Three Macroeconomic Trends around the Onset of Armed Conflict in Developing Economies

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Abstract

This paper studies the evolution of three macroeconomic variables (namely current fiscal expenditures, public debt, and consumer-price inflation) around the time of the onset of armed conflicts during 1950–2016. The authors compare the performance of these variables in conflict-affected economies with economies that did not experience social conflict. The analyses cover episodes of conflict from around the world and study the evolution of these variables during the five years prior to and five years after the onset of conflicts. Further, four alternative definitions of social conflict are used to ascertain the robustness of the econometric results. The evidence suggests that current fiscal expenditures and public debt (both as a share of gross domestic product) in conflict-affected economies tend to be higher than in non-conflict economies prior to the onset of conflict, begin to rise further prior to the date of the onset of conflict, and stay relatively high after the onset of conflict. In contrast, there is little evidence that inflation is higher in conflict-affected economies, prior to or after the onset of conflict. These differential trends between conflict-affected and non-conflict economies shed new light on the existing literature on macroeconomic populism, and on key macroeconomic aspects of the economics of post-conflict reconstruction.
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I. Introduction

Although there is no agreement on the exact number and timing of armed conflicts around the world, there does seem to be a consensus regarding the time trends of the number of ongoing conflicts. The number of conflicts increased between 1945 and the late 1990s, regardless of the source or definition of armed conflicts. Figure 1 shows various estimates of the number of ongoing armed conflicts, based on six different definitions and sources. Although most of them suggest that the number of armed conflicts peaked in the mid-1990s and declined during the first decade of the 21st century, it is likely that they rose again after 2011, coinciding with the Arab Spring. These episodes of conflict used to be circumscribed to developing countries (Besley & Persson, 2008), but in recent years spilled over to many European nations and other high-income economies as the flow of refugees out of war-torn economies intensified.

Figure 1. Number of ongoing armed conflicts by selected authors

Despite the human and economic pain brought by such confrontations, very little has been written about macroeconomic trends around the onset of civil conflict. The current literature studies civil wars mainly through the lens of their potential causes and determinants (Collier & Hoeffler, 2004; Collier et al 2009; Fearon & Laitin, 2003), or their relationship with poverty and economic growth (Kang & Meernik, 2005;
Rice, Graff & Lewis, 2006; Murdoch and Sandler, 2002). Only a handful of authors have analyzed macroeconomic indicators and their behavior during conflicts. However, the few papers that address macroeconomic issues around the onset of conflict tend to compare periods of conflict and peace within countries but without comparing such trends across countries with and without conflicts (Chen, Loayza & Reynal-Querol, 2008; Elbadawi, Kaltani & Schmidt-Hebbel, 2008). Yet it is likely that macroeconomic issues such as the size of public debt will permeate most policy discussions related to the economics of post-conflict reconstruction, for which it is useful to know how much of an economy’s public debt can be associated with the conflict itself.

This paper studies the behavior of three macroeconomic variables around the date of the onset of civil conflict. More specifically, we study the evolution of current government consumption, public debt and inflation. We use an event-study methodology transforming calendar years into event years. The objective is to determine how conflict-affected economies perform relative to non-conflict economies prior, during and after the onset of armed conflict. Thus, the empirics rely on a difference-in-difference estimator as it controls for both country-specific and time effects, which takes advantage of the fact that armed conflicts across countries do not occur at the same time. Further, we test the robustness of the results by estimating the differential trends with four different definitions and dates of the onset of armed conflicts. The data cover the history of all armed conflicts in developing countries during 1950-2016.

The results suggest that conflict-affected economies on average exhibit statistically distinct macroeconomic trends relative to non-conflict countries. First, the share of current government consumption as a share of gross domestic product (GDP) increases in conflict countries relative to non-conflict countries during the onset of a conflict, and it stays above the average of non-conflict economies for at least five years after the onset of conflict. Second, conflict economies become increasingly dependent on public debt. These increments are particularly clear after the onset of conflicts. Third, conflict economies experience, on average, lower inflation than non-conflict countries, a finding that sheds new light on the existing literature on macroeconomic populism pioneered by Dornbusch and Edwards (1990).

The rest of this paper proceeds as follows: Section II presents a brief literature review. Section III presents the data, their sources, and the empirical strategy. Section IV presents the results of the difference-in-difference estimations for the three macroeconomic variables. Section V concludes by summarizing the main findings and discusses potentially fertile areas for future research.
II. Related literature

Some aspects of the macroeconomics of civil conflict have been covered by the literature, especially with respect to economic growth in the aftermath of conflict (see, for example, Chen, Loayza & Reynal-Querol, 2008; and Elbadawi, Kaltani & Schmidt-Hebbel, 2008). The scarce literature on the role played by debt and inflation during the early stages of conflict has not reached a consensus. Thus far, wars and armed conflicts have been associated with inflationary processes. Besley and Persson (2008) argue that the inflation tax (seigniorage) is the easiest way to fund increasing public expenditures in conflict-affected economies, which also tends to be more common in low-income economies with under-developed fiscal institutions. Hamilton (1977), however, had previously noted that industrialized economies with histories of conflict suffered major inflationary processes, but noted that in nonindustrial nations these macroeconomic dynamics were not as evident. More specifically, Hamilton (1977) argued that high inflation in low-income economies tends to be correlated with previous periods of generous welfare programs rather than with warfare itself. These welfare policies, which stretch government expenditures beyond the limits of the national fiscal system, play a central role in what Edwards and Dornbusch (1990) described as "macroeconomic populism." The underlying logic is that policy makers privilege growth and income redistribution over inflation, deficit finance and other macroeconomic vulnerabilities. These unsustainable policies, according to the authors, put countries in a position of economic vulnerability that when combined with unfavorable external shocks, including economic blockades, force policy makers to make abrupt policy changes, leading ultimately to political instability and conflict.

One explanation of why the relationship between inflation and armed conflict might not be as clear cut as suggested by Dornbusch and Edwards (1990) comes from what Thomson and Zuk (1982) called “optical illusions.” These authors essentially argued that by focusing on specific years of wars, inflation studies give wars more importance than they should have. That is, although inflation might rise during periods of conflict, it is not obvious that the advent of conflict is the cause of inflation.

Research on conflict and public debt seems to provide more clear findings than the literature on inflation. After analyzing 26 major public debt overhangs in advanced economies since the early 1800s, Reinhart, Reinhart and Rogoff (2012) found that many of them have their origins in armed conflicts. Supporting this finding, and on a wider scale, after analyzing historical patterns of public debt of 178 countries since 1880, Abbas et al (2011) corroborate the existence of wartime public debt accumulation. However, these debt surges were comparatively smaller in terms of magnitude than those that took place during peacetime,
thus suggesting that empirical comparisons between war-afflicted and non-conflict economies are needed to ascertain whether debt accumulation is a central tendency around the onset of armed conflicts.

Public debt and inflation are key pillars of the macroeconomics of conflicts. However, the role they play at different stages of conflict remain blurred. This paper thus contributes new evidence to a long-standing literature on the macroeconomics of armed conflict primarily by exploring differential trends across countries.

III. Data and empirical strategy

The empirical strategy relies on two sets of variables. First, the analyses require data on the timing of the onset of armed conflicts in developing economies from 1950-2016. Second, it requires data on the three macroeconomic variables of interest.

III. A. Data on conflicts

To analyze the macroeconomic behavior of developing countries before, during and after the start of an armed confrontation, this paper relies on the information provided by the UCDP/PRIO Armed Conflict Dataset version 17.2. Given that the main goal is to study the relationship between macroeconomic performance and conflicts in general, all extra-systemic, interstate, internal and internationalized internal armed conflicts affecting developing countries reported by the database are included in the estimation samples. For conflicts that occurred between two or more states or between a state and a non-state group outside its own territory, conflicts have been assigned to the developing countries involved in such conflicts. That is, high-income economies are not included in the estimation samples.

We apply an event study methodology, transforming calendar years into event years. Under this approach, year zero corresponds to the onset of a conflict. The negative and positive event years represent the periods before and after the beginning of the crisis, respectively. In total, this study covers 11 years of every conflict; five years before and after the starting date plus the year the conflict was triggered. Considering that our methodology is centered on the starting date of a confrontation, the way

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2 The data set defines conflict as “a contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths in a calendar year.”

3 Since 1950, there are few conflicts that involved high-income economies to such a degree that they affected their macroeconomic performance significantly. Consequently, the inclusion of high-income economies would likely attenuate the econometric estimates of the impact of the advent of conflict in developing countries.

4 Examples of this approach include Chen, Loayza and Reynal-Querol (2006) and Elbadawi, Kaltani and Schmidt-Hebbel (2008).
this year is defined can be crucial for evaluating the macroeconomic trends around the onset of conflicts. To assess the robustness of the econometric estimates across various definitions of the onset of conflicts, which can affect both the starting dates as well as the number of conflicts, we utilize the following four alternative definitions of conflicts:

**Definition 1:** All conflicts with their corresponding starting dates. This definition includes all the conflicts involving developing economies reported by the UCDP/PRIO Armed Conflict Dataset. The starting years were retrieved from the data set and correspond to the date of the first recorded battle-related death.

**Definition 2:** High intensity conflicts with their corresponding starting dates. This definition considers only conflicts that in at least one year since their onset experienced a minimum of 1,000 battle-related deaths, which is the highest intensity level reported in the data set. If a country experiences more than one conflict in the same year, we considered in the analysis the episode with the highest level of intensity. The starting year, retrieved from the data set, corresponds to the date of the first battle-related death recorded in the conflict, and thus the dates of the onsets of conflicts are the same as in definition 1 but the number of conflicts is lower than under definition 1.

**Definition 3:** High intensity conflicts with adjusted starting dates. This definition considers only conflicts that in at least one year since their onset experienced a minimum of 1,000 battle-related deaths. But, in contrast with Definition 2, the starting date corresponds to the year when the threshold of 1,000 battle-related casualties in a year was reached.

**Definition 4:** All conflicts with starting years based on cumulative intensity. Considering the temporal dimension of the conflicts, this definition includes all the confrontations reported by the UCDP/PRIO Armed Conflict Dataset that since their onset exceed 1,000 battle-related deaths. The starting date corresponds to the year that the cumulative number of battle-related casualties exceeded 1,000.

To estimate the effect of conflict on the evolution of the three macroeconomic variables of interest before and after the onset of armed conflict, the episodes to be studied must be preceded by a period of peace. In the ongoing, an episode of conflict was defined as being preceded by at least 10 years of peace.\(^5\) Considering the four definitions of conflict, these periods of peace have been adapted in the following way. For definitions 1 and 2, the conflicts studied are the ones that have been preceded by at least 10 years free of any type of conflict; for Definition 3, conflicts are preceded by 10 years free of high intensity

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\(^5\) For the UCDP/PRIO Armed Conflict Dataset, this means less than 25 battle-related deaths in a calendar year.
conflicts; and for Definition 4, conflicts are preceded by 10 years free of confrontations that since their onset had reached more than 1,000 battle-related deaths.

The control group of conflict-free economies consists of a set of: 1) all the non-conflict developing countries, 2) the developed countries with available macroeconomic data for each of the three variables of interest, and 3) the years in conflict countries that have been preceded by at least 10 years of peace following the specific criteria for each of the four definitions of armed conflict. A complete list of the armed conflicts considered in this study can be found in Appendix 1.

III. B. Macroeconomic variables

As mentioned, this study focuses on the impact of the onset of conflict on public debt as a percentage of GDP, government consumption as percentage of GDP, and annual inflation rates. Other aspects of fiscal health, like primary and overall fiscal balances, were initially considered for the analysis but unfortunately are not available for the full sample of episodes of conflicts dating back to the 1950s. To obtain a constant sample for every macroeconomic variable for the 11 years of analysis centered on the dates of the onset of conflicts, only conflict countries with continuous observations for the entire episode-period of analysis (11 years) are included in the conflict-countries group.

In total, and based on the requirements previously described, 88 conflicts in 74 countries have complete information for the 11-year episode analyses for at least one of the three macroeconomic variables. The starting years of the conflicts in the overall sample range from 1956 to 2012.\(^6\) Table 1 shows the number of conflicts and conflict-afflicted countries with complete information for each of the four definitions and the three macroeconomic variables. The variable definitions and their sources are detailed in Appendix 2.

\(^6\) Although the UCDP/PRIO Armed Conflict Dataset provides conflict information from 1939, the lack of consistent macroeconomic data available before 1950 restricted us from including in the study armed confrontations occurring prior 1956.
### Table 1. Number of conflicts and conflict-countries by macroeconomic variable and definition

| Variable                              | Definition 1 | Definition 2 | Definition 3 | Definition 4 |
|---------------------------------------|--------------|--------------|--------------|--------------|
| Government consumption as % of GDP (PPP) | 64 conflicts | 24 conflicts | 36 conflicts | 39 conflicts |
|                                       | 60 countries | 23 countries | 33 countries | 36 countries |
| Public debt as % of GDP               | 32 conflicts | 8 conflicts  | 22 conflicts | 24 conflicts |
|                                       | 32 countries | 8 countries  | 20 countries | 22 countries |
| Annual inflation rate (%)             | 46 conflicts | 17 conflicts | 30 conflicts | 32 conflicts |
|                                       | 43 countries | 16 countries | 26 countries | 27 countries |

Source: Authors’ calculations based on data from UCDP/PRIO Armed Conflict Dataset. See text for details.

### III. C. Descriptive evidence

Figures 2 and 3 (with panels a, b and c) cover two historical episodes of armed conflict and compare the macroeconomic dynamics of a conflict-afflicted economy to an unafflicted neighboring economy. These figures illustrate the intuition behind the difference-in-difference estimator and anticipate some of the main econometric results discussed further below.

**Example 1. Nicaragua and Costa Rica in the late 1970s**

Between 1978 and 1979, the Sandinista National Liberation Front led an insurrection in Nicaragua that ousted the 43-year old Somoza family rule in the country. Costa Rica, Nicaragua’s neighbor with a long history without armed conflict, celebrated in 1978 both presidential and legislative elections followed by a peaceful political transition after two consecutive National Liberation Party governments.

From the early 1970s to the early 1980s, Costa Rica maintained the GDP share of government consumption (at current purchasing power parities) stable at around 18% (Figure 2a). In Nicaragua, despite having also a stable share of government consumption of around 4% during the years before the Sandinista revolution, it began to increase in 1977, a year before the onset of an armed conflict, reaching almost 20% of the GDP by 1983, five years after the onset of the conflict.

Regarding public debt (as percentage of GDP), both Costa Rica and Nicaragua experienced increases during the late 1970s and early 1980s (Figure 2b). However, the rise in public debt five years before the onset of the conflict in Nicaragua was notably steeper than in Costa Rica. From the pre- to the post-onset period, Nicaragua’s public debt increased dramatically from 62% in 1977 to 116% in 1979.
Finally, regarding inflation, Nicaragua and Costa Rica followed different paths (Figure 2c). For six consecutive years, from 1976 to 1982, Costa Rica faced an increase in its annual inflation rate, going in that period from 3% to 90%. Nicaragua, on the other hand, although it experienced a major surge in 1978, during the onset of the Revolution, experienced for most of the period between 1973 and 1983 declines in its inflation.
Example 2. Algeria and Tunisia in the early 1990s

The Algerian civil conflict started after controversial parliamentary elections held in 1991. The first year the conflict reached more than 1,000 battle-related deaths (Definition 3) was 1994. The government subsequently implemented a series of policies aiming to raise public-sector investment. However, prior to the onset of conflict, a decline of oil prices in the 1980s that lingered well into the 1990s limited the ability of the public sector to finance investment with oil revenues, and thus public debt rose alongside investment (Shabafrouz, 2010).

At that time, Algeria’s non-conflict neighbor, Tunisia, was in the process of liberalizing its economy. The 1995 association agreement with the European Union and the import-tariff reforms of early 1990s signaled that Tunisia’s economic management was diverging from Algeria’s. In contrast with Tunisia, public debt in Algeria jumped, reaching its peak of almost 98% of the nation’s GDP in 1992, the same year the conflict saw an upsurge in its levels of violence (Figure 3a). However, it is unclear, given the pre-existing oil-price dynamics, that Algeria’s public debt rose because of the conflict.

In contrast with the increasingly open Tunisian economy, the share of GDP represented by government consumption expanded in Algeria as a result of the growing participation of the state in production (Figure 3b). Shabafrouz (2010) further argues that the low productivity brought by these industrial policies affected the supply of basic staples (including food) during the early stages of the confrontation, which...

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7 See also Gleditsch et al., 2002.
led to an inflation upsurge in 1992 (Figure 3c). Interestingly, although the conflict lasted until 2002, the second half of the 1990s saw annual inflation plummet in Algeria, going from 30% to less than 3% in just five years.
The two comparisons between conflict-afflicted and non-conflict neighboring countries provide both commonalities as well as contrasts. In both, the conflict-afflicted economies (Nicaragua and Algeria) were characterized by rising current public expenditures and public debt as a share of GDP relative to their non-conflict neighbors (Costa Rica and Tunisia, respectively). However, in one case, inflation shot up in Algeria while inflation was gradually falling in Tunisia, whereas the contrast in the inflation dynamics of Nicaragua and Costa Rica was less clear. These differences could be due to regional or global trends of economic adjustment and reforms that coincided with the onset of armed conflict. The following section discusses our econometric strategy, which aims to disentangle the contrasting macroeconomic trends around the onset of conflict by systematically comparing conflict economies with non-conflict economies for as many episodes of conflict as possible.

### III. D. Empirical strategy

The purpose of our estimation strategy is to identify the potential differential effects of armed conflict on the three macroeconomic variables of interest. The econometric strategy aims to identify these potential effects with a difference-in-difference estimator:

\[ y_{c,t} = \epsilon_0 + \mu_c + \mu_t + \beta_{c,t-n}D_{c,t} + \epsilon_{c,t} \]

The subscripts \( c \) and \( t \) denote countries and event years respectively. \( y_{c,t} \) represents the dependent macroeconomic variable. The country fixed effects \( \mu_c \) capture country-specific and time-invariant factors that could be correlated with the explanatory variables. The time fixed effects \( \mu_t \) accounts for common...
shocks across all countries that could affect macroeconomic indicators. That is, the inclusion of country fixed effects along with the time effect implies that we will be comparing within-country macroeconomic trends of conflict and non-conflict economies within each year in the sample.

\( D_{c,t} \) is a dummy variable of conflict that identifies (as per the four alternative definitions discussed above) the year of the onset of conflicts. \( c_o \) represents the constant term, and \( \epsilon_{c,t} \) is the error term. \( \beta \) is the coefficient of interest to be estimated, which we allow to vary over the course of the episodes of armed conflict. The subscript \( n \) denotes the duration of each episode covering, as mentioned above, 11 years around the onset of conflicts being analyzed. Therefore, \( n \) ranges from -5 to +5. This setup implies that we are tracing pre-conflict trends as well as post-onset of conflict trends, which allows for inference about whether the differential trends, if any, predate the onset of conflict. We clustered the errors at the country level, because countries that are afflicted by conflict are likely to have noisier macro data than non-conflict countries. Clustering the errors at the country level increases the size of the estimations’ standard errors.

IV. Results

Figures 4, 5 and 6 plot the coefficients for the estimated mean differences between conflict afflicted economies and the contemporaneous control group of non-conflict countries for the three macroeconomic variables of interest and the four definitions of conflict. The asterisks highlight the coefficient estimates that are statistically different from zero at a 90% level. The estimation samples vary depending on data availability and range from 8 to 60 countries and from 8 to 64 conflicts.

IV. A. Current government consumption

The share of current government consumption seems to be higher in conflict countries relative to the control group in the four definitions of confrontations analyzed (Figure 4). This difference is particularly notable in countries experiencing high intensity conflicts and in those reaching more than 1,000 battle-related deaths (definitions 2, 3 and 4). Conflict countries show increases in their share of government consumption from the pre- to the post-onset period. The difference reaches its peak, at almost 5 percentage points, two years after confrontations exceed 1,000 battle-related deaths (definitions 3 and 4). Several coefficients in the years after the onset of conflict reached statistical significance at a 90% level, particularly high intensity conflicts (definitions 3 and 4) and when we consider all conflicts regardless of their intensity (definition 1). Regarding the economic magnitude of our estimates, the level of maximum difference of almost 5 percentage points between conflict and non-conflict countries in the post-onset period reached by definitions 3 and 4, although it appears to be huge, represents a bit less than half of
one standard deviation of the whole sample of conflict countries included in the analysis (11.24% for definition 3 and 12.01% for definition 4). The lowest point estimates for the post-onset period, that correspond to the sample of all conflicts, hovers between 2% and 3% of GDP. In this case, the coefficients represent around a quarter of one standard deviation of that sample (12.19%).

**Figure 4. Impacts of civil conflicts on the share of government consumption (% share of GDP at current PPPs) – Difference-in-difference estimator**

IV. B. Public debt

Regarding public debt, the estimated coefficients behave like the share of government consumption across the four definitions of conflicts. The fact that all the coefficients are positive indicates that public debt in conflict countries tends to be higher relative to the control group, especially considering conflict definitions 2 and 3 (Figure 5).

Conflict economies appear to show a clear increase in their public debt (as percentage of GDP) from the pre- to the post-onset period in comparison with the control group. This increase seems to be particularly abrupt in countries experiencing high intensity conflicts (definition 2). Three years after the onset of conflict, the estimated mean difference between conflict and control groups peaks at around 27%, although it is not statistically significant.

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Although the number of statistically significant coefficients at least at the 90% level is limited, the post-onset period of high intensity conflicts (definition 3) did yield statistically significant coefficients. These imply that conflicts are associated with an increase in public debt of over 20 percentage points of GDP after the onset of conflict. This number is a bit less than one standard deviation (45.7% of GDP) in the estimation sample.

**Figure 5. Impacts of civil conflicts on public debt (as % of GDP) – Difference-in-difference estimator**

**IV. C. Inflation**

The rate of inflation in conflict countries follows a completely different path. First, the coefficients are negative but not statistically significant for most of the duration of the episodes around the onset of conflict, as shown in Figure 6. The negative signs suggest that on average inflation in conflict-afflicted economies tends to be lower than in non-conflict countries. Second, the coefficient estimates for conflict definitions 1 and 2 suggest that on average inflation tends to decrease over time in conflict countries relative to the control group. Finally, countries that experience armed conflicts that reach more than 1,000 battle-related deaths (definitions 3 and 4) show the lowest levels of inflation relative to the control group (coefficients, however, not statistically significant).
Regarding the economic magnitude of these estimates, the roughly 40 percentage points of difference between conflict and non-conflict countries sounds again like a huge number. However, to put it in context, in the sample there are many episodes of hyperinflation, reaching in many instances between 1950 and 2016 more than 1,000%. Consequently, the coefficients estimated in definitions 3 and 4 are approximately equivalent to one standard deviation of the whole sample of conflict countries (which stands at 42% for definition 3 and 49.5% definition 4).

Figure 6. Impacts of civil conflicts on inflation – Difference-in-difference estimator

IV. D. The role of GDP

The results discussed thus far have left out at least one important aspect of the relationship between the onset of conflict and macroeconomic performance. To determine if the dynamics of the three macroeconomic variables previously described have been influenced more by changes in GDP than by changes in current government consumption or public debt, we re-estimated the difference-in-difference econometric model by including (log of) GDP (from the Penn World Tables 9.0) as an additional regressor. These results are reported in Figure 7.
The coefficients, magnitudes and dynamics of the estimated effects of armed conflict on the three macroeconomic variables (namely government consumption, public debt and inflation) are virtually identical to the ones discussed in the previous section. The R-squared of the estimations that include GDP are also similar to those of the estimations without it (except in the case of public debt, where the R-squared is slightly higher when controlling for GDP) – see Appendix 3. In addition, when we interacted the GDP variable with the conflict-dummy variables corresponding to the 11-year window around the onset of armed conflicts, the coefficients obtained were small and statistically insignificant.8 These results confirm that the lower levels of inflation, the increases in government consumption and the rise in public debt around the onset of conflict relative to non-conflict economies are not systematically associated with GDP fluctuations. In other words, the rise of current government consumption and public debt associated with the onset of conflict is not due to declines in GDP, and the estimated insignificant effects on inflation are not due to declines in GDP brought about by the onset of conflict.

8 These results are available upon request.
Figure 7. Impact of civil conflicts on the three macroeconomic variables controlling for real GDP
(at constant 2011 national prices, in mil. 2011US$)

- Share of government consumption
- Public Debt
- Annual inflation rate

* Source: Authors’ calculations based on Penn World Tables 9.0
** Statistically significant, 90% confidence

Source: Authors’ calculations based on the IMF Historical Public Debt Database
Source: Authors’ calculations based on the IMF International Financial Statistics Database

Legend:
- Def 1: All conflicts
- Def 2: High intensity conflicts
- Def 3: T>0 when conflict reaches 1000 deaths/year
- Def 4: T>0 when conflict exceeds 1000 battle-related deaths
IV. E. Estimation precision

Three sources of statistical imprecision might be contributing to the lack of statistical significance of some of the estimated coefficients. First, the macroeconomic information provided by conflict-affected countries might be noisy. In comparison with the control group, countries that go through processes of instability might report variables with higher variances relative to the control group due to measurement or reporting errors. This is the reason why we clustered the estimation errors at the country level, which itself tended to reduce the estimation precision. That is, we erred on the side of caution. However, we ruled out this possibility for two of the three variables of interest; debt is the only variable where the variance in conflict countries is higher than the variance of the control groups for the whole sample of conflicts.

A second source of imprecision might come from having small samples of conflict-afflicted economies. The conflicts included in this paper meet two highly selective requirements: 1) all of them must have complete information for the 11 event-years for at least one of the three macroeconomic variables; and 2) all of them must have been preceded by a relatively long period of peace (10 years). These criteria reduced the number of conflicts included in some of the estimation samples to the point that, for instance, our second definition of conflict includes only 17 episodes of conflict for the case of inflation, and only 8 for the case of public debt. Fewer conflict episodes mean coefficients with lower statistical significance due to heterogeneity within the treatment sample. Indeed, none of the estimation results that rely on this restrictive definition of conflict yielded statistically significant results, yet the corresponding point estimates followed the same dynamics as the more precisely estimated coefficients derived from the larger samples of conflicts.

V. Conclusions and future research

The findings presented in this paper suggest that developing countries affected by wars share three macroeconomic behaviors during the years surrounding the onset of conflict. First, conflict countries increase their levels of government consumption prior to and especially after a confrontation has been triggered relative to non-conflict economies. Second, public debt in conflict countries rises prior to the onset and stays high after the onset of conflict in comparison with non-conflict countries. Third, prior to, during and after the onset, conflict countries on average experience lower levels of inflation relative to non-conflict economies.
These findings, which have not been reported in previous literature, open a door for a new interpretation of what Edwards and Dornbusch (1990) labeled as macroeconomic populism. The evidence presented above suggests that governments do increase current consumption in the runup to armed conflict. However, this increase in public consumption (relative to non-conflict economies) seems to be financed by rising public debt rather than through seigniorage. This finding not only reveals the state actors’ concerns about the political consequences of runaway inflation, but also the important role that financiers of public debt played in armed conflicts around the world between 1950 and 2016.

The macroeconomic dynamics before, during and after the onset of armed conflicts studied in this paper represent a contribution to the macroeconomics of conflict. As mentioned, this was an important vacuum in the economics literature. Further, since public debt accumulated during episodes of conflict is an important issue affecting the financing of post-conflict reconstruction, the findings presented above are likely relevant for sensitive policy discussions concerning when such public debt should be paid back if at all. Future research, nonetheless, should question whether the dynamics suggested by our difference-in-difference estimations are consistent with recurrent conflicts. That is, it is worth investigating whether the patterns unearthed in this paper are due to the experience of countries that tend to have recurrent conflicts or whether they are driven by one-shot conflicts.
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Appendix 1: Conflicts analyzed by macroeconomic variable and conflict definition

Government Consumption

| Country       | Year of Onset | Country       | Year of Onset | Country       | Year of Onset | Country       | Year of Onset |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Algeria       | 1985          | Algeria       | 1985          | Algeria       | 1994          | Algeria       | 1993          |
| Argentina     | 1955          | Burundi       | 1965          | Angola        | 1975          | Argentina     | 1976          |
| Bangladesh    | 1975          | Chad          | 1966          | Burundi       | 2000          | Bangladesh    | 1988          |
| Burkina Faso  | 1985          | Colombia      | 1964          | Chad          | 1978          | Burundi       | 1996          |
| Burundi       | 1965          | Congo, Dem. Rep. | 1960        | Colombia      | 1985          | Chad          | 1969          |
| Cameroon      | 1994          | Congo, Rep.   | 1993          | Congo, Dem. Rep. | 1964          | Colombia      | 1979          |
| Central African Republic | 2001 | Egypt, Arab Rep. | 1967          | Congo, Rep.   | 1997          | Congo, Dem. Rep. | 1964          |
| Chad          | 1966          | El Salvador   | 1972          | Egypt, Arab Rep. | 1956          | Congo, Rep.   | 1997          |
| Chile         | 1973          | Ethiopia      | 1960          | Egypt, Arab Rep. | 1967          | Egypt, Arab Rep. | 1956          |
| China         | 1990          | Honduras      | 1969          | El Salvador   | 1981          | Egypt, Arab Rep. | 1967          |
| Colombia      | 1964          | Liberia       | 1980          | Ethiopia      | 1975          | El Salvador   | 1981          |
| Comoros       | 1989          | Nicaragua     | 1974          | Honduras      | 1969          | Ethiopia      | 1975          |
| Congo, Dem. Rep. | 1960        | Nigeria       | 1966          | India         | 1988          | Guatemala     | 1968          |
| Congo, Rep.   | 1993          | Pakistan      | 1971          | Indonesia     | 1975          | Guinea-Bissau | 1965          |
| Cote d'Ivoire | 2002          | Pakistan      | 1990          | Iran, Islamic Rep. | 1979          | Honduras      | 1969          |
| Djibouti      | 1991          | Peru          | 1963          | Liberia       | 2003          | Indonesia     | 1975          |
| Dominican Republic | 1965     | Rwanda        | 1990          | Morrocco      | 1979          | Liberia       | 2002          |
| Egypt, Arab Rep. | 1967      | Sierra Leone  | 1991          | Mozambique    | 1972          | Mauritania    | 1977          |
| El Salvador   | 1972          | South Africa  | 1966          | Nepal         | 2002          | Morocco       | 1979          |
| Ethiopia      | 1960          | Sri Lanka     | 1971          | Nicaragua     | 1978          | Mozambique    | 1966          |
| Gambia, The   | 1981          | Syrian Arab Rep. | 1966        | Nigeria       | 1967          | Nepal         | 2001          |
| Ghana         | 1966          | Turkey        | 1983          | Pakistan      | 1971          | Nicaragua     | 1978          |
| Grenada       | 1983          | Uganda        | 1971          | Pakistan      | 2008          | Nigeria       | 1967          |
| Guinea        | 2000          | Zimbabwe      | 1966          | Peru          | 1983          | Pakistan      | 1971          |
| Guinea-Bissau | 1998          |             |               | Philippines   | 1978          | Peru          | 1983          |
| Haiti         | 1989          |             |               | Russian Federation | 1995        | Russian Federation | 1995 |
| Honduras      | 1957          |             |               | Rwanda        | 1990          | Rwanda        | 1990          |
| Honduras      | 1969          |             |               | Sierra Leone  | 1995          | Senegal       | 1998          |
| Kenya         | 1982          |             |               | South Africa  | 1978          | Sierra Leone  | 1993          |
| Lao PDR       | 1984          |             |               | Sri Lanka     | 1971          | South Africa  | 1978          |
| Lesotho       | 1998          |             |               | Sri Lanka     | 1987          | Sri Lanka     | 1971          |
| Liberia       | 1980          |             |               | Sudan         | 1983          | Sri Lanka     | 1986          |
| Macedonia, FYR | 2000        |             |               | Syrian Arab Rep. | 1982          | Sudan         | 1983          |
| Madagascar    | 1971          |             |               | Turkey        | 1992          | Syrian Arab Republic | 1982 |
| Mali          | 1990          |             |               | Uganda        | 1981          | Thailand      | 1974          |
| Country                | Year  | Country       | Year  | Country        | Year  |
|-----------------------|-------|---------------|-------|----------------|-------|
| Mauritania            | 1975  | Zimbabwe      | 1976  | Thailand       | 2009  |
| Mauritania            | 2008  |               |       | Turkey         | 1987  |
| Mexico                | 1994  |               |       | Uganda         | 1979  |
| Morocco               | 1971  |               |       | Zimbabwe       | 1976  |
| Nicaragua             | 1974  |               |       |                |       |
| Niger                 | 1991  |               |       |                |       |
| Nigeria               | 1966  |               |       |                |       |
| Nigeria               | 2003  |               |       |                |       |
| Pakistan              | 1971  |               |       |                |       |
| Pakistan              | 1990  |               |       |                |       |
| Panama                | 1989  |               |       |                |       |
| Peru                  | 1963  |               |       |                |       |
| Rwanda                | 1990  |               |       |                |       |
| Senegal               | 1988  |               |       |                |       |
| Sierra Leone          | 1991  |               |       |                |       |
| South Africa          | 1966  |               |       |                |       |
| Sri Lanka             | 1971  |               |       |                |       |
| Suriname              | 1986  |               |       |                |       |
| Syrian Arab Republic  | 1966  |               |       |                |       |
| Tanzania              | 1978  |               |       |                |       |
| Togo                  | 1986  |               |       |                |       |
| Trinidad and Tobago   | 1990  |               |       |                |       |
| Tunisia               | 1980  |               |       |                |       |
| Turkey                | 1983  |               |       |                |       |
| Uganda                | 1971  |               |       |                |       |
| Uruguay               | 1970  |               |       |                |       |
| Uzbekistan            | 1999  |               |       |                |       |
| Venezuela, RB         | 1962  |               |       |                |       |
| Zimbabwe              | 1966  |               |       |                |       |

|               |       |               |       |               |       |
| No. of conflicts | 64    |               | 24    |               | 36    |
| No. of countries | 60    |               | 23    |               | 33    |
| Country                  | Year of Onset | Country                  | Year of Onset | Country                  | Year of Onset | Country                  | Year of Onset |
|--------------------------|--------------|--------------------------|--------------|--------------------------|--------------|--------------------------|--------------|
| Algeria                  | 1985         | Algeria                  | 1985         | Algeria                  | 1994         | Algeria                  | 1993         |
| Burkina Faso             | 1985         | Honduras                 | 1969         | Burundi                  | 2000         | Argentina                | 1976         |
| Cameroon                 | 1994         | Pakistan                 | 1971         | Chad                     | 1978         | Bangladesh               | 1988         |
| Central African Republic | 2001         | Rwanda                   | 1990         | Colombia                 | 1985         | Burundi                  | 1996         |
| China                    | 1990         | Sierra Leone             | 1991         | El Salvador              | 1981         | Colombia                 | 1979         |
| Comoros                  | 1989         | South Africa             | 1966         | Ethiopia                 | 1975         | El Salvador              | 1981         |
| Cote d’Ivoire            | 2002         | Sri Lanka                | 1971         | Honduras                 | 1969         | Ethiopia                 | 1975         |
| Gambia, The              | 1981         | Turkey                   | 1983         | Morocco                  | 1979         | Guatemala                | 1968         |
| Grenada                  | 1983         | Nigeria                  | 1989         | Nicaragua                | 1978         | Morocco                  | 1979         |
| Guinea                   | 2000         | Pakistan                 | 1971         | Nepal                    | 2002         | Honduras                 | 1969         |
| Guinea-Bissau            | 1998         | Pakistan                 | 2008         | Nicaragua                | 1978         | Morocco                  | 1979         |
| Haiti                    | 1989         | Pakistan                 | 1969         | Peru                     | 1983         | Pakistan                 | 1971         |
| Honduras                 | 1990         | Lesotho                  | 1998         | Philippines              | 1978         | Peru                     | 1983         |
| Lesotho                  | 1998         | Mali                     | 1990         | Rwanda                   | 1990         | Rwanda                   | 1990         |
| Mauritania               | 2008         | Mauritania               | 1991         | Sierra Leone             | 1995         | Sierra Leone             | 1993         |
| Mexico                   | 1994         | Morocco                  | 1971         | Sri Lanka                | 1971         | Sri Lanka                | 1971         |
| Morocco                  | 1994         | Niger                    | 1991         | Sri Lanka                | 1987         | Sri Lanka                | 1986         |
| Niger                    | 1991         | Nigeria                  | 2003         | Syrian Arab Republic     | 1982         | Syrian Arab Republic     | 1982         |
| Nigeria                  | 1990         | Pakistan                 | 1971         | Turkey                   | 1992         | Thailand                 | 1974         |
| Pakistan                 | 1989         | Panama                   | 1989         | Uganda                   | 1981         | Thailand                 | 2009         |
| Panama                   | 1989         | Papua New Guinea         | 1989         | Turkey                   | 1987         | Uganda                   | 1979         |
| Papua New Guinea         | 1989         | Rwanda                   | 1990         | Uganda                   | 1987         | Uganda                   | 1979         |
| Rwanda                   | 1990         | Senegal                  | 1988         | Uganda                   | 1987         | Uganda                   | 1979         |
| Senegal                  | 1988         | Sierra Leone             | 1991         | Uganda                   | 1987         | Uganda                   | 1979         |
| Sierra Leone             | 1991         | South Africa             | 1966         | Uganda                   | 1987         | Uganda                   | 1979         |
| South Africa             | 1966         | Sri Lanka                | 1971         | Uganda                   | 1987         | Uganda                   | 1979         |
| Sri Lanka                | 1971         | Tanzania                 | 1978         | Uganda                   | 1987         | Uganda                   | 1979         |
| Tanzania                 | 1978         | Togo                     | 1986         | Uganda                   | 1987         | Uganda                   | 1979         |
| Togo                     | 1986         | Trinidad and Tobago      | 1990         | Uganda                   | 1987         | Uganda                   | 1979         |
| Turkey                   | 1983         |                         |              | No. of conflicts         | 32           | 8                        | 22           |
|                         |              | No. of countries         | 32           | 8                        | 20           | 22                       |              |
## Annual Inflation Rate

| Country                      | Year of Onset | Country                      | Year of Onset | Country                      | Year of Onset | Country                      | Year of Onset |
|------------------------------|---------------|------------------------------|---------------|------------------------------|---------------|------------------------------|---------------|
| Algeria                      | 1985          | Algeria                      | 1985          | Algeria                      | 1994          | Algeria                      | 1993          |
| Argentina                    | 1955          | Colombia                     | 1964          | Burundi                      | 2000          | Argentina                    | 1976          |
| Burkina Faso                 | 1985          | Egypt, Arab Rep.             | 1967          | Colombia                     | 1985          | Burundi                      | 1996          |
| Cameroon                     | 1994          | El Salvador                  | 1972          | Egypt, Arab Rep.             | 1956          | Colombia                     | 1979          |
| Central African Republic     | 2001          | Honduras                     | 1969          | Egypt, Arab Rep.             | 1967          | Egypt, Arab Rep.             | 1956          |
| Chile                        | 1973          | Iraq                         | 1958          | El Salvador                  | 1981          | Egypt, Arab Rep.             | 1967          |
| Colombia                     | 1964          | Kuwait                       | 1990          | Ethiopia                     | 1975          | El Salvador                  | 1981          |
| Cote d'Ivoire                | 2002          | Nigeria                      | 1966          | Honduras                     | 1969          | Ethiopia                     | 1975          |
| Dominican Republic           | 1965          | Pakistan                     | 1971          | India                        | 1988          | Guatemala                    | 1968          |
| Egypt, Arab Rep.             | 1967          | Pakistan                     | 1990          | Indonesia                    | 1975          | Honduras                     | 1969          |
| El Salvador                  | 1972          | Peru                         | 1963          | Iran, Islamic Rep.           | 1979          | Indonesia                    | 1975          |
| Gambia, The                  | 1981          | Sierra Leone                 | 1991          | Iraq                         | 1961          | Iraq                         | 1961          |
| Grenada                      | 1983          | South Africa                 | 1966          | Kuwait                       | 1990          | Kuwait                       | 1990          |
| Guinea-Bissau                | 1998          | Sri Lanka                    | 1971          | Morocco                      | 1979          | Morocco                      | 1979          |
| Haiti                        | 1989          | Sudan                        | 1963          | Nepal                        | 2002          | Nepal                        | 2001          |
| Honduras                     | 1957          | Syrian Arab Rep.             | 1966          | Nicaragua                    | 1978          | Nicaragua                    | 1978          |
| Honduras                     | 1969          | Turkey                       | 1983          | Nigeria                      | 1967          | Nigeria                      | 1967          |
| Iraq                         | 1958          | Pakistan                     | 1971          | Nigeria                      | 2012          | Nigeria                      | 2012          |
| Kenya                        | 1982          | Pakistan                     | 2008          | Pakistan                     | 1971          | Pakistan                     | 1971          |
| Kuwait                       | 1990          | Peru                         | 1983          | Peru                         | 1983          | Peru                         | 1983          |
| Macedonia, FYR               | 2000          | Philippines                  | 1978          | Senegal                      | 1998          | Senegal                      | 1998          |
| Madagascar                   | 1971          | Sierra Leone                 | 1995          | Sierra Leone                 | 1993          | Sierra Leone                 | 1993          |
| Mauritania                   | 2008          | South Africa                 | 1978          | South Africa                 | 1978          | South Africa                 | 1978          |
| Mexico                       | 1994          | Sri Lanka                    | 1971          | Sri Lanka                    | 1971          | Sri Lanka                    | 1986          |
| Morocco                      | 1971          | Sri Lanka                    | 1987          | Sri Lanka                    | 1986          | Sri Lanka                    | 1986          |
| Niger                        | 1991          | Sudan                        | 1963          | Sudan                        | 1963          | Sudan                        | 1963          |
| Nigeria                      | 1966          | Sudan                        | 1983          | Sudan                        | 1983          | Sudan                        | 1983          |
| Nigeria                      | 2003          | Syrian Arab Rep.             | 1982          | Syrian Arab Rep.             | 1982          | Syrian Arab Rep.             | 1982          |
| Pakistan                     | 1971          | Turkey                       | 1992          | Thailand                     | 1974          | Thailand                     | 1974          |
| Pakistan                     | 1990          | Zimbabwe                     | 1976          | Thailand                     | 2009          | Thailand                     | 2009          |
| Panama                       | 1989          | Turkey                       | 1987          | Zimbabwe                     | 1976          | Zimbabwe                     | 1976          |
| Papua New Guinea             | 1989          |                               |               |                               |               |                               |               |
| Peru                         | 1963          |                               |               |                               |               |                               |               |
| Senegal                      | 1988          |                               |               |                               |               |                               |               |
| Sierra Leone                 | 1991          |                               |               |                               |               |                               |               |
| South Africa                 | 1966          |                               |               |                               |               |                               |               |
| Sri Lanka                    | 1971          |                               |               |                               |               |                               |               |
| Sudan                        | 1963          |                               |               |                               |               |                               |               |
| Country               | Year |
|----------------------|------|
| Suriname             | 1986 |
| Syrian Arab Republic | 1966 |
| Tanzania             | 1978 |
| Togo                 | 1986 |
| Trinidad and Tobago  | 1990 |
| Turkey               | 1983 |
| Uruguay              | 1970 |
| Venezuela, RB        | 1962 |

|                     | No. of conflicts | No. of countries |
|---------------------|------------------|------------------|
| No. of conflicts    | 46               | 17               |
|                     | 17               | 16               |
|                     | 30               | 26               |
|                     | 32               | 27               |
Appendix 2: Variables and sources

- **Public debt as a percentage of GDP**
  
  Source: International Monetary Fund – Historical Public Debt Database.
  
  Definition of debt: public debt at the general government level. For countries with lack of public debt data at the general government level, debt data for the central government were used as an alternative.
  
  Paper associated: Abbas, S. M. Ali and Belhocine, Nazim and ElGanainy, Asmaa A and Horton, Mark. “A Historical Public Debt Database.” 2010. *IMF Working Papers* 10 (245): 1-26.
  
  Link for download: [http://data.if.org/?sk=388DFA60-1D26-4ADE-B505-A05A558D9A42&sId=1479329334655](http://data.if.org/?sk=388DFA60-1D26-4ADE-B505-A05A558D9A42&sId=1479329334655)

- **Share of government consumption at current PPPs**
  
  Source: Penn World Tables 9.0.
  
  Definition of Share of government consumption at current PPPs: share of output-based real gross domestic product (GDP) per capita that is represented by government consumption, at current purchasing power parities (PPPs).
  
  Paper associated: Feenstra, Robert C., Robert Inklaar and Marcel P. Timmer. 2015. "The Next Generation of the Penn World Table." *American Economic Review* 105(10): 3150-3182.
  
  Link for download: [https://www.rug.nl/ggdc/productivity/pwt/](https://www.rug.nl/ggdc/productivity/pwt/)

- **Annual inflation rates**
  
  Source: International Financial Statistics Database - International Monetary Fund.
  
  Definition of inflation: annual percentage change in the cost to the average consumer of acquiring a basket of goods and services. Percentage change is calculated based on the consumer price index. May be fixed or changed at specified intervals, such as yearly.
  
  Link for download: [http://data.imf.org/?sk=388DFA60-1D26-4ADE-B505-A05A558D9A42&sId=1479329334655](http://data.imf.org/?sk=388DFA60-1D26-4ADE-B505-A05A558D9A42&sId=1479329334655)

- **Gross Domestic Product**
  
  Source: Penn World Tables 9.0.
  
  Definition: Real GDP at constant 2011 national prices (in mil. 2011US$).
  
  Paper associated: Feenstra, Robert C., Robert Inklaar and Marcel P. Timmer. 2015. "The Next Generation of the Penn World Table." *American Economic Review* 105(10): 3150-3182.
  
  Link for download: [https://www.rug.nl/ggdc/productivity/pwt/](https://www.rug.nl/ggdc/productivity/pwt/)
## Appendix 3. Panel results with and without controlling for GDP

### Share of government consumption (% share of GDP at PPPs)

| Year   | Original model | Controlling for GDP (log) |
|--------|----------------|---------------------------|
|        | Definition 1 | Definition 2 | Definition 3 | Definition 4 | Definition 1 | Definition 2 | Definition 3 | Definition 4 |
|        |   |   |   |   |   |   |   |   |
| Year -5|   |   |   |   |   |   | 1.21 | 1.54 |
|        |   |   |   |   |   |   |   |   |
| Year -4| 1.10 | 1.34 | 2.57 | 2.00 |   |   |   |   |
|        | (1.18) | (2.28) | (1.56) | (1.61) |   |   | (1.19) | (2.22) |
| Year -3| 1.28 | 1.09 | 2.68 | 1.97 |   |   |   |   |
|        | (1.26) | (2.38) | (1.60) | (1.61) |   |   | (1.27) | (2.33) |
| Year -2| 1.16 | 0.75 | 2.81 | 2.29 |   |   |   |   |
|        | (1.30) | (2.35) | (1.72) | (1.81) |   |   | (1.30) | (2.30) |
| Year -1| 2.054* | 2.55 | 2.99 | 2.30 |   |   |   |   |
|        | (1.16) | (2.46) | (1.83) | (1.88) |   |   | (1.17) | (2.43) |
| Year  0| 1.68 | 2.31 | 2.96 | 2.61 |   |   |   |   |
|        | (1.11) | (2.54) | (1.94) | (1.99) |   |   | (1.12) | (2.50) |
| Year  1| 1.92 | 2.96 | 3.838* | 3.870* |   |   |   |   |
|        | (1.22) | (2.52) | (2.02) | (2.10) |   |   | (1.24) | (2.46) |
| Year  2| 3.025** | 3.78 | 3.948* | 4.493** |   |   |   |   |
|        | (1.25) | (2.80) | (2.30) | (2.26) |   |   | (1.28) | (2.73) |
| Year  3| 2.456* | 4.03 | 4.733* | 4.954* |   |   |   |   |
|        | (1.28) | (3.07) | (2.52) | (2.51) |   |   | (1.31) | (3.00) |
| Year  4| 2.259* | 3.57 | 3.19 | 3.80 |   |   |   |   |
|        | (1.27) | (3.41) | (2.32) | (2.42) |   |   | (1.29) | (3.35) |
| Year  5| 1.83 | 3.23 | 3.768* | 4.576* |   |   |   |   |
|        | (1.15) | (2.89) | (2.28) | (2.41) |   |   | (1.19) | (2.84) |
| GDP (log)| 2.110* | 3.39 | 4.146* | 4.393* |   |   |   |   |
|        | (1.22) | (2.97) | (2.20) | (2.47) |   |   | (1.26) | (2.95) |
| Constant| 16.888*** | 16.464*** | 16.073*** | 16.449*** |   |   | 43.198* | 35.461* |
|        | (0.65) | (0.64) | (0.60) | (0.63) |   |   | (24.24) | (21.06) |

- **R-squared**: 0.012 0.014 0.017 0.016 0.015 0.016 0.018 0.018
- **Observations**: 6594 7728 8126 7566 6594 7728 8126 7566
- **Country FE**: Yes Yes Yes Yes Yes Yes Yes Yes
- **Time FE**: Yes Yes Yes Yes Yes Yes Yes Yes
- **No. of conflicts**: 64 24 36 39 64 24 36 39
- **Conflict countries**: 60 23 33 36 60 23 33 36
- **Total countries**: 164 172 177 172 164 172 177 172

Statistical significance: * p<0.10, ** p<0.05, *** p<0.01
## Public Debt (as % of GDP)

|                      | Definition 1 | Definition 2 | Definition 3 | Definition 4 | Definition 1 | Definition 2 | Definition 3 | Definition 4 |
|----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| **Year -5**          | 10.07        | 8.21         | 7.02         | 3.41         | 11.40        | 10.49        | 9.39         | 5.97         |
|                      | (7.86)       | (12.51)      | (8.90)       | (5.64)       | (7.72)       | (13.87)      | (8.72)       | (5.78)       |
| **Year -4**          | 10.28        | 9.04         | 4.85         | 2.78         | 11.64        | 11.78        | 7.61         | 6.33         |
|                      | (8.42)       | (14.12)      | (7.99)       | (5.93)       | (8.30)       | (15.16)      | (7.49)       | (5.95)       |
| **Year -3**          | 7.04         | 2.48         | 5.07         | 6.79         | 7.83         | 4.44         | 8.07         | 10.68        |
|                      | (8.19)       | (11.35)      | (8.92)       | (8.00)       | (8.03)       | (12.24)      | (8.39)       | (7.97)       |
| **Year -2**          | 7.85         | 2.18         | 5.34         | 4.33         | 8.30         | 4.75         | 8.36         | 8.42         |
|                      | (8.32)       | (10.45)      | (9.03)       | (6.80)       | (8.28)       | (11.49)      | (8.30)       | (6.63)       |
| **Year -1**          | 12.42        | 13.88        | 10.93        | 5.56         | 13.49        | 17.46        | 13.72        | 9.51         |
|                      | (9.62)       | (19.02)      | (11.33)      | (8.04)       | (9.64)       | (19.80)      | (10.43)      | (7.53)       |
| **Year 0**           | 16.00        | 9.05         | 12.60        | 9.68         | 16.86        | 12.26        | 14.437*      | 12.764*      |
|                      | (11.86)      | (16.09)      | (9.69)       | (7.92)       | (11.56)      | (16.09)      | (8.52)       | (7.24)       |
| **Year 1**           | 16.77        | 22.14        | 15.841*      | 15.69        | 17.180*      | 24.86        | 16.474**     | 18.262**     |
|                      | (10.63)      | (18.85)      | (9.13)       | (9.80)       | (10.32)      | (18.97)      | (7.68)       | (9.09)       |
| **Year 2**           | 12.81        | 20.21        | 21.011**     | 15.245*      | 13.11        | 22.94        | 21.261**     | 17.658**     |
|                      | (9.87)       | (18.15)      | (10.11)      | (8.84)       | (9.47)       | (18.16)      | (8.71)       | (8.06)       |
| **Year 3**           | 16.98        | 28.30        | 21.175*      | 13.42        | 17.14        | 30.57        | 21.202**     | 15.957**     |
|                      | (10.89)      | (24.52)      | (11.22)      | (8.70)       | (10.53)      | (24.17)      | (9.74)       | (7.66)       |
| **Year 4**           | 15.17        | 24.56        | 21.902*      | 15.27        | 14.47        | 24.45        | 21.351**     | 17.200**     |
|                      | (9.77)       | (19.50)      | (11.45)      | (9.66)       | (9.18)       | (18.37)      | (9.80)       | (8.26)       |
| **Year 5**           | 10.04        | 24.88        | 21.173*      | 18.27        | 8.57         | 24.12        | 20.857**     | 20.115**     |
|                      | (8.96)       | (18.23)      | (11.79)      | (11.08)      | (8.60)       | (16.28)      | (10.34)      | (9.84)       |
| **GDP (log)**        | -30.280**    | -27.139***   | -26.892***   | -25.590**    | -31.194***   | 284.763***   | 283.305***   | 270.581***   |
|                      | (11.90)      | (9.98)       | (9.60)       | (10.42)      | (110.32)     | (92.55)      | (89.00)      | (96.59)      |

- **R-squared**: 0.153 | 0.158 | 0.17 | 0.165 | 0.244 | 0.242 | 0.257 | 0.25
- **Observations**: 4935 | 6010 | 6291 | 5828 | 4471 | 5479 | 5757 | 5312
- **Country FE**: Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes
- **Time FE**: Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes
- **No. of conflicts**: 32 | 8 | 22 | 24 | 32 | 8 | 22 | 24
- **Conflict countries**: 32 | 8 | 20 | 22 | 32 | 8 | 20 | 22
- **Total countries**: 161 | 176 | 180 | 171 | 146 | 160 | 165 | 156

Statistical significance: * p<0.10, ** p<0.05, *** p<0.01
### Annual inflation rate (%)

|                | Original model |                             |                            | Controlling for GDP (log) |                             |
|----------------|----------------|-----------------------------|---------------------------|---------------------------|-----------------------------|
|                | Definition 1   | Definition 2               | Definition 3              | Definition 4              | Definition 1               | Definition 2               | Definition 3              | Definition 4              |
| **Year -5**    | -16.966        | -6.757                     | -38.64                    | -53.019                   | -16.246                    | -11.295                    | -46.041                    | -57.723                   |
|                | (14.48)        | (16.89)                    | (39.45)                   | (45.54)                   | (15.56)                    | (21.19)                    | (45.85)                    | (48.77)                   |
| **Year -4**    | -12.941        | 14.82                      | -32.218                   | -45.861                   | -8.745                     | 15.416                     | -38.432                    | -47.198                   |
|                | (14.55)        | (10.99)                    | (38.44)                   | (39.88)                   | (13.21)                    | (13.01)                    | (44.31)                    | (41.16)                   |
| **Year -3**    | -3.662         | 7.744                      | -40.38                    | -44.19                    | -2.086                     | 7.469                      | -46.478                    | -45.604                   |
|                | (8.70)         | (6.17)                     | (39.50)                   | (39.99)                   | (9.25)                     | (8.19)                     | (45.18)                    | (41.03)                   |
| **Year -2**    | -5.618         | 3.181                      | -40.737                   | -48.327                   | -4.047                     | 2.675                      | -47.868                    | -51.042                   |
|                | (9.51)         | (4.08)                     | (39.04)                   | (45.27)                   | (9.75)                     | (6.26)                     | (44.79)                    | (47.13)                   |
| **Year -1**    | -23.479        | 0.225                      | -45.825                   | -40.294                   | -23.547                    | 0.716                      | -53.659                    | -41.96                    |
|                | (14.49)        | (8.82)                     | (44.71)                   | (40.86)                   | (15.06)                    | (10.10)                    | (51.65)                    | (42.55)                   |
| **Year 0**     | -12.933        | -4.05                      | -40.192                   | -31.159                   | -12.288                    | -8.03                      | -50.887                    | -34.561                   |
|                | (16.99)        | (12.05)                    | (39.71)                   | (41.46)                   | (16.96)                    | (14.50)                    | (48.67)                    | (45.47)                   |
| **Year 1**     | 1.817          | 4.922                      | -35.177                   | -36.716                   | 2.254                      | -0.44                      | -48.593                    | -42.574                   |
|                | (16.05)        | (5.08)                     | (39.86)                   | (40.57)                   | (15.54)                    | (8.85)                     | (52.04)                    | (46.68)                   |
| **Year 2**     | -6.803         | -8.108                     | -40.989                   | -39.209                   | -8.778                     | -14.218                    | -54.79                     | -44.525                   |
|                | (14.86)        | (9.45)                     | (39.61)                   | (40.61)                   | (14.94)                    | (12.52)                    | (51.79)                    | (46.47)                   |
| **Year 3**     | -13.833        | -10.005                    | -38.987                   | -42.659                   | -14.924                    | -13.665                    | -50.503                    | -48.956                   |
|                | (12.79)        | (9.38)                     | (39.77)                   | (40.32)                   | (12.44)                    | (11.71)                    | (50.03)                    | (46.26)                   |
| **Year 4**     | -21.708*       | -7.753                     | -38.327                   | -40.873                   | -22.456*                   | -11.309                    | -49.481                    | -48.191                   |
|                | (11.51)        | (9.24)                     | (40.33)                   | (40.45)                   | (11.48)                    | (10.86)                    | (50.39)                    | (46.66)                   |
| **Year 5**     | -12.224        | 2.917                      | -22.634                   | -15.735                   | -12.263                    | 0.666                      | -32.348                    | -19.071                   |
|                | (10.07)        | (6.31)                     | (50.70)                   | (45.93)                   | (10.52)                    | (8.26)                     | (60.79)                    | (52.09)                   |
| **GDP (log)**  |               |                             |                           |                           | -54.52                     | -52.507                    | -56.715                    | -51.747                   |
|                |               |                             |                           |                           | (59.60)                    | (47.15)                    | (50.60)                    | (52.93)                   |
| **Constant**   | 15.139***      | 10.31                      | 6.795                     | 9.818*                    | 516.694                    | 489.416                    | 527.717                    | 484.751                   |
|                | (5.09)         | (7.37)                     | (7.25)                    | (5.77)                    | (544.77)                   | (429.91)                   | (461.92)                   | (479.33)                  |

R-squared: 0.011, 0.01, 0.01, 0.01, 0.013, 0.011, 0.012, 0.012
Observations: 5817, 6925, 7255, 6724, 5079, 6085, 6397, 5916
Country FE: Yes, Yes, Yes, Yes, Yes, Yes, Yes, Yes
Time FE: Yes, Yes, Yes, Yes, Yes, Yes, Yes, Yes
No. of conflicts: 46, 17, 30, 32, 46, 17, 30, 32
Conflict countries: 43, 16, 26, 27, 43, 16, 26, 27
Total countries: 160, 176, 179, 170, 162, 166, 159

Statistical significance: * p<0.10, ** p<0.05, *** p<0.01