Effect of Political Instability on Economic Development

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Abstract

Within the conflict literature there has been much disagreement about the relationship between civil wars, natural resources, and state economic performance. We find that this disagreement results from not accounting for the spatial disaggregation of conflict events within a country.

Our theoretical model states that the economic impact of civil conflict is contingent on the conflict's location relative to major economic and labor resources within a state.

We use subnational data on the spatial distribution of conflict, resources, and infrastructure to test the long-term impact of domestic conflict on state economic performance. To estimate the spatial distribution of conflict we use data from the PRIO Armed Conflict Location and Event Data. We combine the conflict location data with geospatial data on economic centers, natural resource locations, and infrastructure grids to generate spatial variables that approximate how far each conflict is from centers of interest. We then use a hierarchical Bayesian model to estimate the effect of the spatial variables on economic performance. By doing so, we are able to resolve some of the tensions in the literature regarding the relationship between economic performance and civil wars.

1 Introduction

Puzzle: Why do some conflicts have immediate impacts on a country's economy while others that fester for decades have little to none.

Negative cases (cases where there was civil war but no major declines in economic growth)

Mexico case: high levels of violence since 2008 but little effect on economic growth. Mexico facing serious internal political stability (civil violence, civil war...) yet this has little effect on economic growth as of yet. When should we expect to see the adverse effects of civil war manifest themselves in terms of lower economic growth?

Cases apart from Mexico:

Pakistan - NWFP India Israel Russia - Chechnya Columbia - FAARC

Positive cases

Syria Sudan Congo Maybe European Countries

To tell the stories from these cases we should have a descriptive paragraph talking about a couple of cases. Then we should construct a chart that shows just two countries one from the negative case bucket and one from the positive case bucket where we have GDP per capita or GDP per capita growth on the Y-Axis and time on the X-axis. We can have separate charts for each country so that we can take into acount varying times in conflict periods. Then have another paragraph describing the plot.

Current literature has focused on examining the effect of conflict on economic growth at the national level. Additionally, much of the literature has focused on the effect of declines in economic growth on the incidence of civil war. We will argue that the analyses presented to date have been conducted at the wrong level. Analyzing the effect of civil conflict on economic growth needs to be done at a subnational level.

Spatial Dist Hypothesis: Location of conflicts to major cities and capitals determine effect of civil conflict on economic performance. thesis: conflicts only significantly dampens economic performance if they are a threat to major population centers. conflicts isolated in sparsely populated territories of the country have little to no effect on the whole.

The rest of the paper proceeds as follows.

1.1 Literature Review

varying hypotheses about the effect of war on economic development, war ruin v war renewal hypotheses

literature on sub-state determinants of conflict and outcome (pierskala hollenbach 2013)

explain how what has been done in the spatial conflict literature and even the sub-nat/spat literature does not capture what we have done in this paper

1.1.1 Civil War → Economic Performance

? identifies five avenues through with civil conflict can impede economic performance: through the *destruction* of resources, through *disruption* of social and economic activity, through *diversion* of resources to the war effort, through *dissaving*, and through *portfolio substition* or divestment. Of course, these mechanisms are related to one another; portfolio substitution may be exacerbated by the destruction of resources or the distruption of socioeconomic activity. Overall, Collier finds that civil wars correspond to a 2.2 percent decrease in annual economic growth. While he suspects that the impact will differ across economic sectors, reliable and disaggregated data was not available to test this hypothesis thoroughly. However, preliminary evidence for this is found in their analysis of the National Accounts data of Uganda before, during, and after its civil war.

Instead of disaggregating economic outcomes, **?** instead disaggregate conflict itself. They distinguish between those conflicts that cover larger or smaller geographic areas and hypothesize that larger conflicts (in terms of geographical spread) will result in worse economic performance. Using a variety of regression techniques, they find that there is a negative correlation between the geographical spread of conflict and the decade average of economic growth for each country. Widespread conflicts, they argue, are more likely to result in damage to infrastructure, divestment from normal state spending, and capital flight. However, in subsequent simulations that account for estimation and fundamental uncertainty, the authors show that these results are uncertain and should be interpreted with caution.

That civil wars negatively impact economic performance, while in line with the "war ruin" hypothesis, runs counter to the "war renewal" hypothesis. Some scholars have argued that wars, international wars in particular, can spur economic development[1]. The prevailing wisdom with regard to civil war, however, is that outcomes of this nature are the exception rather than the rule. In a test of economic and social determinants of post-conflict recovery in the context of civil war, **?** find that these conflicts can lead, under different conditions, to either rapid or stagnant economic recovery. They conclude that the long-term economic impacts of civil war are largely dependent on post-war governance and foreign assistance. They also find, perhaps unsuprisingly, that aggregate estimates of conflict destructiveness are negatively correlated with long-term growth.

[1]For a review of this discussion, see **?**

Not only do several studies link civil war to domestic economic performance, there is also evidence that civil wars have regional economic consequences. **?** find some evidence that states neighboring civil war states are more likely to experience poor short-term economic performance. They attribute this effect to the disruption of trade and uncertainty about the potential for conflict to spread across the border.

1.1.2 Economic Performance → Civil War

Much work has been done on the causal effects of economic performance on civil war. Indeed, there is likely an endogenous relationship between economic performance and civil war; each exacerbates the other. While our work here sidesteps this argument by focusing exclusively on observations of civil war, we will briefly review the relevant literature here. In a report for the World Bank by **?**, the authors describe what they term the *conflict trap*. States that find themselves in the *conflict trap* are those that have experienced civil war with, are subsequently affected by its economic and social consequences, and are therefore more likely to experience further civil conflict. During civil wars, resources are diverted from productive economic activity to destructive activity. These diverted resources act to stall progress during the conflict and are often used to destroy the infrastructure necessary for growth afterwards. These changes to economic performance, as well as structural changes to the economy itself, make the resurgence of war more likely. In accord with this theory, **?** aruge that poor economic growth is the primary condition conducive for civil war. More specifically, they believe that strong economic growth proxies for robust governance and that states with low GDP growth likely have infrastructures that are unable to implement counterinsurgent policies. In an effort to parse out the causal effect of economic growth shocks on civil war, **?** instrument income growth with rainfall. They find that rainfall is strongly correlated with income in sub-Saharan Africa, a region also prone to civil conflict in recent decades. Using a two-stage estimation approach, they find that rainfall, their exogenous instrument for income, is positively correlated with the likelihood of civil war.

2 Theory

We suspect that substate factors will determine the economic impacts of civil conflict. While lootable resources are often pointed to as sources of funding for rebel groups, these same resources are often critical to state economic performance. The loss of safe access to these resources due to internal conflict should adversly affect a state's economy. Companies that rely on the extraction of resources may find themselves unable to access those resources if armed conflict is proximately located to the resource sites. Therefore, we expect state economic performance to be inversely related to the distance from conflict

zones to valuable resources.

Other resources are also valuable to a state's ability to conduct business. In particular, citizens must be able and willing to participate in commerce. When major population centers are threatened by violence, residents will be less likely to engage in economically productive activities. Violence near major population centers not only threatens residents directly, but impedes business by threatening trade between the population center and other cities or rural areas. For this same reason, violence near important transporation hubs such as airports and sea ports should threaten business.

Finally, the perception of violence near major cities and resource centers should negatively impact foreign investment. Investors will react negatively to news that violence is occuring near major cities and resources. Investment is generally contingent on the expectation of a stable labor base and, sometimes, reliable access to resources. Conflicts that appear to threaten these, whether they do or not, should correspond to a decrease in foreign investment.[2]

While these hypotheses may resemble those of **?**, ours differs somewhat in the hypothesized mechanism through which conflict affects economic performance. While we do not disagree that the spread of a conflict could impact state economic prospects, we argue that conflict area is not necessary for adverse economic performance. Conflict area is only one possible proxy for overall destructiveness. However, conflicts with smaller spatial areas can be similarly disruptive if they are centered near (and impede access to) those resources outlined above. In fact, we feel measures of proximity rather than spread are more appropriate to test the hypothesis that conflict obstucts vital economic activity.

These hypotheses do not seem unknown to armed actors. The guerilla group Fuerzas Armadas Revolucionarios de Colombia (FARC) appears to have to internalized these mechanisms. In 1998 and 1999, the organization moved its violent operations from mostly rural areas of Colombia into major cities and near to the capital (Petras and Brescia 2000). This coincided with economic strain caused by the implementation of an IMF/World Bank structural readjustment program. However, the timing was likely not coincidental. FARC advocates a number of political and economic reforms and chooses targets strategically related to these objectives.

Forbes magazine, reporting on peace talks between FARC guerillas and the Colombian government in 2012, wrote:

> FARC's strategy and [beliefs have] always been to make economic pressure on both, multinational companies and the Colombian government. This has been

[2]While we intend to test each of these hypotheses carefully, our project in its current form addresses only the second hypothesis - the effect of conflict distance from city centers on aggregate state economic performance. Future iterations of this paper will also include tests of the remaining hypotheses using foreign investment, economic growth, and domestic investment as dependent variables.

> done by attacking oil and natural gas infrastructure affecting companies such as Pacific Rubiales Energy, Oxy and Ecopetrol. For non-fuel related international companies with subsidiaries in Colombia, such as Goodyear, Nestle, Microsoft, Toyota, among others, FARCs modus operandi was mainly racketeering, kidnappings and extortion. (Flannery 2012)

By targeting economic centers and resource infrastructure, FARC can strain Colombia's economy, frighten investors, and bolster support from poor and rural workers sensitive to wealth disparity in the country. Rabasa and Chalk (2001) identify a three-pronged strategy pursued by FARC in the 1990s: to consolidate power in coca-growing regions, to conduct military operations in economically valuable areas, and to isolate major cities from the rest of the country by limiting communication and travel between them.

End with a chart to show the distribution of econ performance among conflict-cntry-years to illustrate that there is noticeable variation in economic performance to explain. ending with this might help us lead into the empirics section and

seems like the density plot you've already made in the models.R file highlights that the gdp growth var is kind of normal centered at zero which is good for us

3 Empirics

3.1 Data and Sample

To measure economic performance we use annual percent change in GDP, which we collect from the World Development Indicators at the World Bank. We choose to focus on year over change in GDP because we expect conflicts proximate to major cities to lead to reductions in growth not changes in levels.[3] Unlike much of the extant literature in constructing our dependent variable we focus on year over change instead of a ten year average. We believe this approach to be superior because it allows us to estimate the direct effect of the conflict on economic performance in that year. A ten-year average approach might hide important variation in our dependent variable that can be explained by the proximity of conflict to economic centers.

Our key independent variable on the location of conflicts come from the PRIO Conflict Site Dataset. This dataset contains geo-referenced armed conflict events from 1989 to 2008.[4] A downside of this geo-referenced database is that every conflict-year is assigned a circular conflict zone, which leads to the dataset reporting that the conflict is covering more territory than actually affected. Crafting a more specfic approach to the spread of

[3] Alternative measures of economic performance would have included changes in FDI inflows or changes in GDP per capita, in using either of these measures are results remain relatively the same.

[4] We only include examine the effect of internal armed conflicts.

conflict would, however, eliminate important cases from our analysis. In total this dataset provides us with almost 800 geo-referenced conflict-year cases.

The key theory that we advance here is that the effects of conflict on economic performance are conditional on the proximity of those conflicts to major city centers. Thus a key part of the research here was determining major city centers by year. The only data source we found with enough geographical and temporal coverage on major cities was The World Alamanac. To gather data from these textbooks we hired several undergraduate students to code the major cities by country for each year of the Almanac from 1989 to 2008. Major cities are classified as those that have relatively large shares of a country's population and/or are economic centers. On average, for each country at least three major cities are identified in each year from 1989 to 2008. In figure 1, we show the geographic distribution of conflicts and cities.

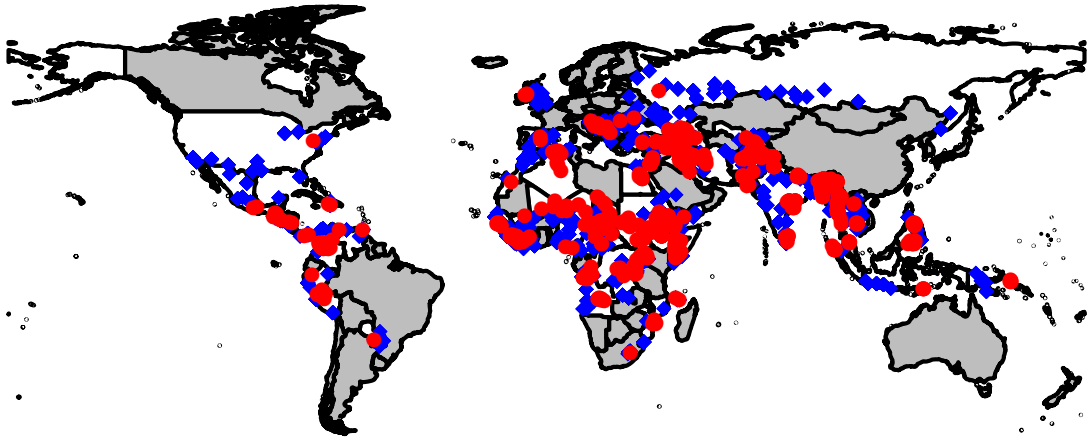


Figure 1: This map illustrates the geographic distribution of all conflicts, according to the PRIO Conflict Site Dataset, and major cities listed in The World Almanac from 1989 to 2008. Countries for which no armed conflicts are recorded are shaded in grey.

We restrict our sample to only those countries that are listed as having conflicts in the PRIO dataset. Specifically, this means that our analysis focuses on exploring variations in economic growth among countries currently engaged in internal armed conflict by the proximity of those conflicts to major cities. To do this we first calculate the distance between the centroid of each of the conflicts identified in the PRIO armed conflict dataset with the centroids of the city locations. Doing this between every city and every conflict

A key problem face in conducting this analysis is reconciling the unit of analysis for our independent and dependent variables. Our dependent variable is at the country-year and our independent variables are actaully at the conflict-country-year level.

Key Independent variables:

Note data aggregation choices. Multiple conflicts in one country?

Note dropping interstate conflict.

City data: Collection of major population centers by year

Variables: Determined distance between conflicts in a year and city centers. then calculcate min distance to determine effect on conflict

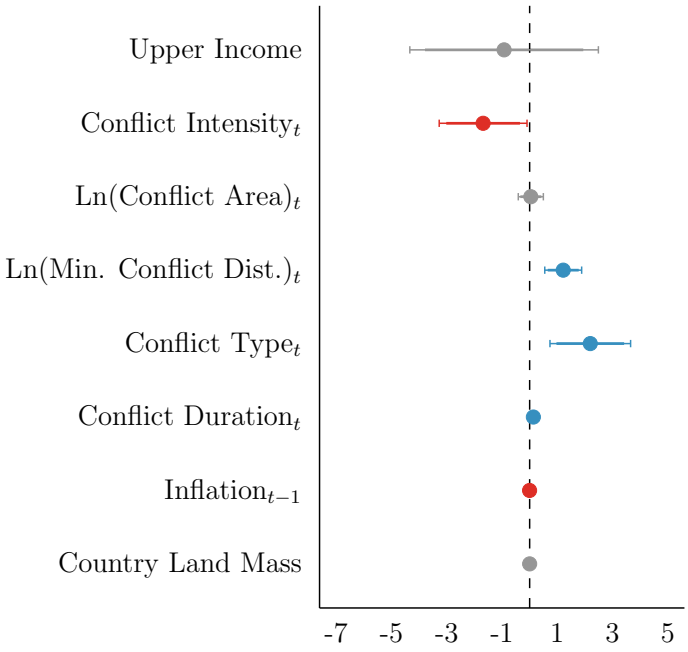
3.2 Sample and Estimation Method

Sample: Only country-years undergoing a civil conflict. Coverage restricted to 1989-2008.

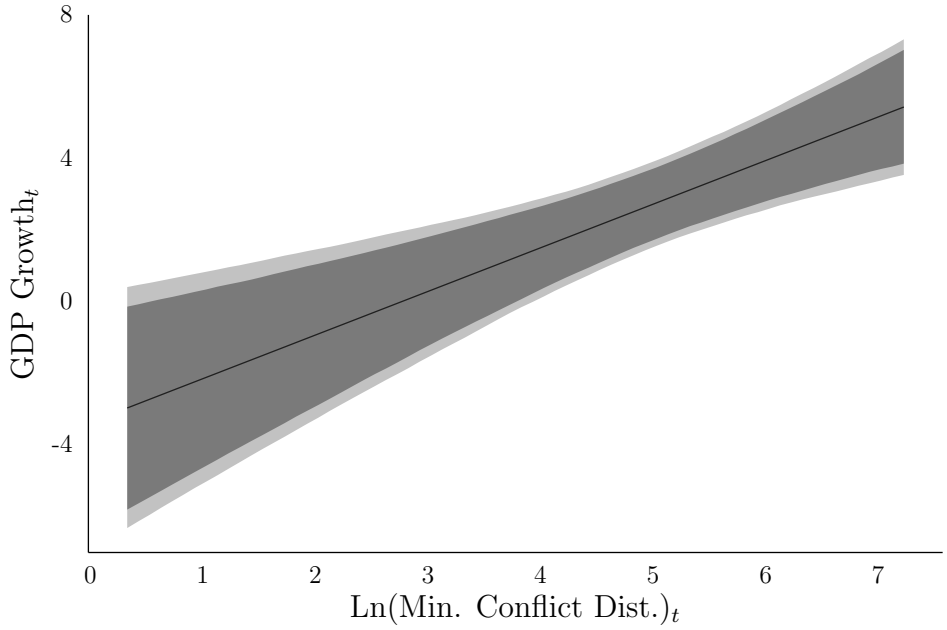
Measured as a random effects model with country effects

3.3 Results

Conflicts occuring more proximate to major cities have stronger adverse effects on economic performance than those farther away.



Use simulations to determine substantive effects - SM



4 Conclusion

Contributed to our understanding of why some civil conflicts impact economic performance more severely than others using a novel spatial approach.

Note that sub-state conflict location may have implications for contagion. Are regional economic consequences of civil war not a function of civil war existence but proximity of the conflict to cities or resources in neighboring states?