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Business Cycles with Revolutions

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Abstract

This paper develops an empirical macroeconomic framework to analyze the relationship between major political disruptions and business cycles of a country. We combine a new dataset of political revolutions (mass domestic political campaigns to remove dictators and juntas) across the world since 1960, with coup data and traditional macro data (of output, investment, trade, inflation and exchange rate). We then build a panel vector-autoregression model with two novel ingredients: (1) political disruptions and (2) an estimated probability of such disruptions. We find that both terms have statistically and economically significant impacts on business cycles. Interestingly, the impacts of the second term dominate those of the first, both statistically and economically. This suggests that our measure of political risk captures an important source of time-varying uncertainty and volatility in many countries.

Keywords: business cycles, political risk, time-varying uncertainty, panel VAR

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BUSINESS CYCLES WITH REVOLUTIONS

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Preliminary. We welcome comments.

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1. Introduction

In the past 50 years, many countries have experienced episodes of major political disruptions, including mass insurrections to overthrow ruling dictators/military juntas and coups. Many other countries, while so far having not experienced such disruptions, may still face significant risks of instability to the existing political institutions. Do observable macroeconomic factors, such as the 2008 recession that preceded the Arab Spring revolutions, increase the risks of political instability? Do revolutions and coups have significant impacts on the macroeconomy? And most interestingly, how can we measure the impacts of political instability risks on the macroeconomy, even for countries that have not yet experienced episodes of instability?

Our paper develops a flexible macroeconomic time-series framework that can address these questions. First, we employ a new dataset, the Nonviolent and Violent Campaigns and Outcomes database (Chenoweth (2011)), which documents known political campaigns with the objective of removing existing dictators or military juntas (which we conveniently call "revolutions") from 1960 to 2006 around the world. We combine this with well-known time-series databases of coups (Marshall and Marshall (2011)), the quality of political institutions (Marshall and Jaggers (2002)'s Polity IV score) and important macroeconomic variables (output, investment, trade, inflation and exchange rate from 1960 to 2012, from the World Bank's World Development Index). This gives us time-series data of 157 countries, 135 revolutions and 161 coups.

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Second, we augment the standard panel vector-autoregression (VAR) approach in macroeconomics with Heckman (1979)'s two-step regression method in the empirical microeconomic literature. We estimate a probit to predict the incidence of regime change campaigns for each country. We then include this time-varying predicted probability into our panel VAR. This term allows us to consider the endogeneity between business cycles and political disruptions. The term is also an endogenous measure of time-varying political risks.

We find in the probit that, not surprisingly, economic downturns have significant correlations with revolutions and coups. The polity score has a non-linear relationship with political risks. Regimes that are either very democratic or very autocratic face small probabilities of revolutions or coups. But regimes that are in the middle are vulnerable, to both revolutions and coups. However, the overall pseudo-R^2 of the probit regression is very small. This implies that it is difficult to predict political instability given our observable covariates. This is consistent with findings in the political science literature that revolutions are hard to predict (Goldstone et al. (2010)), as they usually require unexpected "sparks" (Kuran (1989)), such as the self-immolation of the young merchant Mohamed Bouazizi that sparked the 2010 popular uprising in Tunisia.

We find that revolutions and coups have statistically and economically significantly impacts on output growth and especially real investment growth. An average episode of revolution or coup, while not nearly as damaging as the large world wars of the twentieth century, lead to declines of output and investment growth large enough to qualify as moderate "rare disasters."

Finally, we find that the risk of revolutions exerts a powerful influence on an economy. Our predicted probability of revolutions is economically and significantly correlated to all six macroeconomic variables. This result is an example of the macroeconomic effects of time-varying uncertainty about large rare negative shocks. It is also the means by which wide-scale political disruptions, despite being rare, can exert considerable influence over a country's business cycles even in normal times.

Since the feedback between economic downturns and political uncertainty can amplify otherwise mundane economic shocks, political risk can sizably increase the volatility[1] of business cycles even if the revolution is never actually observed. We illustrate this point by showing the impulse responses to a small 1 percentage point shock to output growth in two countries: one with a high polity score of 10, and one with a low polity score of 0 (and thus being in the "middle zone" of high political risk). In the low polity country, a negative shock to output growth increases the probability of revolution, which in turns dampen output and investment (and other variables) in the following period. Thus, through the political risk, output shocks become more persistent. This suggests that our measure of political risk captures an important source of time-varying uncertainty and volatility many countries, especially those with polity scores that are neither too high nor

[1]And possibly skewness. However, we have not yet explored skewness in this draft.

too low.

Literature. Our paper provides estimates of the size, triggers and consequences of a certain type of the extreme events recently studied in the macroeconomic rare event literature (Barro (2006, 2009), Gabaix (2012)), and identified by the "narrative approach" used in other studies to identify fiscal policy shocks (Ramey and Shapiro (1998) and Ramey (2011)).

Our paper is also related to the macro literature on uncertainty shocks Bloom (2009), Christiano et al. (2013) and citations therein). Our main contribution here is a constructed index of tie-varying uncertainty that is derived from well-identified events in political science.

Our paper also contributes an empirical framework to analyze theories of democratizations, especially those of Acemoglu and Robinson (2000b,a, 2005, 2012). We document that most democratic transitions since 1960 are preceded by revolutions (and sometimes coups). Thus, our finding challenges models where democratic transitions happen when the ruling elites preemptively avoid revolutions by extending political franchise.

Our paper also relates to an empirical literature in political economy and growth that documents the relationship between democratizations and growth (see Rodrik and Wacziarg (2005), Papaioannou and Siourounis (2008) and references therein). This literature usually focuses on the impacts of democratic transitions, but does not considered the episodes of political turmoils that precede them. Furthermore, we believe our paper is the first to provide a panel VAR analysis of revolutions. The VAR allows us to disentangle how different political (risk) shocks impact and propagate through the economy.

Our paper borrows insight from the political science literature, including Goldstone (2002)'s extensive survey of theories on political revolutions, and empirical work on predicting political violence such as Goldstone et al. (2010), Collier et al. (2005) and Fearon and Laitin (2003).

Finally, this paper builds on our own work on the Arab Spring. In Kent and Phan (2013b), we take a careful look into why the Arab Spring revolutions happened, and how short- and long-run macroeconomic conditions might have influenced the different outcomes: relatively peaceful abdications in Tunisia and Egypt, but civil wars in Syria and Libya. Then in Kent and Phan (2013a), we build a neoclassical growth model with endogenous revolutions.

The plan of the paper is the following. In section 2, we describe our data sources, establish some stylized facts about political disruptions and ensuing polity changes. Section 3 documents our empirical work predicting unrest and estimating its impact both when realized and when merely anticipated. Section 4 uses impulse responses to study the dynamics of revolutions (and coups) and the risk of revolutions. Section 5 concludes.

2. Data and Stylized Facts

2.1. **Data.** *Revolutions.* We draw data on timing of known political campaigns around the world from 1960 to 2011 from the NAVCO (Nonviolent and Violent Campaigns and Outcomes) dataset. Each campaign is defined as a series of observable, continuous mass mobilizations of citizens that are non-state actors,[2] in pursuit of a political objective (more on this below), and has discernable leadership (in order to rule out random or spontaneous riots). To qualify as a campaign, a political event must be followed by another event with at least 1000 observed participants, for the same goals, and with evidence of coordination across events.

Each campaign has an onset year and an end year. The onset year is defined to be the first year with a series of coordinated, contentious collective actions, with at least 1,000 observed participants. The campaign is recorded as over if peak participation drops below 1,000.[3]

The NAVCO dataset also gives (among other information) the country, the main participating groups, the documented objective of the movement, the presence of violence, and the degree to which the movement was successful. We focus only on NAVCO campaigns where the documented objective is "regime change", i.e., to remove ruling dictators or military junta.[4] For convenience, we usually refer to these regime change campaigns as "revolutions" or "unrests", interchangeably.

Overall, the NAVCO dataset gives us 135 revolutions over 95 countries, with an average duration of 5.86 years[5]. NAVCO documents that 70 of these campaigns are primarily nonviolent (i.e., the documented main tactic is not to directly exert physical harm on the target), and the remaining are primarily violent. The full list of campaigns is the in the Appendix.

Polity and Coups. In some of campaigns, the movement deposes the targeted regime. In others, the movement does not change the status quo. The long-run consequences of these events extend beyond the period of unrest, namely through the institutional change that potentially follows the event. We capture the notion of institutional change by considering not whether the regime is deposed but how characteristics of the polity change over time. After all, even regimes placed in power by pro-democratic movements can fail to live up to their promises, and the resulting institutions can be no more conducive to economic growth than the autocratic institutions they sought to replace. We use the Polity IV index (Marshall and Jaggers (2002)) to measure polity characteristics. This index runs from -10 (fully autocratic) to +10 (fully democratic). We also incorporate Marshall and Marshall (2011)'s dataset of all known coups from 1946 to 2012. This gives us

[2]Such as the military, and hence this rules out coups.
[3]The cut-off threshold of 1,000 is taken from the Correlates of War (COW)'s standard of reporting conflicts.
[4]Other types of campaign objectives listed in NAVCO but we do not consider: significant institutional reform, policy change, territorial secession, greater autonomy, anti-occupation, and unknown.
[5]Episodes can begin or end at any day in the year. As a simplification, we code a year as belonging to the crisis if at any point in that year a country is in crisis.

161 coups from 1960 to 2012.

Macroeconomics. Finally, we use annual panel macroeconomic data of 154 countries listed in the World Bank's World Development Indicators database, over the interval 1960-2011. This includes six time-series: real output, real investment, inflation, the nominal exchange rate against the US dollar, real imports and real exports.

2.2. **Stylized Facts: Polity, Revolutions and Coups.** The most prominent theory of democratic transitions of Acemoglu and Robinson (2000b, 2005, 2012) predict that democratizations are associated with extensions of political franchise by the elites who face threats of revolutions. According to this theory, the elites preemptively share political power with the mass to avoid revolutions. Therefore, revolutions, or uprisings of the mass against the elites, remain a *threat* off the equilibrium path. There is support for the theory from the earlier wave of European democratic transitions, but how about the wave of democratizations in Latin America, Africa and Asia since the 1960? We provide evidence that most democratic transitions in the period 1960-2011 are preceded by mass uprisings with the objective of regime change.

First, we look at democratic transitions in the "third wave of democratizations" as listed by Papaioannou and Siourounis (2008). Using data from 174 countries over the 1960-2005 period, they provide a comprehensive in the Polity score and Freedom House index that are persistent five years after the dated transitions. We want to know how many democratization episodes coincide are preceded by "revolutions", or "mass unrests". We define a mass unrest as a mass political campaign with the objective of regime change documented by the NAVCO dataset. NAVCO dates both the beginning and the end years of campaigns, but for this section, we only focus on the end years.

We find that 27 out of 38 full democratizations (71%), and 14 out of 24 partial democratizations (58%) listed in Papaioannou and Siourounis (2008) are also listed in the NAVCO list of mass unrests (see the Venn diagram in figure 2.1). Furthermore, all 41 of these full or partial democratizations are *preceded* by mass unrests, by at most 4 years.

Second, we go beyond the dichotomous definitions of democratizations of Papaioannou and Siourounis (2008), by looking at the whole range of changes in Polity scores. In figure 2.2, we plot on the vertical axis the percentage of episodes with changes in Polity scores (anywhere from -20 to 20) that are preceded by the end of a mass regime-change campaign dated, within a window of one year and then a window of five years. The figures show that a strong linear correlation between the percentage of episodes with *positive* changes in Polity preceded by mass unrests and the sizes of the changes. For instance, nearly all (to be exact, 10 out of 11) episodes with very large increases of Polity (of more than 17 points) are preceded by the end of mass unrest campaign, within a window of five years. As expected, the correlation is weak for *negative* changes

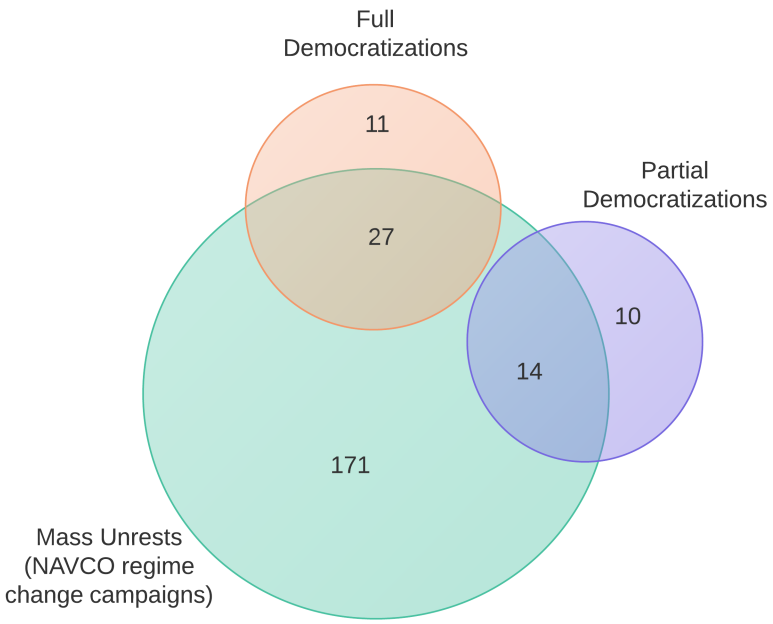

FIGURE 2.1. Venn diagram of full and partial democratization episodes and mass unrests. All the 41 full or partial democratization episodes in the intersection area are preceded by a mass unrest within a window of four years.

towards autocracy. For instance, popular uprisings tend not to precede very negative changes (of more than 17 points).

Besides unrests from the mass, coups staged by the elites are also important political disruptions. In figure 2.3, we plot on the vertical axis the percentage of episodes with changes in Polity scores that are preceded by a coup, within a window of one year and then a window of five years. There is a linear correlation between the percentage of episodes with *negative* changes in Polity preceded by coups and the sizes of the changes. For instance, 100% (18 out of 18) episodes with decreases in Polity of at least 13 points are preceded by coups, within a window of one year. The correlation is weaker for *positive* changes towards democracy. Interestingly, some coups do precede positive changes towards democracy. For instance, 100% of episodes with Polity increment of 12 and 15 points are preceded by coups within 5 years. This can be because popular uprisings follow unpopular coups, and the democratizations following the uprisings.

Thus, we combine mass unrests and coups in figure 2.4. The figure plots the percentage of episodes with changes in Polity scores that are preceded either by a coup or a mass unrest, within a five year window. The figure shows striking linear correlations in both directions: larger political changes, both towards democracy and towards autocracy, are more frequently preceded by political disruptions (coups or unrests). Nearly all large changes in Polity score (above 15 or below -15) are preceded by political disruptions. The same pattern holds when we consider five year changes ($Polity_{t+5} - Polity_t$) in Polity rather than one year changes ($Polity_{t+1} - Polity_t$).

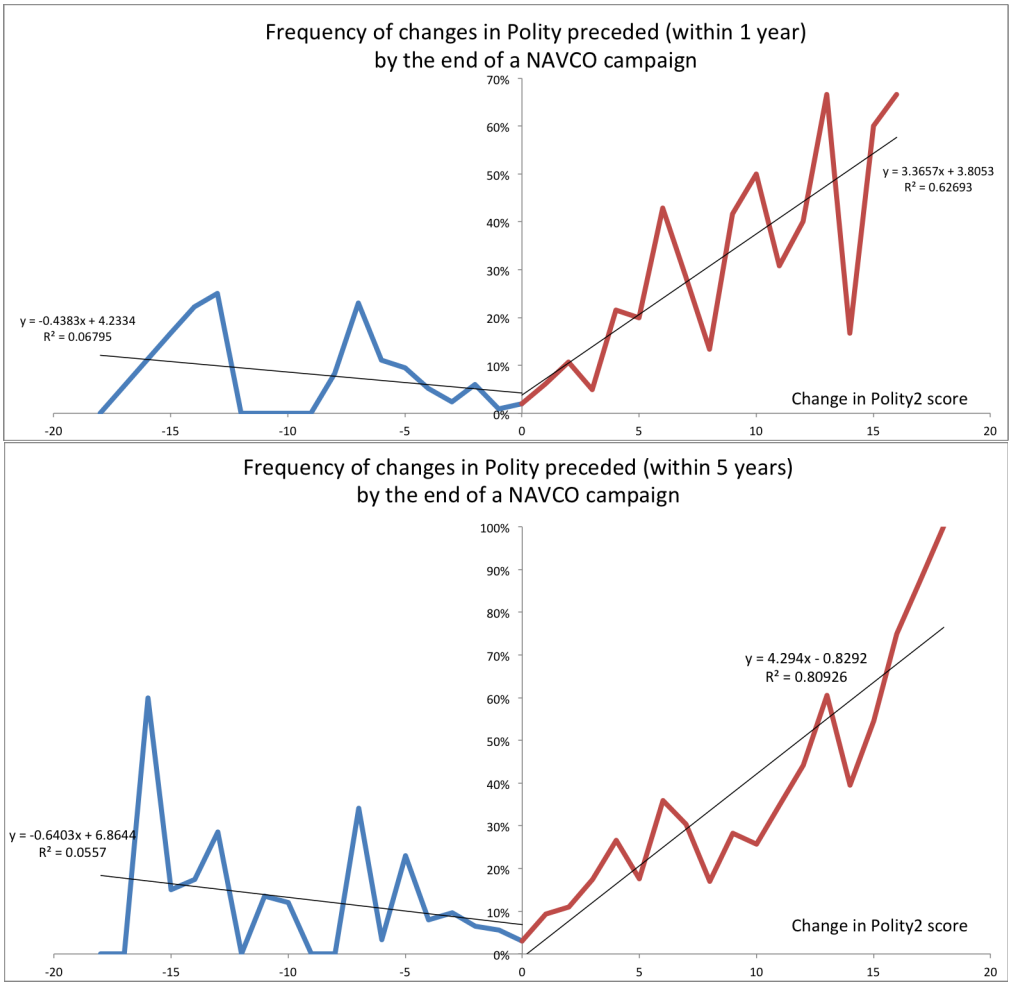

FIGURE 2.2.

In summary, this subsection argues that large political changes, both towards democracy and towards autocracy, are preceded by political disruptions, namely mass unrests or coups. Therefore, to answer the question of what the effects of democratization are, it is necessary to distinguish the long-run consequences of political change from the economic turmoil that precedes them. In the next section, we document how disruptive political disruption is, both when realized and when merely anticipated.

3. REGRESSIONS

In this section we document several new stylized facts: one, mass unrest is difficult to predict; two, mass unrest is very disruptive economically when it happens; three, even small changes in the probability of mass unrest can have significant economic impacts.

3.1. **Econometric Specification.** The vector of endogenous variables Y are real output, real investment, inflation, the nominal exchange rate against the US dollar, real imports and real exports. All variables, except inflation, are in logs.

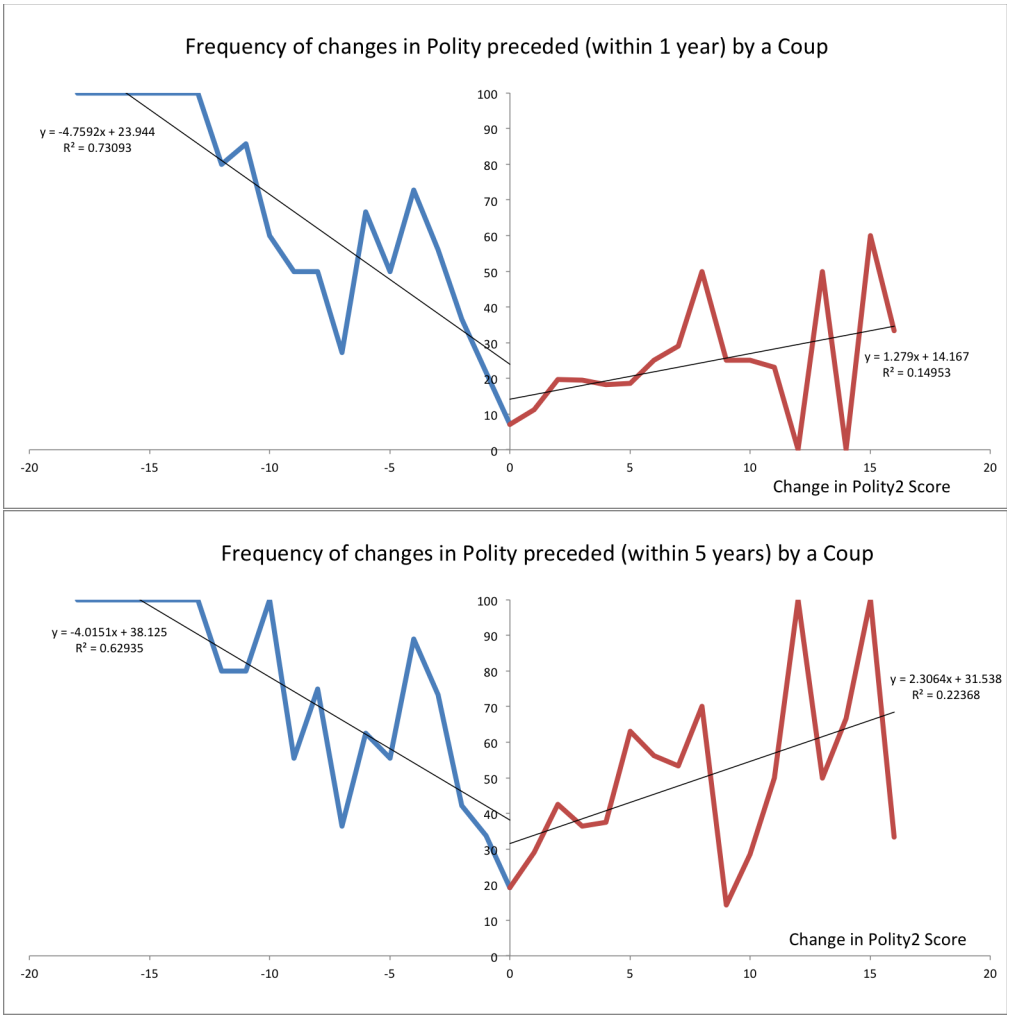

FIGURE 2.3.

3.1.1. *Predicting Revolutions.* Our empirical goal to measure the causes and effects of revolutions. To estimate the causes, we model unrest as an *endogenous* threshold process. Revolution is a state of unrest that countries enter into and exit from stochastically. In our empirical specification, a country is in a state of unrest during NAVCO episodes. The probability of entering into a unrest is endogenous: we posit that there is a stochastic index of discontent Z_{it} that, when positive, is necessary and sufficient for a country to transition into a state of unrest. The index of discontent is a linear function of a set of lagged political covariates Q_{it-1}, a vector ΔY_{t-1} of lagged growth rates of our endogenous economic measures such as real output and real investment, and an exogenous shock η_{it}. The vector Q_{it-1} of political variates includes the Polity4 score ($Polity_{t-1}$) and the square of the Polity4 score. Under this specification, periods of unrest are

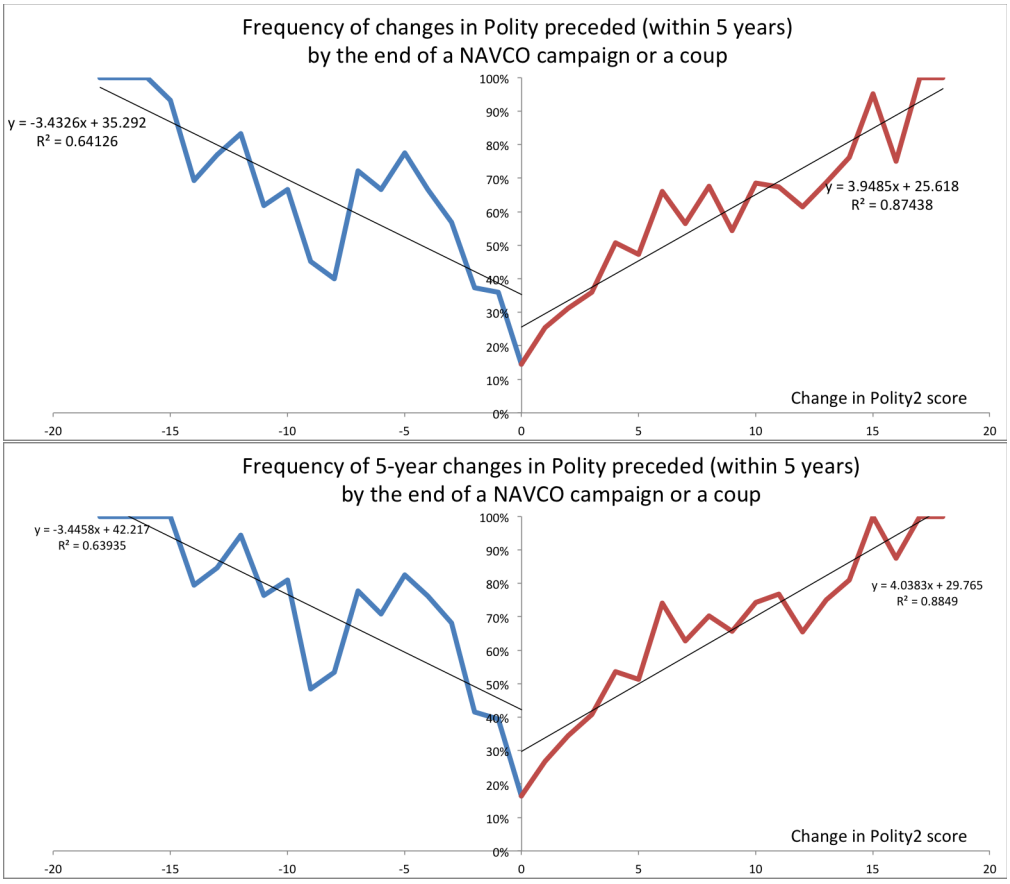

FIGURE 2.4.

endogenous rare events.

$$Z_{it} = Q_{it-1}\beta_z + \Delta Y_{it-1}\gamma_z - \eta_{it} \tag{3.1}$$

$$\eta_{it} \sim N(0,1), \text{ i.i.d.} \tag{3.2}$$

$$\Pr(Unrest_{it} \mid \sim Unrest_{it-1}) = \Pr(Z_{it} > 0) = \Phi(Q_{it-1}\beta_z + \Delta Y_{it-1}\gamma_z) \tag{3.3}$$

Large rare shocks can exert influence over economic decisions even in periods when the shocks do not occur. The mere potential for these large rare shocks can drive investment, savings, asset prices, and other business cycle phenomena. In estimating the observable covariates that predict the states of unrest in our sample, we go beyond being able to predict rare events: we are able to construct a time-varying probability of entering into a state of unrest. If the rare disaster literature is correct, then even small movements in the probability of entering into unrest should have economically significant effects on business cycles. So, armed with estimates $\hat{\beta}_z$ and $\hat{\gamma}_z$, we construct our time-varying probability of entering unrest:

$$\hat{P}_{it} = \hat{\Pr}(Unrest_{it} \mid \sim Unrest_{it-1}) = \Phi(Q_{it-1}\hat{\beta}_z + \Delta Y_{it-1}\hat{\gamma}_z) \tag{3.4}$$

The term η_{it} captures sparks, or factors leading to unrest that are unobservable to the econometrician. One example could be the presence of a charismatic leader such as Ayatollah Khomeini during the 1979 Iranian Revolution. Our measure $\hat{P}_{it}$ will not include these unobservable sparks.

3.1.2. *Consequences of Revolutions and Coups.* To estimate the effects of unrest, we assume that each variable in Y (for example, real output) is the sum of a country- and series-specific time trend and deviations from that trend. Since most of the variables in Y are in logs, these time trends are constant-growth trends. The deviations of each variable from trend are linear functions of a vector X_{it-1} of political covariates, lagged growth rates of economic covariates Y, and a nonlinear function δ_y of the fitted probability of unrest $\hat{P}_{it}$. The vector X_{it-1} of political variates includes an indicator for being in a coup ($Coup_{t-1}$), an indicator for being a failed state ($StateFailure_{t-1}$), an indicator for being in a NAVCO event ($Unrest_{t-1}$), an indicator for all years five years or later following conclusion of a NAVCO event ($PostUnrest5_{t-1}$), and the Polity4 score ($Polity_{t-1}$).

$$\Delta Y_{it} = \alpha_i + X_{it}\beta_y + \Delta Y_{it-1}\gamma_y + \delta_y(\hat{P}_{it}) + \epsilon_{it} \tag{3.5}$$

$$\epsilon_{it}|X_{it} \sim N(0,1), \text{ i.i.d.} \tag{3.6}$$

$$\epsilon_{it} \perp \eta_{it} \tag{3.7}$$

The last assumption is for identification: it is the assumption that the unobserved sparks to unrest do not themselves boost or hinder the growth in economic outcomes ΔY_{t-1}.

he country fixed effects on growth rates allow us to identify variation within countries over time as they enter and exit NAVCO events and experience changes in political conditions. The coefficients on NAVCO events ($Unrest$) and afterwards ($PostUnrest5$) capture the disruption due to the event itself and the contribution of potential institution-building on the following recovery. We include coups and state failures to distinguish them from the potentially different and sometimes concurrent effects of unrest. We include the probability of *entering* unrest, but we do not include an estimate for *remaining* in unrest. Implicitly the average effect of the probability remaining in unrest is included by the coefficient on $Unrest$.

The interpretation of the estimate of $\delta_y(\hat{P}_{it})$ demands some care. The "true" probability of unrest is potentially a function of many variables not included in our specification. This means that the constructed series $\hat{P}_{it}$ depends on which variables we include in the estimation of the probit. When estimating δ_y, one shouldn't interpret it as the impact of the "true" probability, but rather the impact of the predictors Q_{it-1} and ΔY_{it-1} within the probit, to the extent that they are correlated with the onset of unrest. We include a nonlinear transformation of $\hat{P}_{it}$ (in addition to the nonlinearity of the probit itself) to further help us distinguish the *direct* effects of polity and ΔY from the effect that these covariates have *via the onset of unrest*.

3.2. **Results.** We estimate the model in two parts: First, we estimate a probit to predict the incipience of revolution via maximum likelihood. Second, taking from the probit the fitted probabilities of entering a state of unrest, we estimate the panel regression to find the country-specific trends and effects of unrest and polity change.

3.2.1. *Predicting Revolutions.* Table 3.2.1 reports probit estimates predicting the incidence of NAVCO event in period t conditional on there being no NAVCO event in period $t-1$.

$Unrest_t \mid \sim Unrest_{t-1}$	Coefficient (standard error)	Marginal effect (standard error)
$Polity_{t-1}$	-0.019*	-0.0013*
	(0.01)	(0.00)
$Polity^2_{t-1}$	-0.007***	-0.0005***
	(0.00)	(0.00)
$\Delta Output_{t-1}$	-3.908***	-0.267***
	(1.00)	(0.06)
$\Delta Investment_{t-1}$	-0.019	-0.001
	(0.24)	(0.02)
$\Delta Exports_{t-1}$	0.482	0.033
	(0.29)	(0.02)
$\Delta Imports_{t-1}$	-0.412	-0.028
	(0.39)	(0.03)
$\Delta ExchangeRate_{t-1}$	-0.094	-0.006
	(0.15)	(0.01)
$\Delta Inflation_{t-1}$	0.234	0.016
	(0.28)	(0.02)
constant	-1.633***	
	(0.09)	
Pseudo-R^2	0.0844	
N	4644	

TABLE 1. Probit to predict incipience of unrest. *: $p < 0.1$. **: $p < 0.05$. ***:$p < 0.01$

There are no country fixed effects in this specification. Since we estimate this probit via maximum likelihood, including a country fixed effect would effectively remove from the sample any country that never experienced unrest in our sample time span[6]. We want our probit to exploit the fact that some countries never experience unrest in estimating the coefficients β_z and γ_z. Additionally, the fitted probabilities $\hat{P}_{it}$ for any country that never experienced unrest in our sample would be 0 and constant in a specification with country fixed effects, and we want to allow for the possibility that the probability of unrest for these countries was actually non-zero and time-varying.

As seen in Table 3.2.1, falls in output growth today make unrest more likely tomorrow. For a country at the mean of the sample, when output growth declines by 1%, the probability of unrest in the following period increases by 0.267%. Changes in growth rates of the other endogenous economic variables to not give rise to any significant changes in the probability of unrest.

[6]Maximum likelihood would send the fixed effects of these countries to $-\infty$.

The coefficients on polity highlight a "middle polity instability effect" documented in Goldstone et al. (2010). The negative coefficient on the linear term $Polity_{t-1}$ means that more democratic countries have lower probability of unrest. The negative coefficient on $Polity_{t-1}^2$ means that the more extreme a country's polity is, in either the democratic or autocratic direction, the lower the probability of unrest. The coefficients on $Polity_{t-1}$ and $Polity_{t-1}^2$ may seem small, but an increase from a neutral polity to a strongly democratic one is an increase in $Polity_{t-1}$ of 10 points, and an increase in $Polity_{t-1}^2$ of 100 points. Summing up the marginal effects, this would mean a reduction in the probability of unrest by 6%, which is quantitatively significant.

The final noteworthy result is that the pseudo-R^2 is only 0.08. This tells us that there are other factors not in the regression that explain the incidence of unrest. This isn't surprising, given that mass unrest is a rare event. While there are many countries with middlingly undemocratic regimes and low levels of output growth, when taken over all countries and over all years, unrest is a phenomenon that not many countries experience. In other words, the significant factors in our probit are strongly associated with but not sufficient for unrest. Thus our probit is evidence that another factor is at play: an shock, unseen to the econometrician, that enables the mass of protestors to overcome the coordination problem and effectively mount a movement. Revolutions, as argued by Kuran (1989) and others in the political economy literature, need sparks.

3.2.2. *Consequences of Revolutions: Direct and Anticipation Effects.* Tables 3.2.2 through 3.2.2 display the estimates for each element of equation (3.5) individually. The regressions were run with Stata's *xtreg* command and with standard errors clustered at the country level. In each table, the first two columns show estimation results without the constructed probabilities $\hat{P}_{it}$, and the last two show results with them. Also, the first and third columns do not include the vector of lagged economic covariates ΔY_{it-1} while the second and fourth columns do. In effect, the second and fourth columns are estimates of a VAR for ΔY_{it}, where the constant term is shifted by political covariates X_{it} and possibly fitted probabilities $\hat{P}_{it}$.

$\Delta Output_t$	(1)	(2)	(3)	(4)
$Coup_t$	-0.024***	-0.018***	-0.015***	-0.013***
	(0.01)	(0.00)	(0.00)	(0.00)
$StateFailure_t$	-0.052***	-0.052**	-0.036*	-0.037**
	(0.01)	(0.02)	(0.01)	(0.01)
$Unrest_t$	-0.021**	-0.019**	-0.054***	-0.050***
	(0.01)	(0.01)	(0.01)	(0.01)
$PostUnrest5_t$	0.004	0.002	0.005	0.005*
	(0.00)	(0.00)	(0.00)	(0.00)
$Polity_t$	-0.000	-0.000	-0.002***	-0.002***
	(0.00)	(0.00)	(0.00)	(0.00)
$Polity_t^2$	-0.000	-0.000	-0.001***	-0.001***
	(0.00)	(0.00)	(0.00)	(0.00)
$\hat{P}(Unrest_t \mid \sim Unrest_{t-1})$			-2.213***	-2.079***
			(0.10)	(0.11)
$\hat{P}(Unrest_t \mid \sim Unrest_{t-1})^2$			2.422***	2.089***
			(0.26)	(0.25)
Constant	0.046***	0.036***	0.112***	0.101***
	(0.00)	(0.00)	(0.00)	(0.00)
ΔY_{t-1}	No	Yes	No	Yes
Country fixed effects	Yes	Yes	Yes	Yes
R^2	0.033	0.088	0.357	0.389
N	4725.000	4473.000	4625.000	4447.000

TABLE 2. Output: coefficient estimates. *: $p < 0.1$. **: $p < 0.05$. ***:$p < 0.01$

Table 3.2.2 shows the regression results for the growth rate of output (that is, the first difference in the logarithm of output).

Coefficients on ΔY_{it-1} are not shown, even for the specifications where they are included, since the statistical and economic significance of an estimated VAR are usually better conveyed in impulse response functions rather than in individual coefficients. One thing, however, that can be observed in the above table is that including the ΔY_{it-1} tends to dampen the effects of X_{it} and $\hat{P}_{it}$. This is because there is some degree of internal propagation arising from the inclusion of the autoregressive coefficients. To the extent that shocks to X_{it} last for multiple periods, and to the extent that the autoregressive coefficients of a VAR give rise to internal propagation of shocks, the average predicted deviation from trend attributable to a shock to X_{it} or $\hat{P}_{it}$ will be larger than the coefficient displayed in the table. Another way to see this is to note one could calculate the difference in ergodic means between a country that is permanently in a state of tranquility versus one that is permanently in a state of unrest, and note that the average deviation of a country in unrest from trend will depend both on how far the ergodic means are from each other and how long it takes to transition between ergodic means relative to the average duration of unrest. However, the fact that there's not much difference between including and excluding ΔY_{it-1} (that is, between columns 1 and 2 or between columns 3 and 4) indicates that there's not much internal propagation arising from the autoregressive coefficients. This is to be expected since the endogenous variables the VAR are growth rates, not levels.

Political covariates have significant impacts on output growth, both economically and statistically. Every year in which a coup takes place is associated with a decline in output growth of between 1.2 and 2.4 percentage points, significant in three out of the four specifications on the 1% level. State failure has a negative impact in all four specifications. When the effect is significant, it is large: a drop in output growth of five percentage points for each year in which the state has failed. The effect of polity is close to zero and insignificant when $\hat{P}_{it}$ is not included, but surprisingly large and negative when it is. The presence of country fixed effects means the regression is exploiting within-country variation; each additional point in the democratic direction (on a scale from -10 to 10) is associated with a 0.2% decline in output growth.

The interpretation of the effect of an increase in the fitted probability of unrest merits more care. The very large coefficients in the table both reflect the effect of a 100% increase in $\hat{P}_{it}$. The implied net marginal effects of a smaller increase in $\hat{P}_{it}$ are much more reasonable. For example, the marginal effect of increasing $\hat{P}_{it}$ from 2% to 3%[7] is $0.03 * (-2.079) + 0.03^2 * (2.089) - (0.02 * (-2.079) + 0.02^2 * (2.089)) \approx -0.0197$, or a fall in output growth of 1.97%. This is still quite large. In addition, the R^2 of the two regressions with the fitted probabilities $\hat{P}_{it}$ are much larger than in the two regressions without. We conclude from this result that the effects of our probit covariates, as they come through the channel of being associated with more likely incipience of unrest, are both statistically and economically significant.

Why does the coefficient on unrest increase once we include the fitted probabilities $\hat{P}_{it}$? It is because there are two effects from being in unrest in this specification. The first is the direct loss from entering unrest. The second is that, after the first period of unrest, there are no longer any influence of $\hat{P}_{it}$. This is because $\hat{P}_{it}$ is only present in periods that were preceded by no unrest. The regression accords a larger direct effect to unrest in the specifications with $\hat{P}_{it}$ because this direct effect has to "overcome" the average estimated effect of relief from $\hat{P}_{it}$.

The existing literature on democratization and growth finds a significant increase in the growth rate of output following a sharp increase in a country's polity score. Given that there is considerable overlap between the episodes considered in that literature and out NAVCO incidents of unrest, out estimate of the effect of $PostUnrest5$ might capture the same phenomenon. However, we estimate the effect of $PostUnrest5$ to be small and not generally statistically significant. But this is not inconsistent with the literature. The coefficient on $PostUnrest5$ is the difference in growth relative *not* to the time period immediately before the end of the event, but relative to the long-term trend. In our estimation, the only dividend to democratization analogous to what was found in the literature is the relief from the effects of the unrest that were associated with that democratization.

[7]This is a plausible scenario, since the mean of $\hat{P}_{it}$ is 0.0177 and its standard deviation is 0.0214.

$\Delta Investment_t$	(1)	(2)	(3)	(4)
$Coup_t$	-0.038*	-0.046*	-0.020	-0.035*
	(0.02)	(0.02)	(0.02)	(0.02)
$StateFailure_t$	-0.245**	-0.153	-0.212*	-0.120
	(0.09)	(0.08)	(0.09)	(0.08)
$Unrest_t$	-0.046**	-0.048**	-0.119***	-0.119***
	(0.02)	(0.02)	(0.02)	(0.02)
$PostUnrest5_t$	0.006	0.000	0.011	0.004
	(0.01)	(0.01)	(0.01)	(0.01)
$Polity_t$	0.000	0.000	-0.004***	-0.004***
	(0.00)	(0.00)	(0.00)	(0.00)
$Polity_t^2$	-0.000*	-0.000**	-0.001***	-0.002***
	(0.00)	(0.00)	(0.00)	(0.00)
$\hat{P}(Unrest_t \mid \sim Unrest_{t-1})$			-4.842***	-4.703***
			(0.53)	(0.53)
$\hat{P}(Unrest_t \mid \sim Unrest_{t-1})^2$			5.499***	5.091***
			(1.16)	(0.94)
Constant	0.074***	0.057***	0.219***	0.203***
	(0.01)	(0.01)	(0.02)	(0.02)
ΔY_{t-1}	No	Yes	No	Yes
Country fixed effects	Yes	Yes	Yes	Yes
R^2	0.015	0.056	0.102	0.139
N	4725.000	4473.000	4625.000	4447.000

TABLE 3. Investment: coefficient estimates. *: $p < 0.1$. **: $p < 0.05$. ***:$p < 0.01$

Table 3.2.2 shows that the disruptive effects of unrest and the probability of unrest are generally twice as big for investment as output. Also in contrast to output, the other political covariates are not statistically significant here. This is broadly consistent with Noe and Shiferaw (2013), who find micro panel evidence that low-intensity internal armed conflict depresses the level of investment by about 5% of the firm's total capital stock.

$\Delta Exports_t$	(1)	(2)	(3)	(4)
$Coup_t$	-0.051***	-0.043**	-0.050***	-0.044**
	(0.01)	(0.01)	(0.01)	(0.01)
$StateFailure_t$	-0.037	-0.067	-0.041	-0.073
	(0.07)	(0.06)	(0.07)	(0.06)
$Unrest_t$	0.003	-0.000	0.000	0.002
	(0.01)	(0.01)	(0.02)	(0.02)
$PostUnrest5_t$	0.031***	0.029***	0.030***	0.029***
	(0.01)	(0.01)	(0.01)	(0.01)
$Polity_t$	-0.000	-0.000	-0.000	0.000
	(0.00)	(0.00)	(0.00)	(0.00)
$Polity_t^2$	-0.000	-0.000*	-0.000	-0.000
	(0.00)	(0.00)	(0.00)	(0.00)
$\hat{P}(Unrest_t \sim Unrest_{t-1})$			-0.024	0.198
			(0.73)	(0.78)
$\hat{P}(Unrest_t \sim Unrest_{t-1})^2$			1.605	1.424
			(0.85)	(1.02)
Constant	0.066***	0.064***	0.065**	0.055*
	(0.01)	(0.01)	(0.02)	(0.03)
ΔY_{t-1}	No	Yes	No	Yes
Country fixed effects	Yes	Yes	Yes	Yes
R^2	0.006	0.018	0.009	0.023
N	4702.000	4472.000	4625.000	4447.000

TABLE 4. Exports: coefficient estimates. *: $p < 0.1$. **: $p < 0.05$. ***:$p < 0.01$

$\Delta Imports_t$	(1)	(2)	(3)	(4)
$Coup_t$	-0.032*	-0.024	-0.016	-0.016
	(0.01)	(0.02)	(0.02)	(0.02)
$StateFailure_t$	-0.007	-0.012	0.017	0.011
	(0.06)	(0.06)	(0.05)	(0.05)
$Unrest_t$	-0.008	-0.005	-0.072***	-0.064***
	(0.01)	(0.01)	(0.02)	(0.02)
$PostUnrest5_t$	0.026**	0.023**	0.029***	0.028***
	(0.01)	(0.01)	(0.01)	(0.01)
$Polity_t$	-0.000	-0.000	-0.004***	-0.003***
	(0.00)	(0.00)	(0.00)	(0.00)
$Polity_t^2$	-0.000	-0.000	-0.001***	-0.001***
	(0.00)	(0.00)	(0.00)	(0.00)
$\hat{P}(Unrest_t \sim Unrest_{t-1})$			-4.106***	-3.838***
			(0.39)	(0.41)
$\hat{P}(Unrest_t \sim Unrest_{t-1})^2$			6.075***	5.543***
			(0.71)	(0.81)
Constant	0.056***	0.049***	0.178***	0.167***
	(0.01)	(0.01)	(0.02)	(0.02)
ΔY_{t-1}	No	Yes	No	Yes
Country fixed effects	Yes	Yes	Yes	Yes
R^2	0.005	0.026	0.098	0.106
N	4702.000	4472.000	4625.000	4447.000

TABLE 5. Imports: coefficient estimates. *: $p < 0.1$. **: $p < 0.05$. ***:$p < 0.01$

Tables 3.2.2 and 3.2.2 offer an unexpected asymmetry between real export growth and real import growth. The responses of real import growth to unrest and its probability are roughly larger than that of output and

smaller than that of investment. However, the responses of real export growth are not significant even at the 10% level. The mechanism behind this asymmetry is an interesting line of research but left as an open question. One result is the same across both imports and exports: both grow at a rate faster than trend in the period starting five years after the conclusion of unrest. One of the legacies of unrest seems to be a substantially more open economy.

$\Delta ExchangeRate_t$	(1)	(2)	(3)	(4)
$Coup_t$	-0.026	-0.029	-0.044	-0.032
	(0.03)	(0.02)	(0.03)	(0.03)
$StateFailure_t$	-0.103	-0.084	-0.109	-0.091
	(0.07)	(0.08)	(0.07)	(0.09)
$Unrest_t$	0.000	0.011	0.028	0.041
	(0.03)	(0.03)	(0.03)	(0.03)
$PostUnrest5_t$	-0.001	-0.006	-0.010	-0.008
	(0.01)	(0.02)	(0.02)	(0.02)
$Polity_t$	-0.001	-0.002	-0.000	-0.000
	(0.00)	(0.00)	(0.00)	(0.00)
$Polity_t^2$	-0.000*	-0.000	0.000	0.000
	(0.00)	(0.00)	(0.00)	(0.00)
$\hat{P}(Unrest_t \mid \sim Unrest_{t-1})$			1.616	1.918*
			(0.95)	(0.96)
$\hat{P}(Unrest_t \mid \sim Unrest_{t-1})^2$			-3.149	-4.050*
			(1.73)	(1.63)
Constant	0.019*	0.028	-0.026	-0.028
	(0.01)	(0.02)	(0.03)	(0.03)
ΔY_{t-1}	No	Yes	No	Yes
Country fixed effects	Yes	Yes	Yes	Yes
R^2	0.001	0.098	0.003	0.101
N	4725.000	4473.000	4625.000	4447.000

TABLE 6. Exchange Rate Appreciation: coefficient estimates. *: $p < 0.1$. **: $p < 0.05$. ***:$p < 0.01$

$\Delta Inflation_t$	(1)	(2)	(3)	(4)
$Coup_t$	-0.010	0.001	-0.020	-0.005
	(0.02)	(0.02)	(0.02)	(0.02)
$StateFailure_t$	-0.072	-0.083	-0.088	-0.097
	(0.07)	(0.09)	(0.09)	(0.10)
$Unrest_t$	0.019	0.029	0.063***	0.071***
	(0.02)	(0.02)	(0.02)	(0.02)
$PostUnrest5_t$	0.004	0.005	0.002	0.001
	(0.01)	(0.01)	(0.01)	(0.01)
$Polity_t$	-0.001	-0.001	0.001*	0.001
	(0.00)	(0.00)	(0.00)	(0.00)
$Polity_t^2$	-0.000	-0.000	0.001***	0.001**
	(0.00)	(0.00)	(0.00)	(0.00)
$\hat{P}(Unrest_t \mid \sim Unrest_{t-1})$			2.815***	2.660***
			(0.50)	(0.52)
$\hat{P}(Unrest_t \mid \sim Unrest_{t-1})^2$			-4.558***	-4.423***
			(0.84)	(0.84)
Constant	-0.003	0.000	-0.086***	-0.080***
	(0.01)	(0.01)	(0.02)	(0.02)
ΔY_{t-1}	No	Yes	No	Yes
Country fixed effects	Yes	Yes	Yes	Yes
R^2	0.001	0.014	0.023	0.033
N	4647.000	4448.000	4625.000	4447.000

TABLE 7. Inflation: coefficient estimates. *: $p < 0.1$. **:$p < 0.05$. ***:$p < 0.01$

The lack of many statistical significant results in Table 3.2.2 is consistent with the generally held result that exchange rates are difficult to predict. In fact, the probability of unrest has a more statistically significant impact on exchange rate depreciation than the direct impact of unrest itself. As the probability of unrest increases, the exchange rate depreciation (local currency units per US dollar) accelerates. A similar pattern prevails in table 3.2.2: an increase in the probability of unrest is associated with an increase in inflation. In addition, the incidence of unrest is statistically significantly associated with higher levels of inflation.

4. Dynamics of Political Shocks: Actual and Anticipated

We perform three experiments to convey the dynamics of a representative episode of unrest and the effects of anticipation of unrest. These experiments illustrate the timing assumptions of the model, the combination of several effects that occur before, during, and after an episode of unrest, and the effects of unrest on the persistence of other shocks. We present impulse response functions of each endogenous variable Y for each experiment, under the coefficients in specification (4) above, that is, including both lagged endogenous variables ΔY_{it-1} and fitted probabilities $\hat{P}_{it}$. For all experiments, we sample coefficients from the multivariate normal distribution implied by the regression results, calculate impulse responses for each coefficient draw, then plot the median and the periodwise 95% confidence interval over 200 draws.

The nonlinearity of $\hat{P}_{it}$ in ΔY_{it-1} poses some problems. For convenience, we linearize $\hat{P}_{it}$ in ΔY_{it-1}. This guarantees, for each value of polity, a unique tranquil[8] steady state of ΔY_{it-1}. We do this to rule out exotic dynamics arising from transition between various possible steady states of the nonlinear model. Since the sample growth rates are usually small, this is a reasonable first-orderapproximation. For each draw, we assume a draw-specific country fixed effect such that the ergodic growth rate of output across all draws was constant.

For the **first experiment**, suppose that a hypothetical country starts at the pre-unrest trend in year 1, is in the unrest state in years 2 through 7 (shaded), and emerges into a post-unrest state from year 8 onward. In Figure .1 we plot responses of the growth rates of output, investment, exports, imports, nominal exchange rate depreciation, and inflation in response to these regime changes, relative to a country that stays at the pre-unrest trend throughout. The shocks ϵ are held constant at 0 in these responses.

In this experiment we have a number of effects that occur in sequence. The timing of these effects is as follows: In period 1, the country is at trend, or its ergodic mean. An unanticipated shock hits the country in period 2. This is the spark which plunges the country into a state of unrest. In period 2 the country still has the effect from anticipation since period 1 was not a period of unrest. This effect is not present in period 3. After period 2 the country quickly move to a new in-unrest ergodic mean. The confidence intervals widen over the next 3 periods, indicating uncertainty in the estimates of the VAR autoregressive matrix. The country emerges from unrest in period 8. There are spikes in output, investment and imports in period 8 because the direct effect of unrest has lifted, and the effect of anticipation is not yet present. From period 9 onward, the anticipatory effect is back, together with the post-unrest effect. The limiting value is the ergodic mean in a post-unrest state. The confidence interval around this point is the combination of the estimation uncertainty about the effect of the post-unrest state, estimation uncertainty about the effect of the anticipation of unrest, and the estimation uncertainty on the VAR autoregressive matrix.

For the **second experiment**, suppose that a hypothetical country starts at the pre-unrest trend in year 1, and experiences an exogenous shock that raises its probability of unrest $\hat{P}_{it}$ by one percent in period 2 only. In Figure .2 we plot responses of the growth rates of economic quantities relative to a country that stays at the constant-$\hat{P}$ trend throughout. The shocks ϵ are held constant at 0 in these responses.

To understand the effects of an increase in the probability of unrest, consider what the unrest shock entails. On average, as seen in Figure .1 this shock leads to a loss of log output of 0.35 relative to trend over 6 years. This is a large loss of output relative to trend. Our estimates of the size of the responses of endogenous economic variables to a one-percent increase in the probability of such an event are large as well. To this extent, our findings are consistent not only with the rare disaster literature (e.g., Barro (2006)) but also with studies that estimate the macroeconomic consequences of shocks to uncertainty, such as in Christiano

[8]That is, conditional on there being no unrest, no coup and no state failure.

et al. (2013) and Bloom (2009). Our main contribution to this literature is that our constructed index of uncertainty is derived from well-identified events and the observable covariates that predict them.

For the **third experiment**, suppose that a hypothetical country starts at the pre-unrest trend in year 1, and experiences an exogenous shock to ϵ_{it} that causes the growth rate of output to fall by one percent in period 2 only. In Figure .3 we plot responses of the growth rates of economic quantities relative to a country that stays at a trend where the shocks ϵ are held constant at 0 throughout. The goal of this exercise is to show how endogenous changes in the probability of unrest influence the propagation of shocks. To this end, experiment 3 plots the responses of two countries to the same shock: one with a polity score of 10, and one with a polity score of 0. In these experiments, the polity scores do not change over time. We have also chosen country fixed effects for each country so that they share the same ergodic mean growth rate of output.

For the high-polity country, the probability of unrest stays close to 0 throughout the experiment. For the middling-polity country, the probability of unrest varies more over time. This is a consequence of the nonlinearity of $\hat{P}_{it}$ in polity and ΔY_{it-1}. Consider the linearization of $\hat{P}_{it}$ in ΔY_{it-1} about the ergodic mean $\bar{\Delta}$:

$$\hat{P}_{it} = \Phi(Q_{it-1}\hat{\beta}_z + \Delta Y_{it-1}\hat{\gamma}_z) \tag{4.1}$$

$$\approx \Phi(Q_{it-1}\hat{\beta}_z + \bar{\Delta}\hat{\gamma}_z) + \phi(Q_{it-1}\hat{\beta}_z + \bar{\Delta}\hat{\gamma}_z)(\Delta Y_{it-1} - \bar{\Delta})\hat{\gamma}_z \tag{4.2}$$

For the high-polity country, $Q_{it-1}\hat{\beta}_z$ is negative and large. This means both $\Phi(Q_{it-1}\hat{\beta}_z + \bar{\Delta}\hat{\gamma}_z)$ and $\phi(Q_{it-1}\hat{\beta}_z + \bar{\Delta}\hat{\gamma}_z)$ are close to zero for the high-polity country. For the middling-polity country, $Q_{it-1}\hat{\beta}_z$ is still negative but not so large, so both $\Phi(Q_{it-1}\hat{\beta}_z + \bar{\Delta}\hat{\gamma}_z)$ and $\phi(Q_{it-1}\hat{\beta}_z + \bar{\Delta}\hat{\gamma}_z)$ and $\phi(Q_{it-1}\hat{\beta}_z + \bar{\Delta}\hat{\gamma}_z)$ are not as small as for the high-polity country. Therefore, for the middling-polity country, not only is the ergodic mean of $\hat{P}_{it}$ larger, but it also responds more to movements in ΔY_{it-1}.

Figure .3 illustrates this. For the high-polity country, the shock to output growth propagates more or less strictly as a VAR; the effect from the variation in $\hat{P}_{it}$ is negligible. However, for the middling-polity country, the shock to output growth in period 2 lives on as an increase in $\hat{P}_{it}$ into period 3. The increase in the probability of unrest dampens output growth in period 3 relative to the high-polity country. This dampening, in turn, implies that $\hat{P}_{it}$ remains elevated into period 4, which dampens output in period 4, and so on. The total effect of the responsiveness of $\hat{P}_{it}$ to shocks to output growth is to increase the persistence of those shocks. The 95% confidence intervals of the impulse responses of output growth, investment growth and import growth, when compared between the two countries, do not (or nearly do not) overlap. Since the pointwise confidence intervals for the impulse responses are constructed by drawing from a normal distribution, some of the simulated paths explode. This is true for the middling-polity country. For some parameter draws, the feedback between low growth and high probability of unrest after a shock to output growth becomes a

vicious cycle. Future work will see if these vicious cycles remain even under alternative confidence interval construction techniques, such as the bootstrap. In conclusion, our estimates and experiments show: One, periods of mass unrest are rare and need sparks. Two, when mass unrest happens, the effects on the growth rates of output, investment, imports, exports, and inflation can be large and persistent. Three, the time-varying probability of such events acts both as an economically significant shock to uncertainty and as a mechanism which increase the propagation of other shocks.

5. Conclusion

This paper employs a new database on political campaigns, and provides a novel empirical panel vector-autoregression framework, to analyze the two-way relationship between political disruptions and business cycles. First, we find that countries with polity scores in the middle zone (not too high, not too low) are vulnerable to revolutions and coups. Second, we document that the direct impacts of revolutions and coups on business cycles are statistically and economically significant. Third, we provide evidence that uncertainty have large effects on the business cycles of countries vulnerable to political disruptions.

We believe that exploring the complex relationship between political disruptions/transitions and business cycles is an exciting avenue for future research, especially in light of the recent uprisings in many developing countries following the 2008 global economic crisis. This short paper attempts to be a building block in that wider project.

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Appendix

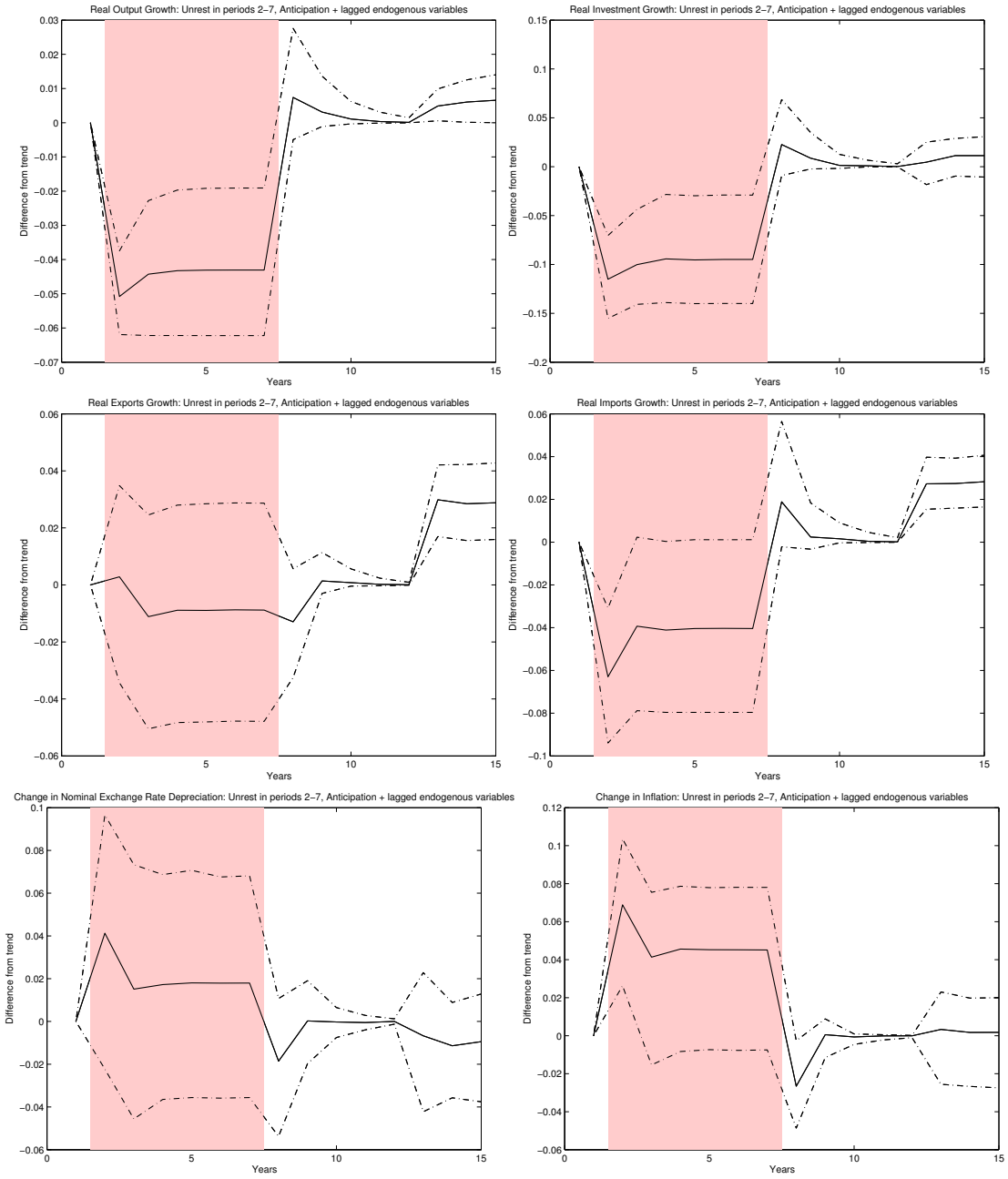

FIGURE .1. Experiment 1: Unrest in years 2-7, no other shocks. Growth rates relative to trend, 95% CI with medians

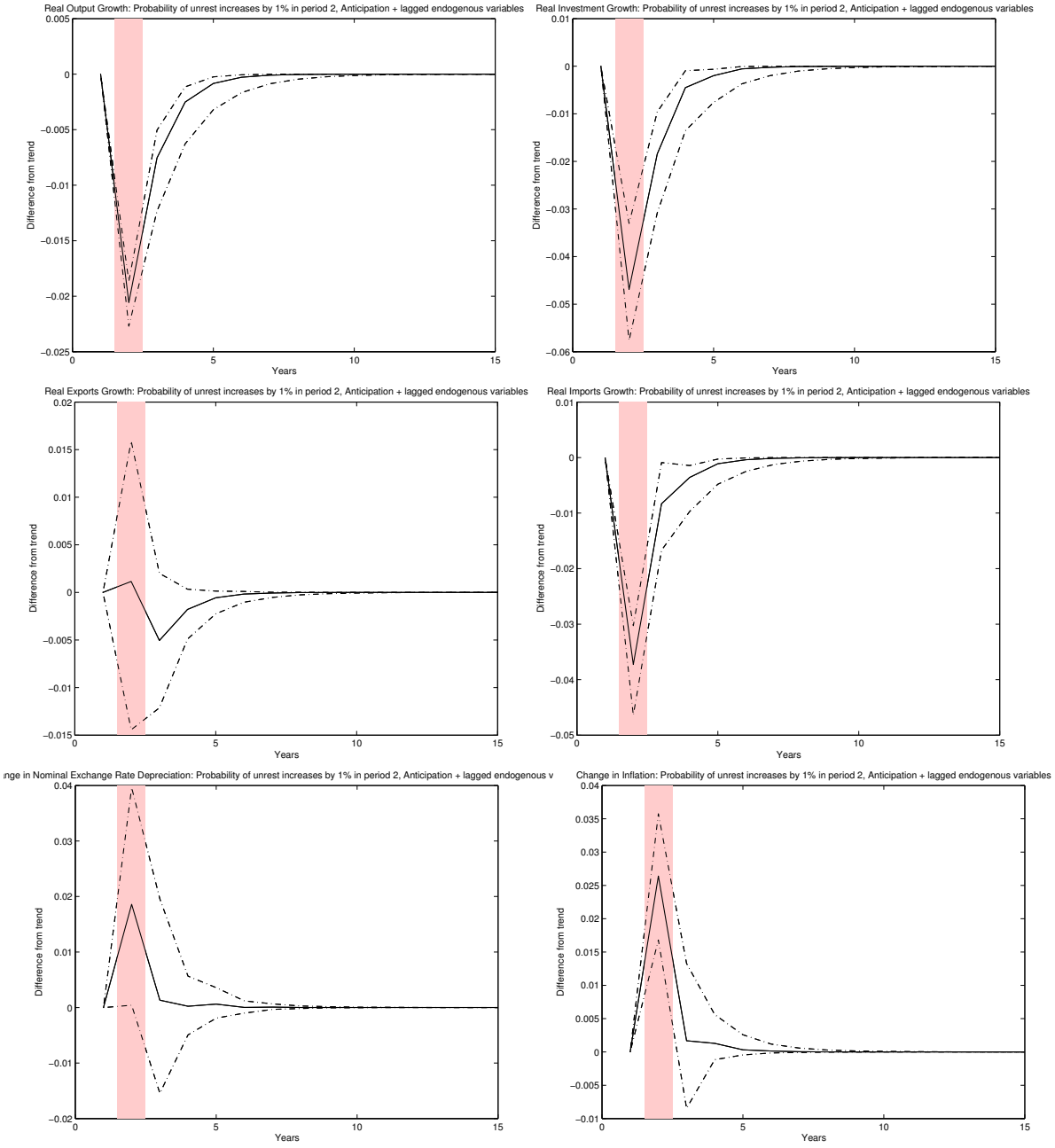

FIGURE .2. Experiment 2: Exogenous increase in the probability of unrest in year 2, no other shocks. Growth rates relative to trend, 95% CI with medians

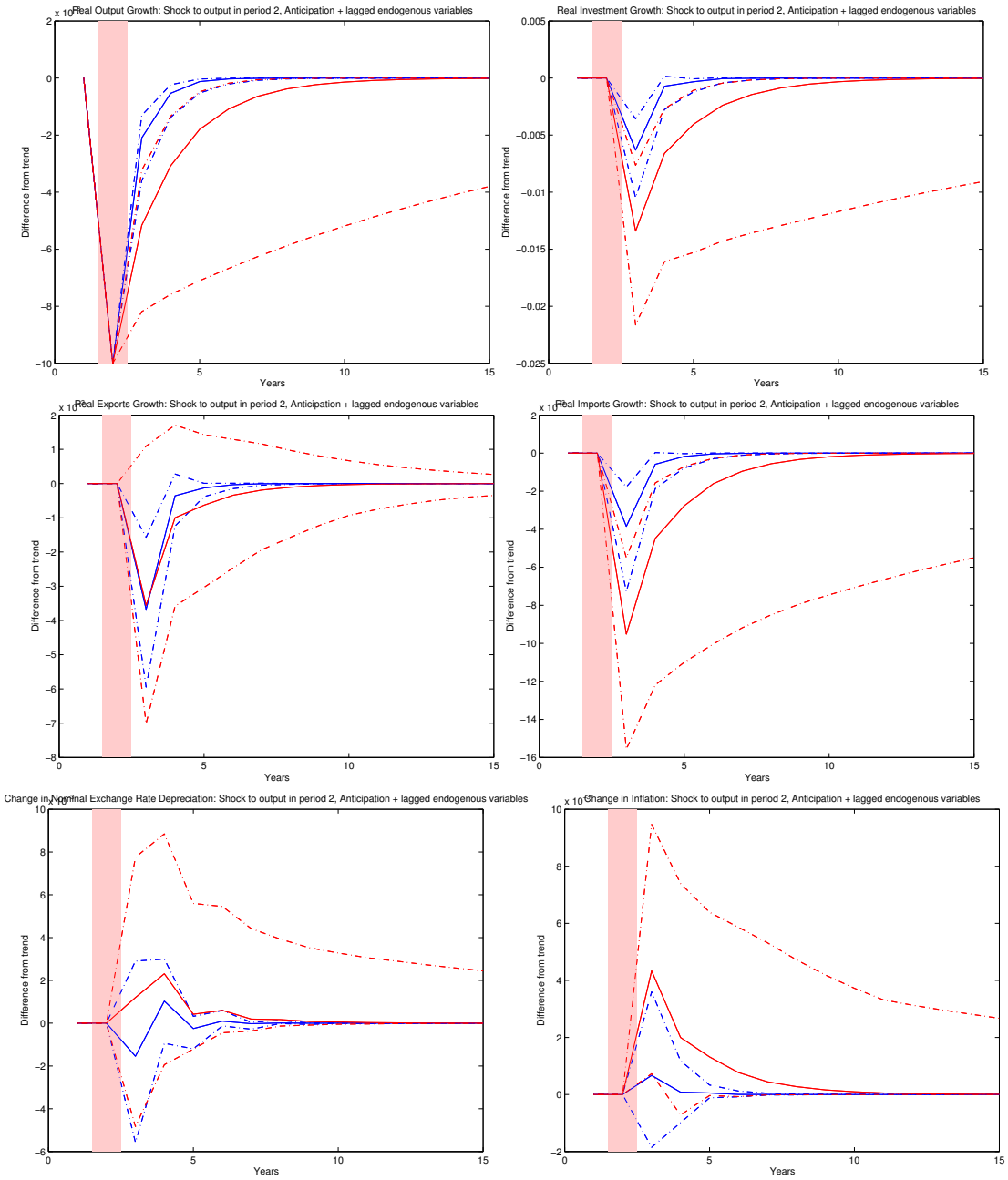

FIGURE .3. Experiment 3: A shock to output growth via ϵ, comparing responses of countries with high (red) and low (blue) probability of subsequent unrest. Growth rates relative to trend, 95% CI with medians

$Polity_t - Polity_{t-k}$	$k=1$	$k=2$	$k=3$	$k=4$	$k=5$	$k=6$
$EndUnrest_{t-1}$	0.351***					
	(0.09)					
$EndUnrest_{t-2}$		0.184*				
		(0.09)				
$EndUnrest_{t-3}$			0.270			
			(0.15)			
$EndUnrest_{t-4}$				0.330		
				(0.19)		
$EndUnrest_{t-5}$					0.192	
					(0.31)	
$EndUnrest_{t-6}$						0.837
						(0.49)
Constant	0.078***	0.105***	0.229***	0.370***	0.565***	0.738***
	(0.02)	(0.02)	(0.03)	(0.05)	(0.07)	(0.09)
R^2						
N	4744.000	4744.000	4592.000	4442.000	4294.000	4146.000

TABLE 8. Change in Polity following NAVCO episodes. *: $p < 0.1$. **: $p < 0.05$. ***:$p < 0.01$

$\Delta Output_t$	(5)	(4)
$Coup_t$	-0.013***	-0.013***
	(0.00)	(0.00)
$StateFailure_t$	-0.033**	-0.037**
	(0.01)	(0.01)
$Unrest_t$	-0.032***	-0.050***
	(0.01)	(0.01)
$ViolentUnrest_t$	-0.027**	
	(0.01)	
$PostUnrest5_t$	0.004*	0.005*
	(0.00)	(0.00)
$Polity_t$	-0.002***	-0.002***
	(0.00)	(0.00)
$Polity_t^2$	-0.001***	-0.001***
	(0.00)	(0.00)
$\hat{P}(Unrest_t \mid \sim Unrest_{t-1})$	-2.114***	-2.079***
	(0.11)	(0.11)
$\hat{P}(Unrest_t \mid \sim Unrest_{t-1})^2$	2.175***	2.089***
	(0.27)	(0.25)
Constant	0.102***	0.101***
	(0.00)	(0.00)
ΔY_{t-1}	Yes	Yes
Country fixed effects	Yes	Yes
R^2	0.394	0.389
N	4447.000	4447.000

TABLE 9. Output: coefficient estimates with and without Violent Unrest. *: $p < 0.1$. **: $p < 0.05$. ***:$p < 0.01$

Table. Regime change campaigns. Source: NAVCO 1

Begin	End	Country	Target	Campaign name	Violence
1978	1979	Afghanistan	Afghan government	Afghans	1
1992	1996	Afghanistan	Afghan regime	Taliban	1
2001	.	Afghanistan	Afghan government	Taliban	1
1975	2001	Angola	Angolan government	UNITA	1
1989	1989	Albania	Communist regime		0
1973	1977	Argentina	Argentina regime	ERP/Monteneros	1
1977	1981	Argentina	military junta	pro-democracy movement	0
1991	1992	Burundi	Hutu regime	Tutsi supremacists	1
1972	2002	Burundi	Tutsi hegemony in governm	Hutu rebellion	1
1989	1990	Benin	Communist regime		0
1989	1990	Bangladesh	Military rule		0
1989	1989	Bulgaria	Communist regime		0
1989	1989	Belarus	Communist regime		0
2006	2006	Belarus	Belarus government		0
1977	1982	Bolivia	Mil juntas		0
1984	1985	Brazil	Military rule	diretas ja	0
1994	1997	Central African Republi	CAR regime	multiple factions	1
1973	1973	Chile	Allende regime	Pinochet-led rebels	1
1983	1989	Chile	Augusto Pinochet		0
1976	1979	China	Communist regime	Democracy Movement	0
1989	1989	China	Communist regime		0
2002	2005	Ivory Coast	incumbent regime	PMIC	1
1997	1999	Congo-Brazzaville (ROC	Lissouba regime	Denis Sassou Nguemo	1
1964	.	Colombia	Colombia govt and US influe	Revolutionary Armed Forces of Colon	1
1989	1989	Czechoslovakia	Communist regime	Velvet Revolution	0
1989	1989	East Germany	Communist regime	pro-dem movement	0
1991	1994	Djibouti	Djibouti regime	Afar insurgency	1
1965	1965	Dominican Republic	Loyalist regime	leftists	1
1962	1963	Algeria	Ben Bella regime	former rebel leaders	1
1992	.	Algeria	Algerian government	Islamic Salvation Front	1
2000	2005	Egypt	Mubarak regime	Kifaya	0
1989	1989	Estonia	Communist regime	Singing Revolution	0
2003	2003	Georgia	Shevardnadze regime	Rose Revolution	0
2000	2000	Ghana	Rawlings govt		0
1963	1963	Greece	Karamanlis regime		0
1974	1974	Greece	Military rule		0
1961	1996	Guatemala	government of Guatemala	Marxist rebels (URNG)	1
1990	1992	Guyana	Burnham/Hoyte autocratic regime		0
1999	2000	Croatia	semi-presidential system		0
1985	1985	Haiti	Jean Claude Duvalier		0
1989	1989	Hungary	Communist regime	pro-dem movement	0
1956	1960	Indonesia	Sukarno regime	leftists	1
1997	1998	Indonesia	Suharto rule		0
1967	1971	India	Indian regime	Naxalite rebellion	1
1977	1979	Iran	Shah Reza Pahlavi	Iranian Revolution	0
1981	1982	Iran	Khomenei regime	Mujahideen	1

1979	1996	Iran	Iranian regime	KDPI	1
1991	1991	Iraq	Hussein regime	Shiite rebellion	1
2003	.	Iraq	Iraqi government	Iraqi insurgency	1
1989	1989	Kenya	Daniel Arap Moi		0
1989	1989	Kyrgyzstan	Communist regime	Kyrgyzstan Democratic Movement	0
2005	2005	Kyrgyzstan	Akayev regime	Tulip Revolution	0
1970	1975	Cambodia	Cambodian government	Khmer Rouge	1
1978	1997	Cambodia	Cambodian government	Khmer Rouge	1
1960	1960	South Korea	Rhee regime	Student Revolution	0
1979	1980	South Korea	military junta		0
1987	1987	South Korea	Mil govt		0
1960	1975	Laos	Laotian government	Pathet Lao	1
1975	1975	Lebanon	Lebanese government	leftists	1
1989	1990	Liberia	Doe regime	anti-Doe rebels	1
1992	1995	Liberia	Johnson regime	NPFL & ULIMO	1
1996	1996	Liberia	Liberian govt	national patriotic forces	1
2003	2003	Liberia	Taylor regime	LURD	1
1971	1971	Sri Lanka	Sri Lankan government	JVP	1
1989	1991	Lithuania	Lithuanian regime	pro-democracy movement/Sajudis	0
1989	1989	Latvia	Communist regime	pro-dem movement	0
1991	1993	Madagascar	Didier Radsiraka	Active Voices	0
2002	2003	Madagascar	Radsiraka regime	pro-democracy movement	0
1987	2000	Mexico	corrupt govt		0
2006	2006	Mexico	Calderon regime		0
1989	1992	Mali	Military rule		0
1989	1994	Mali	Mali regime	Tauregs	1
1988	1988	Burma	military junta	pro-dem movement	0
1989	1990	Mongolia	Communist regime		0
1979	1992	Mozambique	Mozambique government	Renamo	1
1992	1994	Malawi	Banda regime		0
1991	1992	Niger	Military rule		0
1980	1984	Nigeria	Nigerian govt	Muslim fundamentalists	1
1993	1999	Nigeria	Military rule		0
1978	1979	Nicaragua	Nicaraguan regime	FSLN	1
1980	1990	Nicaragua	Sandinista regime	Contras	1
1989	1990	Nepal	Monarchy/Panchayat regim	The Stir	0
1996	.	Nepal	Nepalese government	CPN-M/UPF	1
2006	2006	Nepal	Nepalese govt; martial law		0
1964	1976	Oman	Oman government	Popular Front for the Liberation of O	1
1968	1969	Pakistan	Khan regime		0
1983	1983	Pakistan	Zia al-Huq	pro-dem movement	0
1994	1995	Pakistan	Pakistani government	Mohajir	1
1987	1989	Panama	Noriega regime		0
1980	1995	Peru	Peruvian government	Senderista Insurgency (Sendero Lumi	1
1996	1997	Peru	Peruvian government	Senderista Insurgency (Tupac Amaru	1
2000	2000	Peru	Fujimori govt		0
1970	1980	Philippines	Filipino government	Moro Islamic Liberation Front	1
1986	1983	Philippines	Ferdinand Marcos	People Power	0
2001	2001	Philippines	Estrada regime	Second People Power Movement	0

1972	.	Philippines	Filipino government	New People's Army	1
1988	1998	Papua New Guinea	Papuan regime	Bougainville Revolt	1
1968	1970	Poland	Communist regime		0
1981	1989	Poland	Communist regime	Solidarity	0
1974	1974	Portugal	Military rule	Carnation Revolution	0
1987	1989	Romania	Ceasescu regime		0
1989	1989	Romania	Ceacescu regime	anti-Ceaucescu rebels	1
1963	1964	Rwanda	Hutu regime	Watusi	1
1990	1993	Rwanda	Hutu regime	Tutsi rebels	1
1994	1994	Rwanda	Hutu regime and genocide	Patriotic Front	1
1985	1985	Sudan	Jaafar Nimiery		0
1983	2005	Sudan	Sudanese government	SPLA-Garang faction	1
2000	2000	Senegal	Diouf govt		0
1991	1996	Sierra Leone	Republican government	RUF	1
1979	1981	El Salvador	Mil/civ junta		0
1979	1991	El Salvador	El Salvador government	Farabundo Marti National Liberation	1
1982	1997	Somalia	Siad Barre regime	clan factions; SNM	1
1989	1992	Slovakia	Czech communist governme	People Against Violence	0
1989	1990	Slovenia	Communist regime		0
1980	1982	Syria	Syrian regime	Muslim Brotherhood	1
1966	1990	Chad	Chadian government	Frolinat	1
1994	1998	Chad	Chadian regime	rebels	1
1970	1973	Thailand	Thai government	communist rebels	1
1973	1973	Thailand	military dictatorship	student protests	0
1992	1992	Thailand	Suchinda regime	pro-dem movement	0
2005	2006	Thailand	Thaksin regime		0
1992	1997	Tajikistan	Rakhmanov regime	Popular Democratic Army (UTO)	1
1979	1985	Taiwan	autocratic regime		0
1992	1995	Tanzania	Mwinyi regime	pro-democracy movement	0
1980	1988	Uganda	Okello regime	National Resistance Army	1
1996	.	Uganda	Museveni government	LRA	1
2001	2004	Ukraine	Kuchma regime	Orange Revolution	0
1963	1972	Uruguay	Uruguay government	Tupamaros	1
1984	1985	Uruguay	Military rule		0
1958	1963	Venezuela	Betancourt regime	Armed Forces for National Liberation	1
2002	2002	Venezuela	anti-Chavez coup	anti-coup	0
1958	1975	Vietnam	government of South Vietna	North Vietnam (National Liberation F	1
1986	1986	Yemen People's Repub	Ali Nasir regime	leftists	1
1962	1969	Yemen Arab Republic (	al-Sallal regime	Royalists	1
1968	1968	Yugoslavia	Communist regime	student protests	0
2000	2000	Yugoslavia	Milosevic regime		0
1977	1978	Zaire/DRC	DRC/Zaire regime	FLNC	1
1993	1993	Zaire/DRC	Mobutu regime	rebels (People's Revolutionary Party)	1
1996	1997	Zaire/DRC	Mobutu regime	Kabila-ADFL	1
1990	1991	Zambia	One-party rule		0
2001	2001	Zambia	Chiluba regime		0
1974	1980	Zimbabwe	Smith/Muzorena regime	Zimbabwe African People's Union	1
1983	1987	Zimbabwe	Mugabe regime	PF-ZAPU guerillas	1