesis at the aggregate level. I assess the effect of each aggregate economic variable y_{jct} and w_{kct} on p_{ct} to gain a more specific understanding of the relationships between macroeconomic trends and protest. Because these variables are correlated, I use a error correction model to separate their effects.
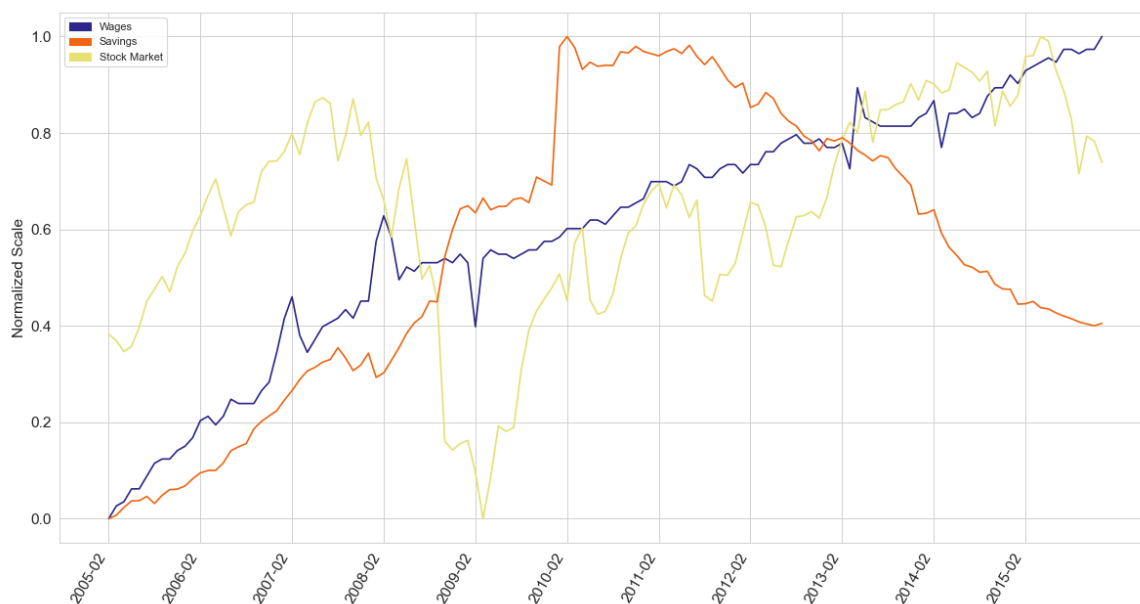
Figure 7: Non-stationary economic indicators in the United Kingdom: mean and standard deviation change over time.

Autocorrelated data like many economic indicators is often fit with autoregressive (AR) and ARIMA models, which assume that the data is stationary: its mean and variance do not vary over time. Figure 7 shows selected economic indicators in the United Kingdom that are clearly non-stationary.[14] The presence of these long-run stochastic relationships between predictors requires the

---

[14]The order of integration $I(d)$ of a time-series is the minimum number of first differences required to obtain a covariance-stationary series. Several time-series are said to be cointegrated if their linear combination is stationary. The Johansen test uses likelihood ratio tests to determine the number of cointegrating relationships between non-stationary time series and allows for more than two cointegration relationships between variables, which is the maximum that the Cointegrated Augmented Dickey Fuller test (Engle-Granger procedure) is capable of (Engle and Granger, 1987; Johansen, 1988; Michieka and Gearhart, 2015). Countries of this paper's panel contain between two and five cointegrating relationships between p_{ct}, W_{ct}, and Y_{ct}.

use of a Vector Error Correction Model (VECM). Normal VECM models would suffice if the data included just one country, but since the sample includes multiple countries for a single time period, a panel approach is needed.

To account for cointegrated variables' responsiveness to any deviation from the long-run equilibrium, the error correction model below makes short-run dynamics of variables a function of deviation from equilibrium. The VECM model incorporates the possibility that the variables income, wealth, and protest are related, with the error correction parameterization:

$$\Delta p_{ct} = \phi_c \left(p_{ct-1} - \theta_{0c} - \theta_{1c} Y_{ct} - \theta_{2c} W_{ct} \right) + \delta_{11c} \Delta Y_{ct} + \delta_{21c} \Delta W_{ct} + \varepsilon_{ct} \tag{1}$$

for countries $c = 1, 2, \ldots, C$ and time periods $t = 1, 2, \ldots, T$. The error-correction speed of adjustment is denoted by ϕ_c; θ_{1c} and θ_{2c} are the long-run coefficients of the variables of interest. For $I(1)$ cointegrated variables like the economic indicators, the error term ε_{ct} is $I(0)$ for all c.[15]

One advantage of a VECM is the ability to separate long-run and short-run stochastic effects. Short-run deviations in cointegrated variables from the long-run equilibrium interact with changes in the dependent variable to return to the long-run equilibrium. If protest is driven by departures from the long-run equilibrium, then it responds to this feedback. If not, it responds only to short-term shocks to the stochastic environment given by the ΔY_{ct} and ΔW_{ct} terms. The speed of reversion ϕ_c is the coefficient of the error correction term; a statistically significant negative value would indicate that the long-run relationship directly drives protest (Blackburne III and Frank, 2007; Michieka and Gearhart, 2015).

I ran a pooled mean group (PMG) estimation Panel VECM model for each combination of y_j and w_k.[16] Because of the panel structure of the data, the varying scales and currency units of the independent variables between countries, and the simultaneous necessity of preserving inter-country variation for the control variables, I normalized the economic variables on a scale of zero to one within

---

[15]The above derivation follows Blackburne III and Frank (2007).

[16]As in Blackburne III and Frank (2007). A PMG estimator "allows the intercepts, short-run coefficients, and error variances to differ freely across groups, but constrains the long-run coefficients to be the same" (Pesaran, Shin and Smith, 1999). These assumptions fit this data well because the protest literature suggests that the same relationships between economics and protest hold true over decades. Furthermore, the social insurance literature finds evidence that the same relationships between consumption smoothing and political participation also hold true over decades in these countries. The same assumption in the short term is less defensible.

country and normalized the control variables on the same scale across countries. The dependent variable p remains non-normalized.

Table 1: Selected Panel VECM Results

VARIABLES	(1) Long-term	(1) Short-term	(2) Long-term	(2) Short-term	(3) Long-term	(3) Short-term
Constant		27,859***		12,679		17,515**
		(6,106)		(7,875)		(7,597)
ECT		-0.945***		-0.941***		-0.955***
		(0.0465)		(0.0461)		(0.0562)
SI	-793.8		2,030*		1,540**	
	(1,408)		(1,127)		(632.0)	
ΔCPI		-63,312				
		(124,780)				
ΔHousing.Index		37,562				
		(55,493)				
ΔCPI : Housing.Index		-125,794**				
		(63,781)				
CPI	-3,838					
	(2,747)					
Housing.Index	4,690					
	(4,673)					
CPI : Housing.Index	-3,249					
	(5,751)					
Wages			1,476		-4,442**	
			(1,770)		(2,032)	
Int.Rate			9,224***			
			(2,641)			
Wages : Int.Rate			-23,781***			
			(5,679)			
ΔWages				-11,451		-129,222
				(49,578)		(78,799)
ΔInt.Rate				2,854		
				(81,658)		
ΔWages : Int.Rate				-30,741		
				(62,857)		
Savings					-2,930	
					(3,330)	
Wages : Savings					2,536	
					(4,102)	
ΔSavings						-206,162*
						(116,127)
ΔWages : Savings						178,958
						(119,595)
Observations	1,123	1,123	1,013	1,013	1,013	1,013

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
The lagged dependent variable is treated as endogenous.

In all specifications, the error correction term ECT (ϕ_c in the Equation 1) is statistically significant and highly negative, implying that the long-run relationship between the variables directly drives protest. Table 1 shows the results of the three statistically significant interactions between income and wealth variables. Four combinations of income and wealth indicators have statistically significant relationships with protest. Of these, one merits special attention: the interaction between *Unemp* and *Int.Rate*. Because central banks consider employment levels when making interest rate decisions, the interaction term is endogenous and its interpretation is ambiguous.[17] As a result, I have omitted it

---

[17]The European Central Bank (ECB) sets interest rates primarily based on price level but also based on employment and economic growth. Non-Euro central banks either use monetary policy to maintain a stable exchange rate with the Euro or incorporate employment into monetary policy decisions (Danmarks Nationalbank, 2009; Norges Bank, 2020; Sveriges Riksbank, 2020).

from Table 1.

Specification one shows that the short-term interaction between changes in *CPI* and *Housing.Index* is statistically significantly correlated with protest. Although neither has an effect statistically distinguishable from zero on its own, simultaneous short-term increases in *CPI* and decreases in *Housing.Index* correspond to increases in protest. This corresponds to theoretical predictions because such a scenario embodies simultaneous decreases in real income and asset valuation, which make smoothing consumption more difficult.

Specification two shows that the interaction between *Wages* and *Int.Rate* is statistically significant. Protests increase when *Int.Rate* increases with wages set at zero (their lowest within-country value), but decrease from that with incremental increases in wages. Increasing wages mitigate the positive effect that rising interest rates have on protest. This aligns with theoretical expectations: although rising interest rates restrict liquidity in the market and make liquidating assets more difficult, wage increases decrease the need to do so in the first place.

Lastly, specification three shows that, as theoretically expected, *Wages* has a statistically significant negative long-term relationship with protest when *Savings* is zero (at their lowest value within country): rising wages mitigate protests. The same effect also exists in the short term, albeit at lower levels of statistical significance. Moreover, the interaction between *Wages* and *Savings* in the short-term exhibits weak statistical significance. A concurrent positive change in *Savings* mitigates the increase in protest resulting from a wage cut. Because of the magnitudes of the respective coefficients, if the increase to *Savings* is very large, the overall effect on protests can even be negative.

This merits further discussion. *Savings* increases when individuals are insecure about the valuation of other assets. For example, the sharp increase in *Savings* in March 2020 at the beginning of the coronavirus pandemic has been attributed to slowing investment, dropping rates encouraging home purchases, decreased demand for capital expenditures, and fiscal easing. The general explanation for an increase in *Savings* is that people sell investments, cease borrowing, and shift to cash because of unsure revenue streams. Having cash on hand is a sign that people expect to have to smooth consumption using accumulated assets. Albeit with less statistical confidence, this short-run interaction term provides evidence for the consumption smoothing hypothesis.

Generally, these results show the expected statistically significant relationships between income shocks, wealth shocks, and protest. Furthermore, these results support my hypothesis because they suggest that the effect of consumption smoothing via increased housing prices, decreased interest rates, or increased savings appears to mitigate the effect of increasing prices and dropping wages on changes in protest.

5.2   Survey Results: EU

Now that I have shown a relationship between aggregated protests and select macroeconomic indicators, I move on to the level of analysis at which the decision to protest is actually made: the individual. I first start in Europe, using ESS data. With a simple logit model, I assess the effect of an income shock (*RecentEmpShock*) on an individual's protest participation as moderated by a binary variables measuring the respondent's wealth (*HomeOwner*) and another indicating whether the individual receives most of her income from unemployment benefits (*SIIncome*). The expectation that *RecentEmpShock* is moderated by both wealth and *SIIncome* implies a three-way interaction term, which also requires including in the model specification each two-way interaction and each term on its own. The specification for the full empirical model is

$$p_{ict} = \alpha + \beta_1 RecentEmpShock_i + \beta_2 HomeOwner_i + \beta_3 SIIncome_i +$$

$$\beta_4 RecentEmpShock_i * HomeOwner_i + \beta_5 RecentEmpShock_i * SIIncome_i +$$

$$\beta_6 HomeOwner_i * SIIncome_i +$$

$$\beta_7 RecentEmpShock_i * HomeOwner_i * SIIncome_i + Z_i + \phi_c + \gamma_t + \varepsilon_{ict}. \quad (2)$$

Because I hypothesize that access to insurance decreases the likelihood of protest, negative values of β_3 would support my hypothesis (Franzese and Kam, 2009: p.50-51). I also expect positive values for β_1.

The ESS survey results, shown in Table 2, provide limited support for my hypothesis. Although income shocks on their own do not affect baseline likelihood to protest for non-home owners and non-

Table 2: The Effect of Insurance on Probability of Protesting, EU

	Dependent variable:
	Pr(Protest)
RecentEmpShock	0.283
	(0.209)
HomeOwner	−0.054
	(0.076)
SIIncome	−0.188
	(0.319)
Age	−0.021***
	(0.002)
Female	−0.178***
	(0.063)
HSGrad	0.586***
	(0.109)
HHIncome	0.0004
	(0.015)
Kids	−0.217***
	(0.066)
Urban	0.124*
	(0.071)
MemberParty	1.618***
	(0.119)
RightPolitics	−0.204***
	(0.015)
Union	0.993***
	(0.080)
SocialDays	0.255***
	(0.026)
CloseDiscuss	0.067
	(0.118)
RecentEmpShock:HomeOwner	−1.066***
	(0.352)
RecentEmpShock:SIIncome	0.165
	(0.446)
HomeOwner:SIIncome	1.291***
	(0.471)
RecentEmpShock:HomeOwner:SIIncome	−0.171
	(0.871)
Observations	13,783
Log Likelihood	−3,797.974
Akaike Inf. Crit.	7,635.947
Bayesian Inf. Crit.	7,786.571
Note:	*p<0.1; **p<0.05; ***p<0.01

recipients of social insurance, individuals appear much less likely to protest in the face of an income shock if there is a relatively large, negative, statistically significant relationship between home ownership and protest. This supports my hypothesis. However, the results find no relationship between public insurance and protest.

Moreover, there are statistically significant relationships between demographic characteristics and protest. Protests are more likely among younger people, males, high school graduates, those with no children, city dwellers, people with left-leaning politics, union members, and those who spend more time socializing with close friends.

To illustrate this, consider a 30-year-old female high school graduate in the United Kingdom in 2004 with middle income who is not a member of a union. She is not a member of a political party and has independent politics; she has friends with whom she talks closely three days a week. Table 3 shows that if someone in her household loses their job, her probability of protesting increases.

This probability is mitigated by owning her home but not by receiving social insurance from the government.

Table 3: The Effect of Insurance on Probability of Protest, EU.

	Baseline	Shock	Private	Public	Both
RecentEmpShock	✗	✓	✓	✓	✓
HomeOwner	✗	✗	✓	✗	✓
SIIncome	✗	✗	✗	✓	✓
P(*Protest*)	4.41%	5.77%	1.96%	5.66%	5.66%

Notable here is the lack of a statistically significant relationship between public insurance (*SIIncome*) and protest. Not only is there no baseline effect of public insurance on overall likelihood to protest, but recipients of public insurance are also no more or less likely to protest if they have private insurance than if they do not.

5.3   Survey Results: US

Although the ESS results provide limited support for my hypothesis, it is possible that the deficiencies in the ESS survey data could lead to results that do not illustrate the whole picture. Therefore I also conduct a similar analysis using the 2020 ANES. I expect to find stronger results because the ANES has decreased cross-country variation and a stronger measure of the effect of networks on political involvement.

Because US employment benefits are administered at the state level, they vary tremendously in generosity from state to state. To account for this, I use a multi-level model with state effects ϕ_s to ensure that cross-state variation in social insurance generosity is not driving my results.

Using a simple logit model, I assess the effect of an income shock (*AnyJobLoss*) on an individual's protest participation as moderated by a binary variable indicating whether the individual owns her home (*HomeOwner*). The expectation that *AnyJobLoss* is moderated by both *HomeOwner* implies an interaction term. I test whether the results of these interaction terms hold under the inclusion of a vector *Z* of controls including *Age*, *Educ*, *Children*, *Female*, *Married*, *RaceEthnicity*, *HHIncome*, *PartyID*, *CloseToParty* ∗ *HowClose*, *TalkPolitics*, and *Union*. The specification for the full empirical model is

$$p_i = \alpha + \beta_1 AnyJobLoss_i + \beta_2 HomeOwner_i +$$

$$\beta_3 AnyJobLoss_i * HomeOwner_i + Z_i + \phi_s + \varepsilon_i. \quad (3)$$

Because I hypothesize that access to insurance decreases the likelihood of protest, negative values of β_3 would support my hypothesis (Franzese and Kam, 2009: p.50-51). I also expect positive values for β_1.

Table 4: The Effect of Insurance on Probability of Protesting, US

	Dependent variable:
	P(Protests)
Age	−0.031***
	(0.005)
Educ	0.132***
	(0.048)
Children	−0.160*
	(0.088)
Female	−0.044
	(0.179)
Married	−0.451**
	(0.184)
RaceEthnicity	0.079
	(0.070)
HHIncome	0.018
	(0.016)
TalkPolitics	0.197***
	(0.038)
PartyID	−0.052
	(0.094)
CloseToParty	−0.053
	(0.037)
HowClose	0.163***
	(0.061)
Union	0.213
	(0.223)
HomeOwner	−0.037
	(0.299)
AnyLostJobs	0.756**
	(0.310)
CloseToParty:HowClose	−0.009
	(0.014)
HomeOwner:AnyLostJobs	−0.702*
	(0.379)

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

The results, shown in Table 4, indicate that the baseline likelihood of protest is higher if your household has known a job loss (positive value of $\beta_1 = 0.756$).

As expected, the results also indicate a negative estimate for β_3: the value of the coefficient β_3 is -0.702. Individuals whose household has had a recent job loss are far less likely to protest when they own their home. This means that the increase in probability of protest associated with a job loss is almost entirely offset by owning a home: respondents who have known a job loss and own a home

are only barely more likely to protest than individuals who have not known a job loss at all.

To illustrate this, consider a 30-year-old female college in the US in 2020 who is not a member of a union and whose income is between $65-70k. She is not a member of a political party nor does she closely align with one, is a political independent, and talks about politics with her friends and family one day a week. Table 5 shows that if someone in her household loses their job and she does not own her home, her baseline probability of protesting is 23.4%. If she has private insurance via home ownership, her probability of protesting drops to 12.7%.[18]

Aside from the hypothesized connection between economic insurance and protest, these results indicate statistically significant support for relationships between protest and other variables. First, results generally support the biographical availability theory. Protest is more likely among younger respondents (the probability of protest decreases by 0.36% for each year they're older), respondents with no children (1.6% lower for each kid), and unmarried respondents (4.3% less if you're married). Results also indicate that more educated respondents are more likely to protests (0.3% for each level of education), as are respondents who feel close to a political party (4% more likely for those who are very close to a party compared to those who are not close). Lastly, the results support the theory that network flows of information affect the decision to protest. The effect varies, but respondents are more likely to protest the more frequently they talk politics (about 3% more per additional day a week).

Table 5: The Effect of Insurance on Probability of Protest, US.

	Baseline	No Insurance	Private
AnyLostJobs	✗	✓	✓
HomeOwner	✗	✗	✓
P(*Protest*)	12.5%	23.4%	12.7%

---

[18]Tables made using XTable in R (Dahl et al., 2009).

6 Robustness

6.1 Aggregate Robustness

I test an alternate dependent variable for the aggregate analysis to test the robustness of my aggregate macroeconomic results. Rather than merely counting up the events one by one, the PolDem data set includes a measure of the weighted occurrence of the protest that adjusts for sample selection, newswire, and country population biases. I use this variable summed at the country-month level as a measure of the weighted number of protests in that country during that month. I use the same Panel VECM analysis structure and expect similar results. Indeed, several combinations of income and wealth indicators have statistically significant interaction terms: *Wages* and *Int.Rate*, *Wages* and *Stock.Market*, and *Unemp* and *Stock.Market*, shown in Table 6. As in the analysis of protest participant counts, all error correction terms are strongly negative and statistically significant, implying that the long-term relationship between the variables drives protest count.

The first specification shows that in the long-term, protests are more associated with higher interest rates, but increases in wages mitigate this trend. This aligns with the findings from above using the weighted participant count as the dependent variable, providing further evidence that concerns about market liquidity are assuaged by increasing nominal income.

The second and third specifications show that movements in the *Stock.Market* influence the number of protests. The second specification shows that in the long run, drops in *Wages* correspond with more protests when the stock market is at its lowest value; drops in *Stock.Market* also correspond to more protests when wages are at their lowest value. However, increases in either the stock market or wages mitigate the higher protests associated with decreases in the other. An increasing stock market increases asset values, decreasing worries about consumption smoothing; increasing wages increase nominal income and relieve the need to smooth consumption in the first place.

Stock.Market also interacts with *Unemp*. The third specification shows that in both the long run and the short run, when the stock market is set to zero (its lowest value for that country), increasing unemployment corresponds to increasing protest counts. This effect is far stronger in the short run. In both the short run and the long run, increases in the stock market mitigate the higher protest counts

that arise under rising unemployment while drops in the stock market contribute to even higher protest counts. This is evidence that increasing asset values mitigate concerns about decreased nominal income among a society with increasing unemployment and falling asset values exacerbate them.

Although the individual variables involved are slightly different, this analysis' findings confirm previous findings: negative shocks to income and wealth are associated with higher protest counts and these associations are higher when both income and wealth are shocked simultaneously. The analysis supports the general conclusion that protest reactions to income shocks are highly contingent on the availability of insurance via private wealth.

6.2 Survey Robustness

The results are robust to inclusion of variables accounting for belief that voting is a duty and belief that society should make sure everyone has equal opportunity.

The ANES also includes data on other kinds of political activity: I construct binary variables for whether the respondent has boycotted a product for political reasons (*Boycott*) or signed a petition (*Petition*) in the last 12 months. My theory implies that the relationship between income, insurance, and protest exists because protesting provides an immediate avenue for demanding relief unconstrained by exogenous election timelines. Boycotting and petitioning, on the other hand, are acts of political participation that operate over a longer time frame than protests and thus are not suitable for immediate policy relief of poor economic circumstances that individuals without private insurance are unable to surmount. Therefore *Petition* and *Boycott* should be unrelated to a recently unemployed individual's access to public or private insurance.

The results indeed reflect these expectations. Table 7 shows that although all three forms of political participation become more likely once an individual loses her job, the availability of private insurance is unrelated to recently unemployed person's likelihood to petition or boycott products.

I also test for biased coefficient estimates resulting from omitting variables from the empirical specification. To mitigate unobservable omitted variable bias, I follow work by Gonzalez and Miguel (2015) and Oster (2019) designed to determine whether "unobservable characteristics would reduce the estimated coefficient of interest to zero" (Justino and Martorano, 2019: p. 2141). A consistent

estimator of the effect of the main independent variables on the dependent variable can be expressed as

$$\bar{\beta} = \beta^* - (\beta - \beta^*) \times (R_{max} - R^*)/(R^* - R), \tag{4}$$

where β^* is the coefficient resulting from the regression after inclusion of all observable covariates and β is the coefficient from the regression without covariates computed using OLS with two-way fixed effects.[19] R^* is the R^2 from the regression with all covariates, R is the R^2 from the regression without controls, and R_{max} is the value of R^2 when controlling for all observable and unobservable factors (unknown), which is given by $(R^* - R)$.

If the test estimates values of $\bar{\beta}$ under different assumptions about R_{max} to be close to the model's estimated coefficient, the test provides evidence against large omitted variable bias. Table 8 in the Appendix shows the percentage difference between $\bar{\beta}$ and the actual β for the survey specification. The results indicate that omitted variable bias decrease when the maximum claimed maximum explanatory power for the model approaches the R^2 of the model, 0.22.

7   Conclusion

In conclusion, I find individual-level evidence that access to wealth as measured by home ownership mitigates the effect to which income shocks induce protest. Aggregate protests in the face of macroeconomic income shocks decrease when measures of aggregate savings and wealth increase. At the individual level, I find that an individual's likelihood to protest after an income shock decreases markedly if she has private insurance via owning a home. I do not find evidence supporting the same relationship for public insurance.

This analysis has its drawbacks, however. It is weakened by its imperfect measures of private wealth and receipt of public insurance and would be improved by knowing the amount of income replaced by private wealth or social insurance. However, the weight of the evidence supports the hypothesis that income shocks are more likely to lead to protest when individuals have less insurance.

---

[19]Gonzalez and Miguel (2015), as cited in Justino and Martorano (2019). Assumes that observable and unobservable variables will have the same explanatory power.

The connection I find between economic circumstances and protest might not surprise some readers. However, although there exists an abundant literature studying the relationship between income shocks and protest, existing studies conceive of an individual's economic circumstances as one-dimensional. In doing so, they ignores or obscures the reality of many people: economic well-being is dependent on accumulated assets or support from the government in addition to income. Until now, this remained an untested assumption.

I address this fundamental unanswered question in this paper. These results help explain why protests occur in response to changes in some economic indicators and not to others: although wealth and income can affect protests independently, their effects change based on the availability of the other.

One potential implication of these findings is that policies increasing public or private insurance can possibly improve societal resilience to income shocks. Possible future work includes separating out the type of protest resulting from different economic circumstances. Furthermore, a deeper understanding of these concepts could be gained from an interrogation of the relationship between these concepts across regions.

Appendices

A   Supplementary Aggregate Results

Table 6: Robustness to Weighted Protest Occurrence Dependent Variable.

VARIABLES	(1) Long-term	(1) Short-term	(2) Long-term	(2) Short-term	(3) Long-term	(3) Short-term
Constant		1.331**		2.661***		2.722***
		(0.551)		(0.454)		(0.429)
ECT		-0.817***		-0.835***		-0.834***
		(0.0535)		(0.0632)		(0.0538)
SI	0.162		0.00104		-0.122	
	(0.143)		(0.105)		(0.155)	
ΔWages		-2.608		0.529		
		(4.130)		(3.287)		
ΔInt.Rate		-7.491**				
		(3.723)				
ΔWages : Int.Rate		3.805				
		(5.877)				
Wages	0.199		-0.949***			
	(0.245)		(0.352)			
Int.Rate	0.898**					
	(0.389)					
Wages : Int.Rate	-1.728**					
	(0.774)					
Stock.Market			-0.767**		0.376	
			(0.311)		(0.467)	
Wages : Stock.Market			1.332**			
			(0.534)			
ΔStock.Market				2.299		8.241***
				(2.921)		(2.955)
ΔWages : Stock.Market				-1.129		
				(5.537)		
Unemp					1.065*	
					(0.557)	
Unemp : Stock.Market					-2.000**	
					(0.929)	
ΔUnemp						9.635***
						(3.538)
ΔUnemp : Stock.Market						-14.29***
						(5.215)
Observations	1,013	1,013	1,013	1,013	1,123	1,123

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

B   Supplementary Survey Results

Table 7: Robustness to Alternate Survey Dependent Variable Specifications.

| | *Dependent variable:* | | |
| | Protest | Petition | Boycott |
	(1)	(2)	(3)
Age	−0.030***	−0.019***	−0.005*
	(0.005)	(0.003)	(0.003)
Educ	0.085**	0.108***	0.120***
	(0.036)	(0.024)	(0.022)
Children	−0.131*	−0.030	−0.113***
	(0.069)	(0.045)	(0.041)
Female	0.109	0.437***	0.037
	(0.139)	(0.093)	(0.084)
Married	−0.291*	−0.146	0.160*
	(0.164)	(0.107)	(0.096)
RaceEthnicity	0.051	0.080**	0.034
	(0.050)	(0.036)	(0.034)
HHIncome	0.021	0.011	−0.001
	(0.013)	(0.009)	(0.008)
TalkPolitics	0.190***	0.191***	0.170***
	(0.032)	(0.021)	(0.019)
PartyID	−0.005	0.038	0.032
	(0.072)	(0.050)	(0.045)
CloseToParty	−0.084**	−0.151***	−0.083***
	(0.042)	(0.024)	(0.021)
HowClose	0.194**	0.048	0.037
	(0.079)	(0.039)	(0.037)
Union	0.337**	−0.001	−0.063
	(0.168)	(0.122)	(0.111)
HomeOwner	−0.208	0.050	−0.118
	(0.241)	(0.165)	(0.138)
AnyLostJobs	0.822***	0.572***	0.564***
	(0.244)	(0.182)	(0.166)
CloseToParty:HowClose	−0.006	0.020**	0.010
	(0.018)	(0.009)	(0.008)
HomeOwner:AnyLostJobs	−0.703**	−0.282	−0.144
	(0.296)	(0.210)	(0.192)
Observations	3,188	3,188	3,188
Log Likelihood	−803.692	−1,510.503	−1,765.149
Akaike Inf. Crit.	1,643.383	3,057.006	3,566.298
Bayesian Inf. Crit.	1,752.592	3,166.215	3,675.507

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

Table 8: Potential Omitted Variable Bias for Varying Values of R^2_{max} (Measured in %).

Variable	0.2	0.3	0.4
HomeOwner	-2.30	-99.80	-197.30
AnyLostJobs	0.20	6.70	13.20
HomeOwner:AnyLostJobs	1.10	47.00	93.00

References

AFP. 2019. "Xi says will abolish anti-competitive subsidies to Chinese firms." France24 .

Amenta, Edwin and Yvonne Zylan. 1991. "It happened here: Political opportunity, the new institutionalism, and the Townsend movement." American Sociological Review pp. 250–265.

Ansell, Ben. 2014. "The political economy of ownership: Housing markets and the welfare state." American Political Science Review pp. 383–402.

Arce, Moisés and Roberta Rice. 2009. "Societal protest in post-stabilization Bolivia." Latin American Research Review pp. 88–101.

Aytaç, S Erdem and Susan C Stokes. 2019. Why Bother?: Rethinking Participation in Elections and Protests. Cambridge University Press.

Bellinger Jr, Paul T and Moisés Arce. 2011. "Protest and democracy in Latin America's market era." Political Research Quarterly 64(3):688–704.

Blackburne III, Edward F and Mark W Frank. 2007. "Estimation of nonstationary heterogeneous panels." The Stata Journal 7(2):197–208.

Boeri, Tito, Axel Börsch-Supan and Guido Tabellini. 2001. "Would you like to shrink the welfare state? A survey of European citizens." Economic policy 16(32):08–50.

Brady, Henry E, Sidney Verba and Kay Lehman Schlozman. 1995. "Beyond SES: A resource model of political participation." American political science review 89(2):271–294.

Braun, Norman. 1995. "Individual thresholds and social diffusion." Rationality and Society 7(2):167–182.

Campbell, David E. 2013. "Social networks and political participation." Annual Review of Political Science 16:33–48.

Carnes, Matthew and Isabela Mares. 2013. "Measuring the individual-level determinants of social insurance preferences: survey evidence from the 2008 Argentine pension nationalization." Latin American Research Review pp. 108–129.

Chenoweth, Erica, Kyleanne Hunter, Pauline Moore, Tricia Olsen and Jonathan Pinkney. 2017. "Struggles from Below: Literature Review on Hhuman Rights Struggles by Domestic Actors." USAID Research and Innovation Grants Working Papers Series .

Chetty, Raj and Adam Looney. 2006. "Consumption smoothing and the welfare consequences of social insurance in developing economies." Journal of public economics 90(12):2351–2356.

Collier, Paul and Anke Hoeffler. 2004. "Greed and grievance in civil war." Oxford economic papers 56(4):563–595.

Costa, Daniel. 2011. "The link between joblessness and social unrest." Working Economics Blog .

Dahl, David B, David Scott, Charles Roosen, Arni Magnusson and Jonathan Swinton. 2009. "xtable: Export tables to LaTeX or HTML." R package version pp. 1–5.

Dahlum, Sirianne. 2019. "Students in the streets: education and nonviolent protest." Comparative Political Studies 52(2):277–309.

Dalton, Russell, Alix Van Sickle and Steven Weldon. 2010. "The individual-institutional nexus of protest behaviour." British journal of political science pp. 51–73.

Danmarks Nationalbank. 2009. Monetary Policy in Denmark, 3rd edition. Technical report Danmarks Nationalbank Copenhagen: .

Davies, James C. 1962. "Toward a theory of revolution." American sociological review pp. 5–19.

Dodson, Kyle. 2016. "Economic threat and protest behavior in comparative perspective." Sociological Perspectives 59(4):873–891.

Donadio, Rachel and Niki Kitsantonis. 2011. "Two-Day Strike in Greece Ahead of Austerity Vote." New York Times .

Ebbinghaus, Bernhard and Jelle Visser. 2000. Trade unions in Western Europe since 1945. Macmillan reference London.

Engels, Bettina. 2015. "Different means of protest, same causes: popular struggles in Burkina Faso." Review of African Political Economy 42(143):92–106.

Engle, Robert F and Clive WJ Granger. 1987. "Co-integration and error correction: representation, estimation, and testing." Econometrica: journal of the Econometric Society pp. 251–276.

Franzese, Robert J and Cindy Kam. 2009. Modeling and interpreting interactive hypotheses in regression analysis. University of Michigan Press.

Gonzalez, Felipe and Edward Miguel. 2015. "War and local collective action in Sierra Leone: A comment on the use of coefficient stability approaches." Journal of Public Economics 128:30–33.

Granovetter, Mark and Roland Soong. 1988. "Threshold models of diversity: Chinese restaurants, residential segregation, and the spiral of silence." Sociological methodology pp. 69–104.

Gurr, Ted Robert. 1970. "Why men rebel, princeton (nj) princeton univ.".

Hamann, Kerstin, Alison Johnston and John Kelly. 2013. "Unions against governments: Explaining general strikes in Western Europe, 1980–2006." Comparative Political Studies 46(9):1030–1057.

Hollyer, James R, B Peter Rosendorff, James Raymond Vreeland et al. 2015. "Transparency, protest, and autocratic instability." American Political Science Review 109(4):764–784.

Hurst, William and Kevin J O'Brien. 2002. "China's contentious pensioners." The China Quarterly 170:345–360.

Iversen, Torben and David Soskice. 2001. "An asset theory of social policy preferences." American political science review 95(4):875–893.

Jenkins, J Craig, David Jacobs and Jon Agnone. 2003. "Political opportunities and African-American protest, 1948–1997." American Journal of Sociology 109(2):277–303.

Jo, Jung-In and Hyun Jin Choi. 2019. "Enigmas of grievances about inequality: Effects of attitudes toward inequality and government redistribution on protest participation." <u>International Area Studies Review</u> 22(4):348–368.

Johansen, Søren. 1988. "Statistical analysis of cointegration vectors." <u>Journal of economic dynamics and control</u> 12(2-3):231–254.

Justino, Patricia and Bruno Martorano. 2019. "Redistributive preferences and protests in Latin America." <u>Journal of Conflict Resolution</u> 63(9):2128–2154.

Kimeldorf, Howard. 2013. "Worker replacement costs and unionization: Origins of the US labor movement." <u>American Sociological Review</u> 78(6):1033–1062.

Kriesi, Hanspeter, Bruno Wuest, Jasmine Lorenzini, Peter Makarov, Matthias Enggist, Klaus Rothenhausler, Thomas Kurer, Silja Hausermann, Patrice Wangen, Argyrios Altiparmakis, Endre Borbath, Bjorn Bremer, Theresa Gessler, Sophia Hunger, Swen Hutter, Julia Schulte-Cloos and Chendi Wang. 2020. "PolDem-Protest Dataset 30 European Countries, Version 1.".

Kuran, Timur. 1991. "Now out of never: The element of surprise in the East European revolution of 1989." <u>World Politics: A Quarterly Journal of International Relations</u> pp. 7–48.

Kuran, Timur and Diego Romero. 2018. The logic of revolutions. In <u>The Oxford Handbook of Public Choice, Volume 2</u>.

Kurer, Thomas, Silja Häusermann, Bruno Wüest and Matthias Enggist. 2019. "Economic grievances and political protest." <u>European Journal of Political Research</u> 58(3):866–892.

Lohmann, Susanne. 1993. "A signaling model of informative and manipulative political action." <u>American Political Science Review</u> pp. 319–333.

Maduz, Linda. 2011. "Protest mobilisation and government response during and after the Financial Crisis in Asia: A cross-country comparison." <u>European Consortium for Political Research</u> .

McAdam, Doug. 1986. "Recruitment to high-risk activism: The case of freedom summer." <u>American journal of sociology</u> 92(1):64–90.

46

McCarthy, John D and Mayer N Zald. 1977. "Resource mobilization and social movements: A partial theory." American journal of sociology 82(6):1212–1241.

Meltzer, Allan H and Scott F Richard. 1981. "A rational theory of the size of government." Journal of political Economy 89(5):914–927.

Michieka, Nyakundi M and Richard Gearhart. 2015. "Oil price fluctuations and employment in Kern County: A Vector Error Correction approach." Energy Policy 87:584–590.

Moene, Karl Ove and Michael Wallerstein. 2001. "Inequality, social insurance, and redistribution." American Political Science Review 95(4):859–874.

Moene, Karl Ove and Michael Wallerstein. 2003. "Earnings inequality and welfare spending: A disaggregated analysis." World Pol. 55:485.

Morduch, Jonathan. 1995. "Income smoothing and consumption smoothing." Journal of economic perspectives 9(3):103–114.

Muñoz, Jordi and Raül Tormos. 2015. "Economic expectations and support for secession in Catalonia: between causality and rationalization." European Political Science Review 7(2):315–341.

Norges Bank. 2020. Monetary Policy Report with Financial Stability Assessment, December 2020. Technical report Norges Bank Oslo: .

NSD. 2020. "European Social Survey Cumulative File, ESS 1-9. Data file edition 1.0." Norwegian Centre for Research Data, Norway - Data Archive and distributor of ESS data for ESS ERIC .

OECD. 2020. "Social Expenditure Database, 1980-2020.".

OED. 2020. Oxford English Dictionary. Oxford University Press.

Opp, Karl-Dieter. 1988. "Grievances and participation in social movements." American sociological review pp. 853–864.

Opp, Karl-Dieter and Wolfgang Roehl. 1990. "Repression, micromobilization, and political protest." Social Forces 69(2):521–547.

Oster, Emily. 2019. "Unobservable selection and coefficient stability: Theory and evidence." Journal of Business & Economic Statistics 37(2):187–204.

Owen, Nicholas. 2015. "Scrapping of fuel subsidies a landmark and boost for Indonesia." Reuters .

Ozarow, Daniel. 2014. "When all they thought was solid melted into air: Resisting pauperization in Argentina during the 2002 crisis." Latin American Research Review pp. 178–202.

Pesaran, M Hashem, Yongcheol Shin and Ron P Smith. 1999. "Pooled mean group estimation of dynamic heterogeneous panels." Journal of the American statistical Association 94(446):621–634.

Romero, Simon. 2011. "After Move to Cut Subsidies, Bolivian Ire Chastens Leader." New York Times .

Ross, Mark and Chris Edwards. 2012. "In New Zealand, Farmers Don't Want Subsidies." CATO Institute .

Rüdig, Wolfgang and Georgios Karyotis. 2014. "Who protests in Greece? Mass opposition to austerity." British Journal of Political Science pp. 487–513.

Rueda, David. 2005. "Insider-outsider politics in industrialized democracies: The challenge to social democratic parties." American Political Science Review pp. 61–74.

Saberin, Zeenat. 2018. "India ends government subsidies for Hajj pilgrimage." Al Jazeera .

Schelling, Thomas C. 1971. "Dynamic models of segregation." Journal of mathematical sociology 1(2):143–186.

Schmalz, Stefan, Brandon Sommer and Hui Xu. 2017. "The Yue Yuen strike: Industrial transformation and labour unrest in the Pearl River Delta." Globalizations 14(2):285–297.

Schussman, Alan and Sarah A Soule. 2005. "Process and protest: Accounting for individual protest participation." Social forces 84(2):1083–1108.

Shi, Wei. 2019. "Fear as political dynamics: Chinese peasant workers' struggle over social security." Inter-Asia Cultural Studies 20(1):19–38.

Siegel, David A. 2011. "When does repression work? Collective action in social networks." The Journal of Politics 73(4):993–1010.

Snyder, David and Charles Tilly. 1972. "Hardship and collective violence in France, 1830 to 1960." American Sociological Review pp. 520–532.

Solt, Frederick. 2008. "Economic inequality and democratic political engagement." American Journal of Political Science 52(1):48–60.

Solt, Frederick. 2015. "Economic inequality and nonviolent protest." Social Science Quarterly 96(5):1314–1327.

Sveriges Riksbank. 2020. Monetary Policy Report November 2020. Technical report Sveriges Riksbank Stockholm: .

Thyne, Clayton L. 2006. "ABC's, 123's, and the golden rule: The pacifying effect of education on civil war, 1980–1999." International Studies Quarterly 50(4):733–754.

TradingEconomics. 2020. "TradingEconomics.com.".
  URL: *https://www.tradingeconomics.com*

Valencia, Alexandra. 2019. "Ecuador's Moreno scrpas fuel subsidy cuts in big win for indigenous groups." Reuters .

Varagur, Krithika. 2018. "Indonesia to Effectively continue Fuel Subsidy." VOA News .

Vitalis, Vangelis. 2007. "Agricultural subsidy reform and its implications for sustainable development: the New Zealand experience." Environmental Sciences 4(1):21–40.

Wallace, Jeremy L and Jessica Chen Weiss. 2015. "The political geography of nationalist protest in China: cities and the 2012 anti-Japanese protests." The China Quarterly 222:403–429.

Yin, Chien-Chung. 1998. "Equilibria of collective action in different distributions of protest thresholds." Public Choice 97(4):535–567.

Zimmerman, Frederick J and Michael R Carter. 2003. "Asset smoothing, consumption smoothing and the reproduction of inequality under risk and subsistence constraints." Journal of Development Economics 71(2):233–260.