CREDIT Research Paper

No. 17/03

The Economic Impact of Political Instability and Mass Civil Protest

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Abstract

Previous work has investigated whether political instability has a negative effect on economic growth, with mixed results, largely because political instability can take various forms. Using synthetic control methodology, which constructs a counterfactual in the absence of political instability, we estimate the output effect of 38 regime crises in the period 1970-2011. A crucial factor is whether crises are accompanied by mass civil protest. In the crises accompanied by mass civil protest, there is typically an immediate fall in output which is never recovered in the subsequent five years. In crises unaccompanied by protest, there are usually no significant effects.

JEL Classification: C23, F43, P16.

Keywords: Political Instability, Economic Recovery, Synthetic Control Method.

Centre for Research in Economic Development and International Trade, University of Nottingham

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Outline

The Authors

Samer Matta is a PhD student in Economics at the University of Nottingham and the corresponding author (email: samer.matta@nottingham.ac.uk); Simon Appleton is an Associate Professor of Economics at the University of Nottingham (email: simon.appleton@nottingham.ac.uk); Michael Bleaney is an Emeritus Professor of Economics at the University of Nottingham (email: michael.bleaney@nottingham.ac.uk).

1. Introduction

It has been established that major "disruptive events", such as unusually deep recessions or currency crises, cause permanent output losses: although growth eventually springs back to its previous rate, output remains permanently below its pre-crisis trend (Cerra et al., 2013; Cerra and Saxena, 2008; Hong and Tornell, 2005). Civil conflict and politically motivated violence such as assassinations and coups have been widely shown to depress growth (Barro, 1991; Bleaney and Nishiyama, 2002). What about other, less drastic forms of political instability? Here the evidence is somewhat less clear. Aisen and Veiga (2013), Alesina and Perotti (1996) and Jong-A-Pin (2009) find a negative impact of political instability on growth, but they all use somewhat different measures of political instability. Leadership changes in less democratic regimes can also affect the growth rate, either positively or negatively (Collier and Hoeffler, 2015; Jones and Olken, 2005).

The contribution of the present paper is two-fold: (1) It makes use of the recently developed synthetic control methodology (SCM) to estimate the output effect of political instability events over the ensuing five years; and (2) it shows that significant non-violent regime crises typically have negative output effects only if accompanied by mass civil protest. This is an entirely new result.

To obtain a robust measure of political instability, we draw on the work of Jong-A-Pin (2009), who has trawled cross-country data bases for no fewer than 25 different indicators of political instability, and distilled them into a few major dimensions using Exploratory Factor Analysis. These dimensions consist of: (a) politically motivated violence (civil conflict, revolutions and assassinations); (b) mass civil protest (riots, demonstrations or strikes); (c) structural instability of the political regime (factors such as ethnic diversity, frequency of elections or how often the largest party is out of office), and (d) regime crises (changes of chief executive, cabinet ministers or the political regime, or major government crises). Jong-A-Pin finds that only (d), his factor for regime crises, has robust and significant negative effects on economic growth. We too focus on regime crises. Since such events are typically accompanied by mass civil protest (for example the "Arab Spring" in Egypt and Tunisia in 2011), we distinguish between regime crises with and without mass civil protest. We also modify the definition of regime crises to exclude cabinet changes that do not fulfil any of the other criteria, because these may be rather minor events.[1]

We estimate the output effects of these disruptive events up to a five-year horizon using SCM, which yields estimates not only of the immediate impact but also of the cumulative output effects for each subsequent year for each country. The essential idea of SCM is to compare the post-crisis performance of a country with that of a synthetic alternative consisting of a weighted average of other countries, the weights having been chosen in such a way that the synthetic alternative closely tracks the economic performance of the country before the crisis. The estimated instability effect is then calculated as the post-crisis difference

[1] The standard government change variable includes "changes that do not involve substantial turnover of leadership" (Alesina, Özler, Roubini, & Swagel, 1996, p. 193).

between the actual output performance of the country and that of its synthetic counterpart. Applying this technique to all countries that have experienced disruptive events of a particular type yields estimates not only of the average effect across countries on their GDP per capita but also of the dispersion about this mean, a significant advantage over the conventional panel econometric models used in the applied political-economy literature (Aisen and Veiga, 2006, 2013; Jong-A-Pin, 2009). Another attractive feature of SCM is that it estimates reliable counterfactuals that capture global economic shocks in the post-treatment period, hence improving on earlier studies that relied on pre-shock forecasts (ESCWA, 2016) or output levels (Calvo et al., 2006; Cerra and Saxena, 2005; Reinhart and Rogoff, 2014) as counterfactuals.

We are careful to discard cases where other disruptive events, such as armed conflict or an economic crisis, might have affected the result, which leaves us with 29 episodes of regime crises accompanied by mass civil protest, and a further 9 of regime crises without mass civil protest. We find striking differences between these two cases. Regime crises accompanied by mass civil protest cause an immediate drop in output, which, on average, is not recovered in the following five years. In the absence of mass civil protest, by contrast, regime crises tend to have negligible adverse effects on the path of output.

The remainder of the paper is structured as follows. Section 2 provides a brief summary of existing literature on the economic effects of political instability. Section 3 discusses our data and our definition of political instability events. Section 4 describes the empirical method, including the covariates used to construct synthetic controls for each country's GDP per capita. Section 5 presents the findings, while section 6 reports the results for individual countries. Finally, section 7 concludes.

2. Literature

Early work on the economic impact of political instability used cross-country regressions to investigate the effect of violent events such as revolutions, coups and assassinations (Alesina and Perotti, 1996; Barro, 1991; Fosu, 2001). Carmignani (2003) provides a useful survey of this literature. More recently researchers have attempted to explore the effect of other forms of political instability, making use of the rich Cross-National Time Series data set (Banks and Wilson (2015); hereinafter CNTS), which was originally launched in 1979 by Arthur Banks.

However, political scientists have argued that instability is a latent and multidimensional concept that reflects different events: institutional change, political violence, armed conflicts, civil protest, riots, instability of the political regime, among other things (Hibbs, 1973; Rummel, 1963; Tanter, 1966). It is inevitable, therefore, that researchers have defined and measured this construct somewhat differently.

Jong-A-Pin (2009) has made the most comprehensive effort to address the multidimensionality of political instability by applying an Exploratory Factor Analysis (EFA) on 25 measures of instability previously used in the literature (see Table A.1 in the appendix

for details).[2] He found that political instability indicators could be grouped into four major categories: "politically motivated violence", "mass civil protest", "instability of the political regime" (structural factors such as ethnic diversity) and "instability within the regime" (various forms of regime crisis). We follow this classification to examine the effects of mass civil protest and political regime crises. In particular, we investigate whether these events have an immediate cost in lost output, and whether this loss is subsequently recovered to a significant degree.

These issues have been addressed in relation to other types of what might be called "disruptive events". Cerra and Saxena (2005, 2008) and Cerra et al. (2013) have investigated the long-term effects of deep recessions.[3] Kang and Meernik (2005) and Flores and Nooruddin (2009) have examined why certain economies recover faster than others in the aftermath of armed conflicts, while Hong and Tornell (2005) and Cavallo et al. (2013) do the same for currency crises and severe natural disasters respectively. Only the last of these uses the synthetic control methodology (SCM) that we employ here. Matta et al. (2016) use SCM in a detailed analysis of the uprisings in Tunisia that initiated the Arab Spring, but that is only a single case.

3. Data

Because the effects of politically motivated violence have already been extensively investigated by economists,[4] and also because such violence often lasts for a considerable length of time, thus making it less suitable for analysis by the method used here, we focus on other forms of political instability. Based on the findings of Jong-A-Pin (2009) discussed above, we consider two types:

i) Regime crisis: in a given year there was a coup, a major constitutional change and/or a major government crisis.[5]
ii) Mass civil protest: one (or more) of the following three indicators pass a threshold value: strikes, riots and demonstrations.

Precise definitions are given in Table A.2 in the appendix. To identify all these events that happened between 1970 and 2011,[6] we use the 2015 version of the CNTS, which compiles

[2] All tables that start with an "A" are in the appendix.

[3] Deep recessions in this context are ones in which output actually falls in at least one year.

[4] For an extensive review, refer to Blattman and Miguel (2010).

[5] In contrast to Jong-A-Pin (2009), we did not include cabinet changes as part of the significant change in the regime crisis component because these events do not necessarily represent instability, since they occur frequently as part of normal political cycle. For instance, the standard government change variable includes "changes that do not involve substantial turnover of leadership" (Alesina et al., 1996, p. 193).

[6] We start from 1970 in order to allow for at least 10 years prior to any political instability event in order to construct a robust counterfactual for each country that was affected by political instability events. More details regarding the construction of counterfactuals will be presented in section 4. Our sample ends at

political instability indicators based on the daily editions of the New York Times.[7] More often than not, a regime crisis occurred against the background of mass civil protest. Therefore, we analyse the output effects of such a regime crisis both with and without mass civil protest.

In certain cases, however, episodes of political instability were preceded by economic crises which also led to output losses (e.g. Greece in 2011). To accurately capture the economic impact of political instability and minimize potential biases, we exclude these episodes. In addition, we omit cases where political turmoil occurred in the midst of a large-scale armed conflict and/or was followed by natural disasters (floods, earthquakes, hurricane), because it is hard to disentangle their economic impact from that of other large non-economic exogenous shocks that brought havoc to their respective economies (e.g. Guatemala in 2009). We also exclude Myanmar and Qatar because of data limitations: Myanmar did not have real GDP per capita data, while Qatar's GDP per capita series started in 2000, five years after the coup has happened. Overall, we omit 28 episodes. Table A.3 in the appendix lists these events and provides a brief explanation of why we excluded them. Consequently, our final set of episodes of regime crisis consists of 38 events presented in Table 1, of which 29 are accompanied by mass civil protest (panel I), while 9 are not (panel II).

2011 because we set the minimum number of post-instability years to three, meaning that we exclude countries that were subjected to mass political instability after 2011 (more details in section 4).

[7] To ensure that the political instability events identified using the CNTS database are accurate, we cross-checked using information from international institutions (IMF and World Bank) and news outlets (BBC and CNN), among others.

Table 1: Episodes of Significant Change in the Political Regime

Country	Year	Event	Mass popular protest			Significant change in the political regime		
			Riots	Strikes	Demonstration	Gov. Crisis	Const. Change	Coup
Panel I - *With* mass popular protests								
Albania	1997	The government resigned after violent protests	yes	no	yes	yes	no	no
Bahrain	2011	Uprisings against the regime	yes	no	yes	yes	no	no
Bolivia	2003	The president resigned after weeks of violent protests	yes	yes	yes	yes	no	no
Chile	1973	The president was overthrown by a military coup	yes	yes	yes	yes	yes	yes
Egypt	2011	The president was ousted as part of the Arab Spring uprisings	yes	yes	yes	yes	yes	yes
Fiji	2005	A group of armed men invaded the parliament	no	no	yes	yes	yes	yes
Georgia	2003	The president was overthrown following the rose revolution	yes	no	yes	yes	yes	yes
Guinea	2007	Violent protests followed by a military coup	yes	yes	yes	yes	no	no
Haiti	2004	The president was forced out of power	yes	yes	yes	yes	no	yes
Honduras	2009	President was ousted in a Coup	no	no	yes	no	no	yes
Iran, Islamic Rep.	2009	Green revolution	yes	no	yes	yes	no	no
Italy	1992	Corruption scandal which dominated political parties	no	yes	yes	yes	no	no
Jordan	2011	The government was replaced following demonstrations	yes	no	yes	yes	yes	no
Kenya	1997	Nationwide protests demanding democratic reforms	yes	yes	yes	yes	no	no
Kyrgyz Republic	2005	The first tulip revolution	no	no	yes	yes	yes	no
Morocco	2011	Constitutional reform following protests	yes	no	yes	no	yes	no
Nigeria	1993	General Abacha takes over power by a military coup	yes	yes	yes	yes	yes	yes
Pakistan	1999	The army ousted the civilian president	yes	yes	yes	yes	yes	yes
Paraguay	1999	President resigned following impeachment proceedings	yes	no	yes	yes	no	no
Peru	2000	President resigned following political and financial scandals	yes	yes	yes	yes	no	no
Philippines	1984	The Yellow revolution	yes	no	yes	no	yes	no
Portugal	1975	The Carnation Revolution	yes	yes	no	yes	yes	yes
Spain	1978	Change of political regime to a parliamentary monarchy	yes	no	yes	no	yes	no
Thailand	2006	The army ousted the president following protests	no	no	yes	no	yes	yes
Togo	2005	Political crisis following the president's death	yes	no	yes	yes	no	no
Tunisia	2011	The Jasmine revolution	yes	yes	yes	yes	yes	no
Turkey	2007	Clash between seculars and islamists and fears of political coup	no	no	yes	yes	no	no
Ukraine	2005	The Orange revolution that lead to a new government	no	no	yes	yes	no	no
Yemen, Rep.	2011	Yemeni revolution as part of the Arab Spring	yes	yes	yes	yes	no	no

Source: Political instability starting dates are taken from the CNTS database and cross-checked with online news sources.

Table 1 (Continued): Episodes of Significant Change in the Political Regime

Country	Year	Event	Mass popular protest			Significant change in the political regime		
			Riots	Strikes	Demonstration	Gov. Crisis	Const. Change	Coup
Panel II - *Without* mass popular protests								
Angola	2010	Change of constitution in favor of the president	no	no	no	no	yes	no
Australia	1975	Constiutional crisis	no	no	no	yes	no	no
Ecuador	2010	Failed attempted coup	no	no	no	yes	no	no
Estonia	2002	PM resigns falling out among the three parties of the ruling coalition	no	no	no	yes	no	no
Gambia	1994	President Jawara was ousted in a coup led by Yahya Jammeh	no	no	no	no	yes	yes
Ghana	1979	President Akuffo deposed in a coup led by Lieutenant Jerry Rawlings	no	no	no	no	yes	yes
Malaysia	1988	1988 judicial crisis	no	no	no	yes	no	no
Niger	2010	Military coup ousts president Mamadou Tandja	no	no	no	no	yes	yes
Slovak Republic	2011	Ruling Coalition Collapses After EU Bailout Vote	no	no	no	yes	no	no

Source: Political instability starting dates are taken from the CNTS database and cross-checked with online news sources.

4. Empirical Method

Synthetic Control Methodology (SCM), which is considered by Athey and Imbens (2016) to be the most important innovation in the programme evaluation literature over the last decade, has been widely used in various social science disciplines over the past few years. It has been used to evaluate the impact on economic activity of terrorism (Abadie and Gardeazabal, 2003), counterinsurgencies (Singhal and Nilakantan, 2016), civil wars (Bove et al., 2016), trade openness (Nannicini and Billmeier, 2011), economic liberalization (Billmeier and Nannicini, 2013), natural resource discoveries (Smith, 2015), inflation targeting (Lee, 2011), natural disasters (Cavallo et al., 2013) and fiscal consolidation (Kleis and Moessinger, 2016).

The SCM is a generalization of the matching and difference-in-difference (DiD) techniques conventionally employed in large microeconometric data sets. It is particularly suited for macroeconomic applications where the cross-section dimension of the data is limited, so that credible untreated observations required by other matching methods are hard to find. The SCM solves this problem by using weighted averages of other units as the counterfactual.[8] This requires a reasonable number of pre-treatment observations in order to select an appropriate counterfactual, but in macroeconomic applications the time series is usually long enough for that. Moreover, this technique has several advantages over the conventional panel econometric models. First, it captures the effects of time-changing unobservable variables, unlike DiD and fixed effects models which only accounts for time-invariant effects (Abadie et al., 2010). Second, it enables us to examine the causal impact of political instability on output over time, in contrast to system-GMM, which only allows for evaluating the average treatment effect for the whole sample. Third, it allows for a country-by-country assessment of the impact of a shock, a feature that is very useful in providing further insights into the heterogeneous effects of political instability.

In what follows we briefly describe the application of the synthetic control method in a general context. Let r denote a unit (country, state or region) that was exposed to an exogenous treatment (in our case a political regime crisis) at time T, and $c \in C$ denote a potential control unit that was not exposed to the treatment. In addition, we indicate by $\boldsymbol{X}$ a $(x \times 1)$ vector of observed covariates that are likely to influence the outcome variable Y. Under certain assumptions (no anticipation, no interference, large pre-treatment period, and structural similarity),[9] Abadie et al. (2010) have shown that the outcome and covariates of the treated unit can be approximately matched by a weighted average of control units, called synthetic control (or counterfactual), such that

$$Y_{r,t} = \sum_{c=1}^{C} w_c^* Y_{c;t} \quad for\ t < T \tag{1}$$

and

[8] A counterfactual is how a unit's outcome would have evolved had it not been affected by a treatment.

[9] Matta et al. (2016) explain in details the assumptions of SCM.

$$X_{r,t} = \sum_{c=1}^{C} w_c^* X_{c;t} \quad for\ t < T \tag{2}$$

In equations (1) and (2), $w_{c\in C}^*$ are the optimal weights assigned to each unit c in the constructed synthetic control. They satisfy the following conditions: (i) $w_{c\in C}^* \geq 0$ and (ii) $\sum_{c=1}^{C} w_c^* = 1$.

In our case, we apply SCM for each of the episodes listed in Table 1. Our outcome variable is real GDP per capita as reported in the April 2016 version of the World Development Indicators (WDI) published by the World Bank. The data period is 1960 to 2015. In our analysis, the set of potential control units includes the universe of economies that were not subjected to mass political turmoil and/or impacted by another exogenous shock (natural disaster, war, etc.) during the corresponding post-treatment year. The selection of a large number of control countries keeps the weights assigned to each donor control as much data-driven as possible, hence ensuring the transparency of our study (Costalli et al., 2017). More importantly, and in contrast to Abadie et al. (2015) and Hope (2016), we cannot limit our controls to neighbouring countries, which tend to have similar cultural, economic and social fundamentals as the treated one, because of spillover effects whereby political turmoil in a certain country might impact others within the same geographical region (Murdoch and Sandler, 2002). In addition, we impose a relatively long pre-treatment period of 20 years, allowing us to have a robust synthetic control.[10] In many instances, countries initially impacted by political instability were later exposed to other distinct exogenous shocks. Hence, to avoid any double treatment problem, which will bias our results, our post-political instability assessment period will, in these cases, stop the year before the second exogenous shock has occurred.[11]

Our set of covariates consists of the following variables: investment, consumption, exports, imports (all as a ratio of GDP), which are the components of our variable of interest, real GDP per capita;[12] the percentage of secondary school enrolment which is a key driver of economic growth (Barro, 1991); net fuel exports as a ratio of GDP which captures a country's energy dependence

[10] In the cases of Chile, Haiti, Portugal, Spain, Estonia and Ghana, we had to content ourselves with shorter pre-instability periods because the real GDP per capita series was not available for the whole 20 year-period time span.

[11] The case of Iran illustrates this point clearly. Iran was exposed, in 2009, to mass civil protests, in particular large demonstrations, in the wake of the presidential elections. Hence, we consider these events as a treatment in our analysis. However, three years later, the U.S and the EU imposed additional sanctions on the financial and energy sectors which pushed the economy into a recession (International Monetary Fund, 2014). Consequently, if we apply SCM with 2009 being the treatment year without taking into account for the fact that in 2012 the Iranian economy was hit by another major shock, we would be overestimating the impact of the political instability. As a solution, we stop our post-political instability assessment period the year before the sanctions were imposed (i.e. 2011).

[12] We also intended to control for fiscal policy using the fiscal balance, in addition to the variables that compose the supply side of GDP (industry, agriculture and services). However data for these variables were missing for many countries in our dataset. In cases where data were available, we experimented with different sets of covariates and the results were almost unchanged.

(Matta et al., 2016);[13] money supply as a ratio of GDP to control for the depth of the financial sector (Klein and Olivei, 2008); and the Polity2 score to account for different institutional factors (Aidt and Leon, 2016; Huang, 2010) that might affect the economy (Acemoglu et al., 2001; Góes, 2016). For each of these variables, we account for possible different underlying trends by dividing the pre-instability period by half and then taking the decadal average over each sub-period as a covariate. Nonetheless, because data for secondary school enrolment, net fuel exports, money supply and the polity2 index are not available for all countries at all periods, we do not include, in certain cases, all the covariates.[14] Finally, and in order to maximize the match between the outcome variable of the treated country and its synthetic counterpart during the pre-political turmoil period, we add four-year period averages of per capita GDP to our set of covariates. Table A.4 provides the definition, unit and source of each variable.

5. Economic effects of Political Regime Crises

5.1 With Mass Civil Protest

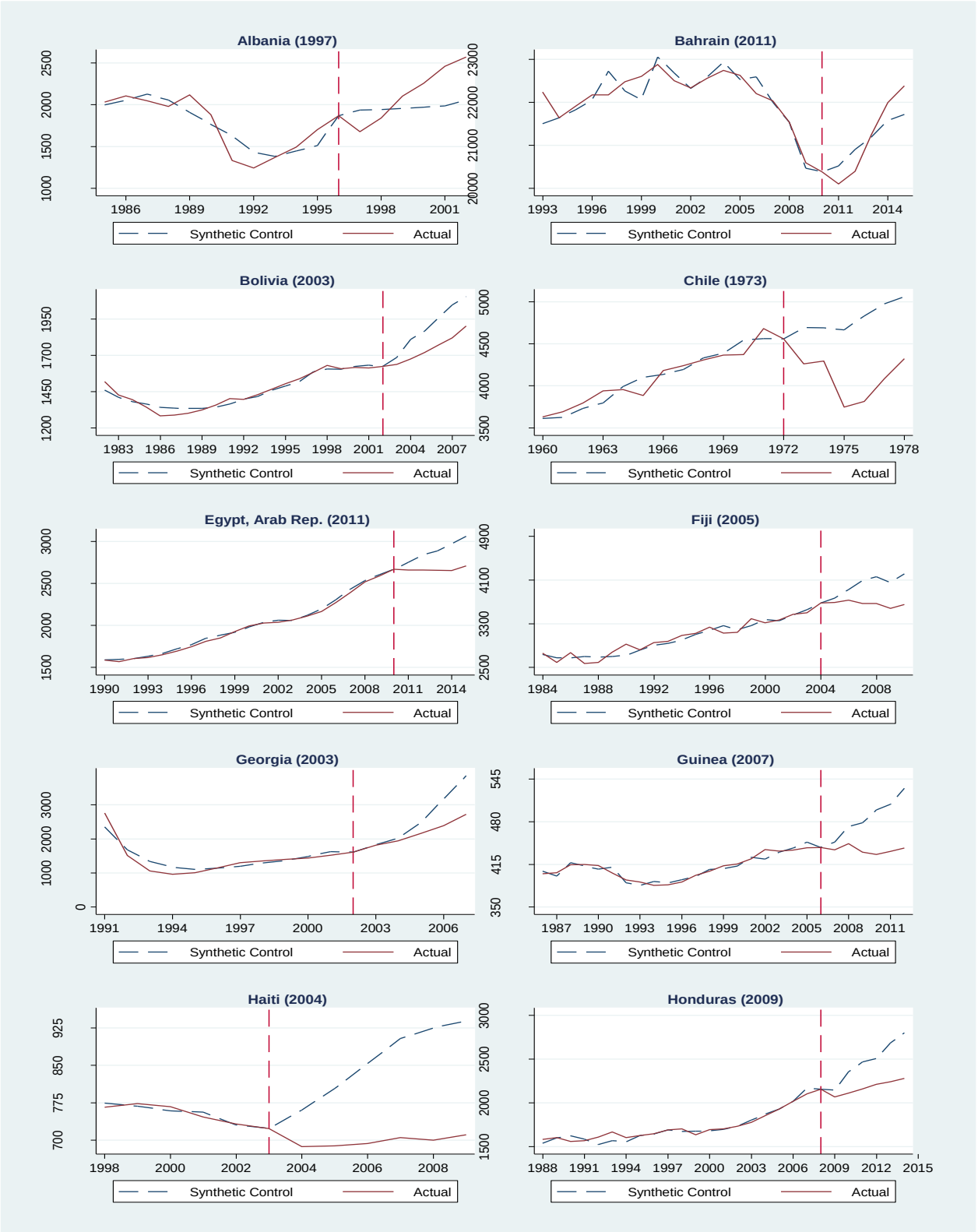
Figure 1 depicts the evolution of the actual and counterfactual real GDP per capita in the 29 countries that experienced a regime crisis accompanied by mass civil protest (which is termed here a "mass political instability event"). In each case, two lines are plotted: a continuous red line showing the actual per capita GDP of the country in question, and a dashed blue line representing the counterfactual estimated using SCM. We can observe that for all the countries (except for Togo which is highlighted in red) the path of the synthetic per capita real GDP follows closely its actual counterpart prior to the political turmoil event. Moreover, the covariate averages of the treated countries and their respective synthetic counterparts, presented in Table A.5 together with the weights of the control countries composing each synthetic control, suggest that the constructed synthetic controls match the actual economies reasonably well.

In the case of Togo we could not find a weighted average of control countries that can accurately reproduce the actual real GDP per capita before the political instability event. In the case of Kenya and Nigeria, while their synthetic GDP per capita had similar overall dynamics to their respective actual counterparts, the two lines did not match accurately in certain episodes during the pre-intervention period: the 1989-1991 period in the case of Kenya and the 1986-1988 period in the case of Nigeria. These cases highlight a weakness of the synthetic control method when it comes to matching extremely volatile outcome variables during the pre-treatment period, making it harder to develop reliable synthetic counterfactuals.

[13] Net Fuel Exports (as a % of GDP) is the difference between Fuel Exports (as a % of GDP) and Fuel Imports (as a % of GDP). The definitions of these variables are available in Table A.4.

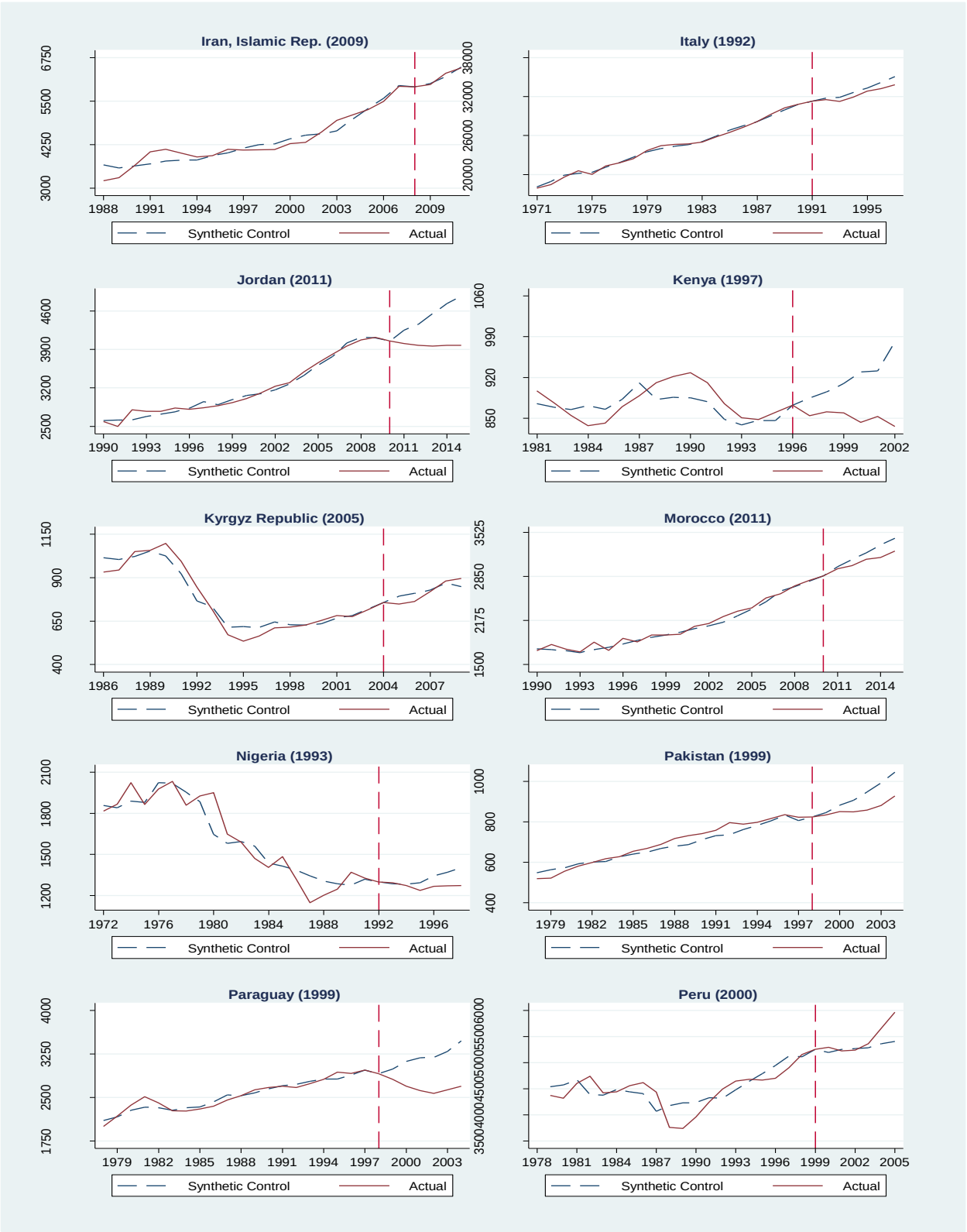
[14] This can be illustrated by the Haiti case which does not have data on net fuel exports, hence we cannot include this variable in our set of covariates.

Figure 1: Treated vs Synthetic Real GDP per Capita, Political Regime Crises With Popular Protest



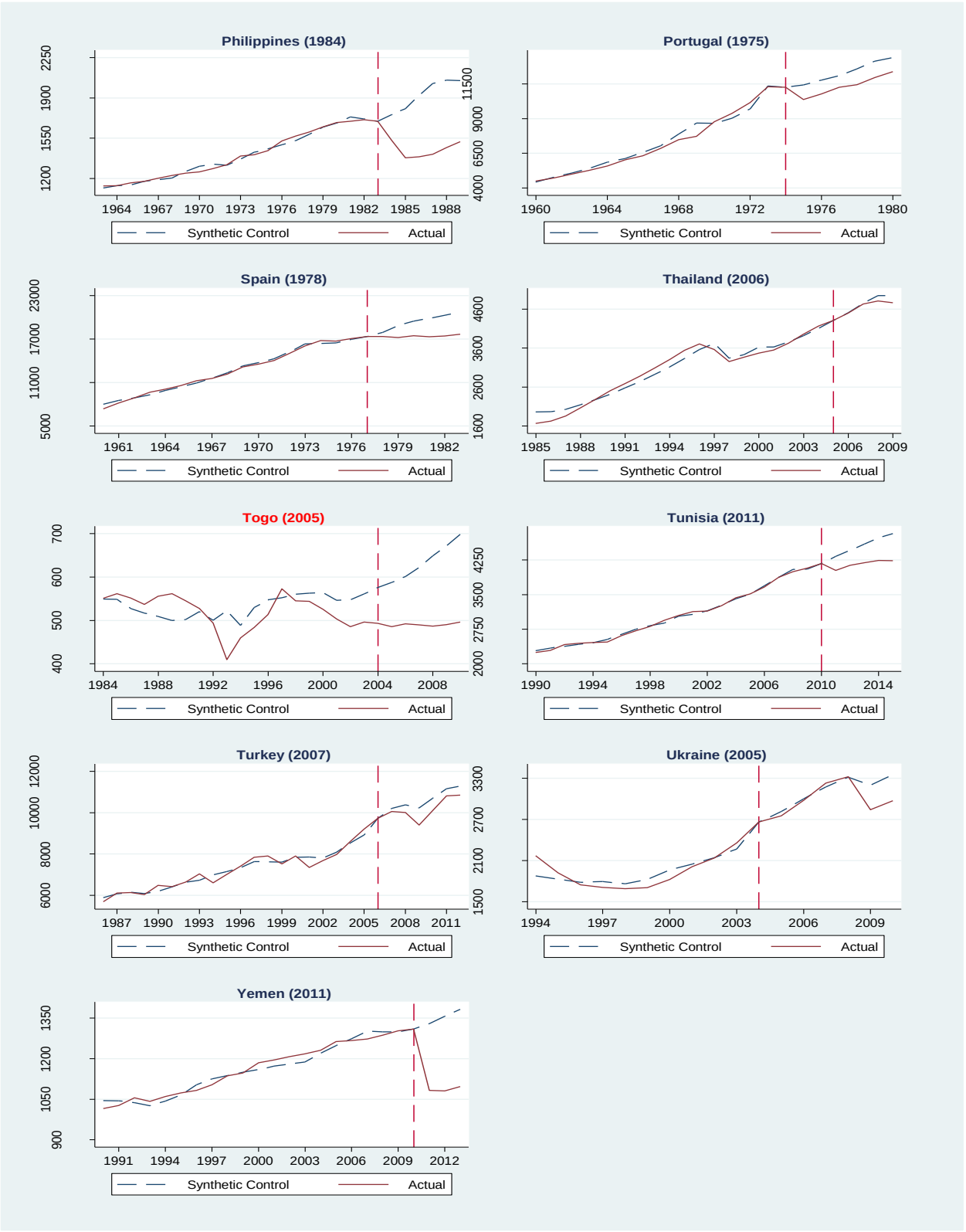
Source: Author's own calculations. Note: Each graph plots the real GDP per capita of the country that experienced political instability and that of its synthetic counterfactual. The dashed vertical line indicates the year preceding the beginning of the political instability period.

Figure 1 (continued): Treated vs Synthetic Real GDP per Capita, Political Regime Crises With Popular Protest



Source: Author's own calculations. Note: Each graph plots the real GDP per capita of the country that experienced political instability and that of its synthetic counterfactual. The dashed vertical line indicates the year preceding the beginning of the political instability period.

Figure 1 (continued): Treated vs Synthetic Real GDP per Capita, Political Regime Crises With Popular Protest



Source: Author's own calculations. Note: Each graph plots the real GDP per capita of the country that experienced political instability and that of its synthetic counterfactual. The dashed vertical line indicates the year preceding the beginning of the political instability period.

While the lines plotted in the graphs are suggestive, our aim is to formally examine the impact of political turmoil on output, particularly whether the initial real GDP per capita losses are recuperated. Thus, to accurately measure economic recovery, we calculate the percentage difference (or output gap) between the actual and synthetic GDP per capita for each country as follows:

$$Diff_{i,t} = \left(\frac{A_{i,t} - S_{i,t}}{A_{i,t}}\right) \times 100 \;\; for\; t \leq T + 5. \qquad (3)$$

In equation (3), $A_{i,t}$ and $S_{i,t}$ represent respectively the actual and synthetic real GDP per capita for each country i, while T denotes the event year during which political turmoil has happened. Table 2 (below) reports the summary statistics of the percentage difference for each year from T-2 to T+5. In years T-2 and T-1, the mean percentage difference was small and statistically insignificant, which confirms the reliability of the constructed counterfactuals in mimicking per capita GDP of the actual countries prior to the mass political instability events. In the year of the event, the actual GDP per capita is, on average, 4.5 percent lower than its counterfactual. Moreover, we find that during the next five years, the percentage difference increases gradually from 6.3 percent in year T+1 to 9.6 percent in year T+5. Although the gap appears to widen with time, we cannot reject the hypothesis that the difference stays constant over the years T+1 to T+5,[15] but even that would imply that the initial output loss was, on average, never recovered.

Table 2: Percentage Difference in GDP by Year - Mass Political Instability Events

	N	mean	sd	min	max
T-2	28.0	0.5	3.1	-6.7	12.6
T-1	28.0	0.1	0.7	-0.0	3.8
T	28.0	-4.5***	4.8	-18.6	1.9
T+1	28.0	-6.4***	6.0	-23.6	1.5
T+2	28.0	-7.8***	8.0	-27.6	7.4
T+3	26.0	-9.0***	9.7	-30.3	14.4
T+4	25.0	-9.8***	11.7	-29.3	23.8
T+5	18.0	-9.8***	12.4	-25.9	25.1

Source: Authors' own calculations. Notes: T denotes the year of the political instability event. We exclude Togo from this sample because we could not find a reliable counterfactual. Note: the values in the "mean" column are the average of $Diff_{i,t}$ across the 28 countries. *** p<0.01, ** p<0.05, * p<0.1.

These findings are reminiscent of what others have found for other disruptive events such as currency crises, banking crises and exceptionally deep recessions, whatever their cause. Hong and Tornell (2005) find that, although GDP growth recovers to its "normal" rate on average by the second year after a currency crisis, the loss of output (relative to trend) in years T and T+1 is never recovered. Cerra and Saxena (2008, p. 456) show that "the large output loss associated with financial crises and some types of political crises is highly persistent…Of the large negative shocks examined, a partial rebound in output is observed only for civil wars. Moreover, the magnitude of

[15] The Wald test for joint significance of the recovery coefficients (T+1,…,T+5) had a p-value of 0.48.

persistent output loss ranges from around 4 percent to 16 percent for the various shocks." Cerra et al. (2013) show that growth in the first year of recovery after a period of negative growth tends to be slower than in normal years, and that this is particularly true of recessions associated with banking crises.

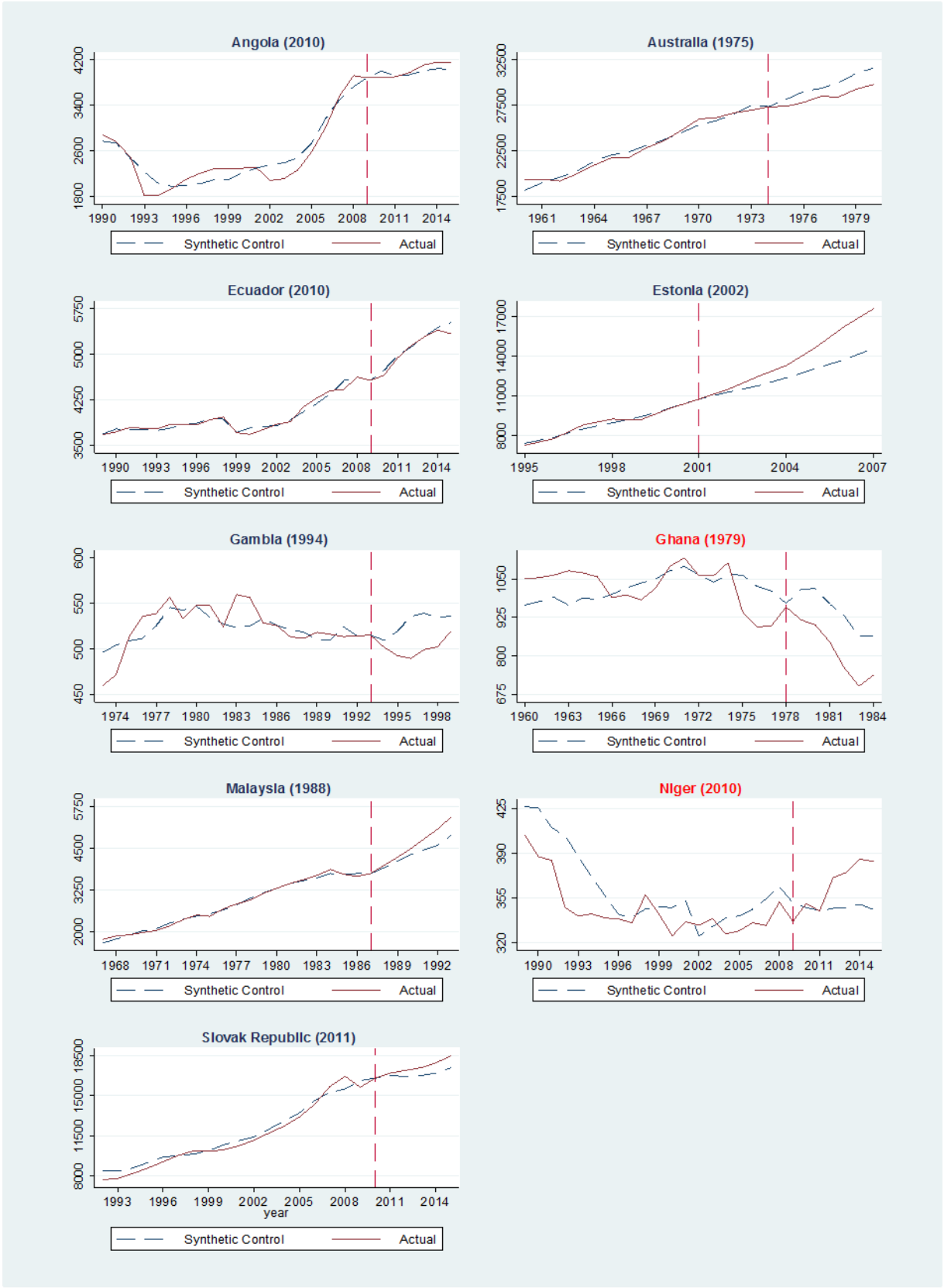
However, the differences in the means in Table 2 do not tell the whole story as the trajectories of the actual and synthetic GDP per capita are not uniform across countries. For instance, the actual GDP per capita of Haiti fell sharply and then remained flat compared to its estimated counterfactual, the one corresponding to Kyrgyzstan fell initially but bounced back to its counterfactual level four years later, whereas that of Thailand was almost unchanged after the bloodless coup. Therefore, our methodology uncovers some degree of heterogeneity in economies' reactions to political instability events, hence improving on previous studies (Aisen and Veiga, 2013; Alesina and Perotti, 1996; Jong-A-Pin, 2009) that concealed these differences due to their use of panel regression techniques that only estimate the average treatment effect.

5.2 Without Mass Civil Protest

In this section, we test whether the combination of a regime crisis and mass civil protest is more economically damaging than when the regime crisis happens unaccompanied by mass protest. There are three potential reasons that could underlie this hypothesis. First, the protest itself may be directly damaging – for example, if people stop work and/or business is disrupted. Second, mass civil protest may signal that the regime crisis is particularly severe, therefore having larger and/or longer-lasting output effects. Third, mass civil protest may also have a profound effect on future expectations and the level of uncertainty, because mass protests tend to be inherently volatile and unpredictable in ways that conventional politics is not.

To test our conjecture, we apply the SCM used above on the set of nine countries listed in panel II of Table 1 which, according to the CNTS database, experienced major changes in the political regime without being accompanied by mass civil protest. Figure 2 below illustrates the path of the actual and counterfactual real GDP per capita for these countries, while Table A.6 in the appendix reports the covariate averages for the treated and synthetic countries together with the weights composing each counterfactual. It can be seen from Figure 2 that the estimated counterfactuals for Ghana and Niger do not closely mimic the corresponding actual per capita GDP prior to the treatment. Accordingly, we will exclude these two countries from the subsequent analysis to avoid possible biases.

Figure 2: Treated vs Synthetic Real GDP per Capita, Political Regime Crises Without Popular Protest



Source: Author's own calculations. Note: Each graph plots the real GDP per capita of the country that experienced political instability and that of its synthetic counterfactual. The dashed vertical line indicates the year preceding the beginning of the political instability period.

A visual inspection of the graphs in Figure 2 indicates that the average impact of political regime crises not accompanied by mass civil protest is much more muted than when there is mass civil protest. In particular, Table 3 confirms our observation as the estimated output gap between the actual and synthetic per capita GDP is, on average, only minus 0.5 percent during the event year but turns positive thereafter, in stark contrast with the 4.5 percent average drop in the case of mass political instability reported in Table 2. However, the large standard deviations suggest some degree of heterogeneity across countries that only experienced major changes in the political regime, similar to the result found in the cases of mass political instability.

Table 3: Percentage Difference in GDP by Year - Regime Crises without Mass civil protest

	N	mean	sd	min	max
T-2	7.0	-0.4	2.8	-3.4	5.2
T-1	7.0	0.0	0.0	-0.0	0.0
T	7.0	-0.5	2.2	-2.9	2.0
T+1	7.0	0.2	4.0	-5.3	5.8
T+2	7.0	0.8	5.3	-8.7	7.5
T+3	7.0	2.0	6.9	-7.4	12.0
T+4	7.0	3.6	8.8	-6.0	18.2
T+5	6.0	3.7	10.3	-5.7	20.6

Source: Authors' own calculations. Notes: T denotes the year of the political instability event. We exclude Ghana and Niger from this sample because we could not find a reliable counterfactual.

We can statistically test our proposition that political regime crises are more damaging to an economy when they are accompanied by mass civil protest (riots, strikes or demonstrations), by simply regressing the estimated output gap ($Diff_{i,t}$) on a dummy variable that equals 1 if a country experienced a mass political instability event and 0 if it was subjected to a political regime crisis only. The results of that test are reported in Table 4. The estimated coefficient on the mass civil protest dummy is negative and highly significant, hence supporting our claim that in the absence of mass civil protest, the economic effects of a significant change in the political regime are much smaller.

These results differ from those of other authors who did not use the SCM method. Jong-A-Pin (2009) used measures of political instability similar to ours in a panel regression based on five-year average growth rates of real per capita GDP over the period 1974-2003. He finds that political regime crises have a significant negative effect on growth, but that mass civil protest has no effect, in marked contrast to our results. Aisen and Veiga (2013) estimate a similar panel regression with five-year averages of growth over the period 1960-2004. Their principal result is that cabinet changes, as reported in the CNTS data base, have a significant negative effect on growth. They do not report any results for mass civil protest.

Table 4: Regression of Percentage Difference in GDP on a Mass civil protest Dummy

	Dependent Variable: $Diff_{i,t}$					
	T	T+1	T+2	T+3	T+4	T+5
Mass Civil Protest	-3.989***	-6.541***	-8.623***	-11.046***	-13.174***	-13.491***
	(1.261)	(1.884)	(2.488)	(3.150)	(3.969)	(4.918)
Constant	-0.506	0.191	0.795	2.038	3.624	3.723
	(0.846)	(1.504)	(1.975)	(2.607)	(3.263)	(4.073)
Observations	35	35	35	33	32	24

Bootstrapped standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

6. Results for individual countries

In this section we report the results of time series regressions for the individual countries. We regress the estimated percentage difference between actual and synthetic GDP ($Diff_{i,t}$) on two dummy variables: the first ($Event_{i,t}$) takes the value 1 only in the year of the political instability event, while the second ($Post_{i,t}$) takes the value 1 in each of the subsequent five years. More specifically, we estimate the following regression for each of the 35 countries that suffered from major political regime crises:[16]

$$Diff_{i,t} = c + \beta_1 . Event_{i,t} + \beta_2 . Post_{i,t} + \varepsilon_{it}. \quad (4)$$

The sample is from the beginning of the data set until five years after the political instability event, so the intercept c is a measure of the average difference before the event. Our coefficients of interest are β_1 and β_2: the former can be interpreted as the economic impact of political turmoil during the instability year, while the latter captures the average effect in the next five years. In particular, a significantly negative β_1 implies that the economy lost output because of political instability, while a significantly negative β_2 suggests that, on average, the initial adverse impact is persistent over time (i.e. there is a less than full recovery compared to the pre-instability period).

Table 5 reports the estimation results for each model: the magnitude and t-statistic corresponding to β_1 and β_2 and the number of observations. Panel I (II) represents the findings for the countries that experienced major political crises with (without) mass civil protest. In panel I, out of the 28 cases, 22 (78.6 percent) had a significantly negative β_1 coefficient, implying that these countries were considerably damaged by mass political instability during the event year. Moreover, in 18 cases (64.3 percent) the β_2 coefficients remain largely negative, indicating that the actual GDP per capita did not recover its initial output loss. In panel II, on the other hand, only Australia and Gambia had significantly negative β_1 and β_2 (i.e. two out of 7 cases). In summary, these findings

[16] 28 were accompanied by mass civil protest, while 7 were not. As mentioned earlier, we exclude from our sample Togo, Ghana and Niger, because the SCM did not yield suitable counterfactuals that accurately measure how the real GDP per capita of these countries would have performed in the absence of political instability, hence not satisfying the parallel trend assumption of DiD.

imply that the negative effects of political regime crises estimated by SCM are typically statistically significant if accompanied by mass civil protest, whereas in the absence of such protests, the adverse effects are much more muted.

Table 5: Time Series Regressions for Individual Countries

Country	β_1		β_2		Obs.
	Coeff.	t-stat	Coeff.	t-stat	
	Panel I - *With* mass popular protests				
Albania	-13.17	-4.88***	13.32	2.17**	18
Bahrain	-2.18	-6.66***	0.58	0.5	23
Bolivia	-2.93	-6.67***	-9.14	-11.96***	27
Chile	-9.34	-12.99***	-16.43	-7.1***	19
Egypt, Arab Rep.	-2.47	-13.53***	-8.36	-7.44***	26
Fiji	-2.37	-2.74**	-1.20	-1.19	22
Georgia	2.01	0.6	-14.94	-2.35**	17
Guinea	-2.60	-8.6***	-11.98	-6.14***	27
Haiti	-9.59	-24.28***	-20.65	-10.36***	12
Honduras	-4.07	-7.22***	-14.31	-9.11***	27
Iran, Islamic Rep.	-0.44	-0.38	0.57	0.42	24
Italy	-0.70	-2.64**	-2.31	-5.33***	27
Jordan	-6.01	-10.51***	-14.35	-7.13***	26
Kenya	-4.28	-6.18***	-9.23	-4.75***	22
Kyrgyz Republic	-4.68	-3.25***	1.06	0.41	24
Morocco	-2.33	-4.28***	-5.64	-6.33***	26
Nigeria	0.62	0.41	-5.36	-2.67**	27
Pakistan	-2.68	-3.2***	-9.78	-5.96***	27
Paraguay	-6.19	-9.36***	-18.92	-12.36***	27
Peru	2.76	2.28**	4.13	1.77*	27
Philippines	-12.90	-33.33***	-27.29	-23.71***	27
Portugal	-7.78	-7.43***	-6.75	-6.01***	21
Spain	-2.82	-4.18***	-11.81	-9.17***	24
Thailand	0.70	0.53	-1.53	-0.97	25
Tunisia	-6.81	-25.03***	-9.53	-9.24***	26
Turkey	-1.50	-2.27**	-4.88	-4.48***	27
Ukraine	-1.96	-0.95	-4.09	-1.17	17
Yemen, Rep.	-18.78	-50.38***	-20.74	-53.75***	24
	Panel II - *Without* mass popular protests				
Angola	-1.78	-0.97	2.92	1.5	26
Australia	-2.76	-4.36***	-4.36	-5.9***	21
Ecuador	-1.70	-5.39***	-5.39	-1.16	27
Estonia	1.73	1.89*	1.89	4.11***	13
Gambia, The	-1.86	-2.4**	-2.40	-5.44***	27
Malaysia	1.78	3.05***	3.05	4.19***	27
Slovak Republic	3.82	4.17***	4.17	6.35***	24

Source: Author's own calculations. Note: The Coeff. and t-stat are the estimated coefficients and t-statistics for β_1 and β_2 resulting from the regressions in equation (4). *, **, *** indicate significance levels of 10%, 5%, and 1%, respectively. Robust standard errors are used.

7. Conclusion

We have used synthetic control methodology to estimate the effects of certain types of political instability up to a five-year horizon. In particular, we have focused on mass political instability events, defined as regime crises accompanied by mass civil protest, and compared them with regime crises where mass civil protest was absent. We identified these events based on the 2015 Cross-National Time database and Jong-A-Pin's (2009) classification of different dimensions of political instability, and we were careful to filter out cases where other types of disruptive events such as economic crises and armed conflicts occurred during the relevant period.

Our unambiguous finding is that regime crises accompanied by mass civil protest result, on average, in a significant fall in output that is not recovered over the subsequent five years. This is similar to what happens after other major disruptive events, such as an exceptionally deep recession or a currency crisis. Analysis of a somewhat smaller sample of regime crises where mass civil protest was absent tend to show that there are no such negative output effects in these cases. These results are substantially different from those previously obtained by different methodologies, such as panel growth regressions.

There are several potential reasons why mass civil protest makes the impact of regime crises worse. One possibility is that the protests themselves have direct negative effects (for example, output loss due to strikes or closures of business). However, this is questionable given that Jong-A-Pin found no direct effect of his factor for mass civil protest alone. Moreover, it is not obvious why such effects would persist for many years after the instigating event. A second possibility is that mass protests tend to be associated with more severe and profound regime crises. Here we are limited by our data, which records crises as simple binary events, with no measure of severity. A third related possibility is that mass protest tends to signify events that cause a more profound increase in political uncertainty. The prospect of people coming onto the streets again in the future may introduce a new, potentially uncontrollable element of uncertainty about a country's future direction and thus have a more negative effect on business confidence and investment. Further research is required to distinguish between these hypotheses.

Appendix

Table A.1: Classification of Political Instability Events According to Jong-A-Pin (2009)

Indicator	Definition	Source	Category
Assassinations	Any politically motivated murder or attempted murder of a high government official or	Databanks International	Politically Motivated Violence
Cabinet changes	The number of times in a year that a new premier is named and/or 50% of the cabinet posts are occupied by new ministers	Databanks International (2005)	Instability of the Political Regime
Civil war	Dummy variable, 1 if at least 1000 battle related deaths per year in a conflict between the government of a state and internal opposition groups without foreign intervention	Gleditsch et al. (2002)	Politically Motivated Violence
Coups d'etat	The number of extraconstitutional or forced changes in the top government elite and/or its effective control of the nation's power structure in a given year.	Databanks International (2005)	Instability of the Political Regime
Major government crises	Any rapidly developing situation that threatens to bring the downfall of the present regime, excluding situations of revolt aimed at such overthrow.	Databanks International (2005)	Instability of the Political Regime
Demonstrations	Any peaceful public gathering of at least 100 people for the primary purpose of displaying or voicing their opposition to government policies or authority, excluding demonstrations of a distinctly anti-foreign nature.	Databanks International (2005)	Mass Civil Protest
Ethnic tensions	An assessment of the degree of tensions within a country which is attributable to racial, nationality or language divisions.	ICRG (2005)	Instability Within the Political Regime
Executive changes	The number of times in a year that effective control of the executive changes hands.	Databanks International	Instability Within the Political Regime
Fractionalization	The probability that two deputies picked at random from the legislature will be of differen	Beck et al. (2001)	Instability Within the Political Regime
Government stability	An assessment of the governments ability to carry out its declared programs and its ability to stay in office.	ICRG (2005)	Instability Within the Political Regime
Guerilla warfare	Any armed activity, sabotage, or bombings carried on by independent bands of citizens or irregular forces and aimed at the overthrow of the present regime.	Databanks International (2005)	Politically Motivated Violence
Internal conflicts	An assessment of political violence in the country and its actual or potential impact on gov	ICRG (2005)	Instability Within the Political Regime
Major constitutional	The number of basic alterations in a state's constitutional structure, the extreme case being the adoption of a new constitution that significantly alters the prerogatives of the	Databanks International (2005)	Instability of the Political Regime

Source: Jong-A-Pin (2009).

Table A.1 (Continued): Classification of Political Instability Events According to Jong-A-Pin (2009)

Indicator	Definition	Source	Category
Medium civil conflicts	Dummy variable, 1 if there are more than 25 battle related deaths per year and a total conflict history of more than 1000 battle related deaths, but fewer than 1000 per year (between the government of a state and internal opposition groups without foreign	Gleditsch et al. (2002)	Politically Motivated Violence
Minor civil conflicts	Dummy variable, 1 if there are at least 25 battle related deaths per year for every year in the period in a conflict between the government of a state and internal opposition	Gleditsch et al. (2002)	Politically Motivated Violence
Number of elections	The number of elections held for the lower house of a national legislature in a given year.	Databanks International (2005)	Instability Within the Political Regime
Polarization	Maximum polarization between the executive party and the four principle parties of the le	Beck et al. (2001)	Instability Within the Political Regime
Years of ruling party in office	Number of years that the party of the chief executive has been in office.	Beck et al. (2001)	Instability Within the Political Regime
Purges	Number of systematic repressions (or eliminations) by jailing or execution of political opposition within the rank of the regime or the opposition.	Databanks International (2005)	No Category
Regime changes	Dummy variable, 1 if the variable "durable" is 0 in the polity IV dataset, which means that a new regime has started or that the state is in anarchy, 0 otherwise.	Marshall and Jaggers (2002)	Instability of the Political Regime
Religious tensions	An assessment of the degree of tensions within a country which is attributable to religious	ICRG (2005)	Politically Motivated Violence
Revolutions	Any illegal or forced change in the top governmental elite, any attempt at such a change, or any successful or unsuccessful armed rebellion whose aim is independence	Databanks International (2005)	Politically Motivated Violence
Riots	Any violent demonstration or clash of more than 100 citizens involving the use of physica	Databanks International (2005)	Mass Civil Protest
Number of veto players who drop	The percent of veto players that drop from the government given the senate does not cha	Beck et al. (2001)	Instability Within the Political Regime
Strikes	Any strike of 1,000 or more industrial or service workers that involves more than one employer and that is aimed at national government policies or authority.	Databanks International (2005)	Mass Civil Protest

Source: Jong-A-Pin (2009).

Table A.2: Definition of Political Instability Components

Variable	Definition
General Strikes	Any strike of 1,000 or more industrial or service workers that involves more than one employer and that is aimed at national government policies or authority.
Riots	Any violent demonstration or clash of more than 100 citizens involving the use of physical force.
Anti-government Demonstrations	Any peaceful public gathering of at least 100 people for the primary purpose of displaying or voicing their opposition to government policies or authority, excluding demonstrations of a distinctly anti-foreign nature.
Coups d'État	Whether an extraconstitutional or a forced change in the top government elite and/or its effective control of the nation's power structure has taken place in a given year. The term "coup" includes, but is not exhausted by, the term "successful revolution".
Major Constitutional Changes	Whether basic alterations in a state's constitutional structure, the extreme case being the adoption of a new constitution that significantly alters the prerogatives of the various branches of government, have happened in a given year. Examples of the latter might be the substitution of presidential for parliamentary government or the replacement of monarchical by republican rule.
Major Government Crises	Any rapidly developing situation that threatens to bring the downfall of the present regime - excluding situations of revolt aimed at such overthrow.

Source: CNTS database.

Table A.3: Excluded Episodes of Regime Crisis

Country	Year	Reason for Exclusion
		Panel I - *With* mass popular protests
Algeria /1	1992	Military coup that was followed by a civil war up till 1998
Argentina /2	2001	Riots were the result of an economic crisis that started in 2001
Bulgaria /3	1997	Mass protests over an economic crisis that started in 1996
Cote D'Ivoire /4	2000	Political instability evolved into a civil war in 2002
Ecuador /5	2000	Riots were the result of a financial crisis that started in 1999
Greece /6	2011	Large protests due to an economic crisis
Guatemala /7	2009	Political crisis followed by natural disasters in 2010 and 2011
Indonesia /8	1998	Riots were the result of the Asian financial crisis that started in 1997
Iran, Islamic Rep. /9	1978	Followed by the war with Iraq that started in 1980
Latvia /10	2009	Violent protests following a balance-of-payments crisis
Lebanon /11	2005	Followed by the 2006 war with Israel
Libya /12	2011	Political instability evolved into an armed conflict since 2012
Myanmar	1988	No real GDP per capita data to evaluate the Impact of the 8-8-88 movement
Nepal /13	2002	Happened during the 1996-2006 civil war
Panama /14	1987	Panama was invaded by the U.S. in 1989
South Africa /15	1990	South Africa experienced a banking crisis in 1989
Venzuela /16	1991	This was preceded by an IMF program in 1989
		Panel II - *Without* mass popular protests
Afghanistan /17	1979	Soviet army invades and props up communist government
Azerbaijan /18	1993	Coup d'etat that happened during the Nagorno-Karabakh conflict which ended in 1994
Bengladesh /19	1991	Constitutional change which coincded with a cyclone that caused large economic losses
Bhutan /20	2005	Constitutional change in the midst of a guerilla war with Indian rebels
Chad /21	1982	Government crisis including a coup that was followed by armed conflicts
Colombia /22	1989	Government crisis during the war with the FARCS
Ireland /23	2008	Government crisis resulting from the economic downturn following the 07-08 crisis
Japan /24	1993	Government crisis that was followed by a 1995 financial crisis
Qatar	1995	Sheikh Khalifa deposed by his son in a bloodless coup; however GDP per capita started in 2000

/1 http://www.bbc.co.uk/news/world-africa-14118852
/2 https://www.imf.org/external/np/pdr/lessons/100803.pdf
/3 http://www.case-research.eu/en/node/55404
/4 http://www.globalsecurity.org/military/world/war/ivory-coast-2002.htm
/5 https://www.imf.org/external/pubs/ft/wp/2004/wp0412.pdf
/6 https://www.theguardian.com/business/2011/oct/31/eurozone-debt-crisis-greece-crisis-timeline
/7 https://www.fas.org/sgp/crs/row/R42580.pdf
/8 http://www.ieo-imf.org/ieo/files/completedevaluations/BP043.pdf
/9 http://www.iranchamber.com/history/iran_iraq_war/iran_iraq_war1.php
/10 http://www.nytimes.com/2009/01/14/world/europe/14iht-latvia.4.19364643.html
/11 https://www.imf.org/external/np/dm/2007/012507.htm
/12 https://www.imf.org/external/pubs/ft/scr/2013/cr13150.pdf
/13 https://www.lindenwood.edu/jigs/docs/volume1Issue1/essays/114-131.pdf
/14 http://andromeda.rutgers.edu/~hbf/panama.htm
/15 http://pdfproc.lib.msu.edu/?file=/DMC/African%20Journals/pdfs/transformation/tran009/tran009003.pdf
/16 http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/1999/08/15/000009265_3970701170011/Rendered/PDF/multi0page.pdf
/17 http://www.bbc.co.uk/news/world-south-asia-12024253
/18 http://www.bbc.co.uk/news/world-europe-18270325
/19 http://link.springer.com/article/10.1007/BF00690911
/20 https://www.theguardian.com/world/2003/dec/20/randeepramesh
/21 http://www.globalsecurity.org/military/world/war/chad.htm
/22 http://globalstudies.washington.edu/wp-content/uploads/2015/01/v2n1-Lopez.pdf
/23 https://www.imf.org/external/np/seminars/eng/2014/ireland/pdf/Eichengreen_IrishCrisisEU.pdf
/24 http://www.brie.berkeley.edu/publications/WP%2085.pdf

Table A.4: Data Variables, Definition and Sources

Covariate	Unit	Definition	Source
Consumption	% of GDP	Final consumption expenditure (formerly total consumption) is the sum of household final consumption expenditure (private consumption) and general government final consumption expenditure (general government consumption). This estimate includes any statistical discrepancy in the use of resources relative to the supply of resources.	WDI
Gross Capital Formation	% of GDP	Gross capital formation (formerly gross domestic investment) consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales, and "work in progress." According to the 1993 SNA, net acquisitions of valuables are also considered capital formation.	WDI
Imports	% of GDP	Imports of goods and services represent the value of all goods and other market services received from the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments.	WDI
Exports	% of GDP	Exports of goods and services represent the value of all goods and other market services provided to the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments.	WDI
Fuel Exports	% of Merchandise Exports	Fuels comprise SITC section 3 (mineral fuels).	WDI
Fuel Imports	% of Merchandise Imports	Fuels comprise the commodities in SITC section 3 (mineral fuels).	WDI
Secondary School Enrollement	%	Gross enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown. Secondary education completes the provision of basic education that began at the primary level, and aims at laying the foundations for lifelong learning and human development, by offering more subject- or skill-oriented instruction using more specialized teachers.	WDI
Broad Money	% of GDP	Broad money (IFS line 35L..ZK) is the sum of currency outside banks; demand deposits other than those of the central government; the time, savings, and foreign currency deposits of resident sectors other than the central government; bank and traveler's checks; and other securities such as certificates of deposit and commercial paper.	WDI
Polity2	Score between -10 (strongly autocratic) and 10 (strongly democratic)	The Polity conceptual scheme is unique in that it examines concomitant qualities of democratic and autocratic authority in governing institutions, rather than discreet and mutually exclusive forms of governance. This perspective envisions a spectrum of governing authority that spans from fully institutionalized autocracies through mixed, or incoherent, authority regimes (termed "anocracies") to fully institutionalized democracies.	Polity IV Project

Table A.5: Real GDP Characteristics of Countries that Experienced Mass Political Instability

Albania

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	1,835.0	1,745.9
Consumption	97.0	88.8
GCF	22.3	24.0
Exports	13.8	23.1
Imports	33.0	35.9
School Enrollment	81.3	56.2
Polity2	-1.9	0.6

Synthetic Control: Bulgaria (0.007); Burundi (0.291); Georgia (0.096); Mongolia (0.352); Peru (0.254).

Bahrain

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	21,914.3	21,794.2
Consumption	63.2	67.9
GCF	21.9	26.3
Exports	77.9	62.7
Imports	62.9	56.8
Net Fuel Exports	16.2	17.2
School Enrollment	100.1	85.2
M2	68.6	56.4
Polity2	-7.8	-3.6

Synthetic Control: Azerbaijan (0.13); Belarus (0.255); Malaysia (0.174); Oman (0.088); Saudi Arabia (0.074); Switzerland (0.087); United Arab Emirates (0.192).

Bolivia

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	1,489.3	1,496.5
Consumption	89.1	88.8
GCF	16.2	16.3
Exports	21.4	27.4
Imports	26.6	32.4
Net Fuel Exports	3.2	2.6
School Enrollment	78.0	44.4
M2	36.7	32.5
Polity2	8.9	2.3

Synthetic Control: El Salvador (0.243); Ghana (0.106); Madagascar (0.171); Nigeria (0.164); Panama (0.01); Philippines (0.266); Togo (0.04).

Chile

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	4,181.5	4,191.2
Consumption	82.9	82.9
GCF	17.7	17.7
Exports	13.2	13.2
Imports	13.8	13.8
Net Fuel Exports	-0.8	1.4
School Enrollment	52.8	27.0
M2	16.7	20.5
Polity2	5.7	1.7

Synthetic Control: Australia (0.035); Chad (0.219); Ecuador (0.021); Ghana (0.111); India (0.352); Madagascar (0.007); Mauritania (0.077); Senegal (0.01); United States (0.074); Venezuela, RB (0.094).

Table A.5 (continued): Real GDP Characteristics of Countries that Experienced Mass Political Instability

Egypt, Arab Rep.

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	2,116.8	2,139.3
Consumption	85.5	85.6
GCF	19.8	19.9
Exports	23.4	23.5
Imports	28.7	28.8
Net Fuel Exports	2.3	0.5
School Enrollment	75.7	42.6
M2	85.9	54.4
Polity2	-5.1	-0.6

Synthetic Control: Bolivia (0.177); Canada (0.01); Central African Republic (0.239); China (0.213); Djibouti (0.031); Guinea-Bissau (0.099); Kazakhstan (0.01); Oman (0.026); Rwanda (0.086); Zimbabwe (0.11).

Fiji

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	3,167.8	3,174.1
Consumption	84.2	87.3
GCF	17.9	16.8
Exports	56.3	39.6
Imports	58.4	43.7
Net Fuel Exports	-6.3	-1.6
School Enrollment	78.0	42.4
M2	46.8	43.2
Polity2	4.5	3.2

Synthetic Control: Canada (0.009); El Salvador (0.175); Malaysia (0.153); Namibia (0.322); Senegal (0.113); Sierra Leone (0.228).

Georgia

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	1,484.1	1,536.0
Consumption	101.4	96.1
GCF	20.1	20.9
Exports	27.9	34.4
Imports	49.3	51.3
Net Fuel Exports	-5.0	6.5
School Enrollment	81.3	81.2
M2	8.4	23.8
Polity2	4.7	-1.2

Synthetic Control: Armenia (0.409); Azerbaijan (0.554); Mozambique (0.038).

Guinea

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	409.7	409.6
Consumption	82.5	90.9
GCF	19.5	18.9
Exports	26.9	18.5
Imports	28.8	28.2
Net Fuel Exports	-3.7	-3.7
School Enrollment	17.5	26.9
Polity2	-3.2	1.1

Synthetic Control: Burkina Faso (0.045); Nepal (0.54); Niger (0.369); Papua New Guinea (0.008); Tajikistan (0.038).

Table A.5 (continued): Real GDP Characteristics of Countries that Experienced Mass Political Instability

Haiti

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	747.1	758.7
Consumption	95.3	95.3
GCF	27.1	24.5
Exports	12.5	13.3
Imports	35.0	33.3
M2	39.1	39.0
Polity2	0.2	0.2

Synthetic Control: Argentina (0.042); Bangladesh (0.171); Bhutan (0.013); Eritrea (0.136); Mozambique (0.264); Uganda (0.373).

Honduras

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	1,770.4	1,776.9
Consumption	83.1	78.1
GCF	28.8	28.3
Exports	45.6	39.6
Imports	57.6	46.1
Net Fuel Exports	-8.0	-2.7
School Enrollment	47.9	48.6
M2	41.9	40.9
Polity2	6.4	-0.3

Synthetic Control: Bhutan (0.259); China (0.089); Gambia (0.187); Guatemala (0.039); Malaysia (0.021); Moldova (0.13); Paraguay (0.274).

Iran, Islamic Rep.

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	4,670.4	4,719.6
Consumption	65.1	63.1
GCF	65.1	63.1
Exports	21.0	24.7
Imports	20.8	20.7
Net Fuel Exports	14.6	10.2
School Enrollment	70.5	59.8
M2	43.8	81.7
Polity2	-3.0	-3.0

Synthetic Control: Algeria (0.278); Australia (0.03); China (0.493); India (0.052); Sudan (0.051); Venezuela, RB (0.097).

Italy

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	25,818.5	25,862.6
Consumption	76.6	76.2
GCF	76.6	76.2
Exports	19.3	18.8
Imports	19.5	18.9
Net Fuel Exports	-3.2	-1.5
School Enrollment	72.2	80.0
Polity2	10.0	6.3

Synthetic Control: France (0.356); Ghana (0.179); Japan (0.237); Norway (0.134); United States (0.054); Uruguay (0.04).

Table A.5 (continued): Real GDP Characteristics of Countries that Experienced Mass Political Instability

Jordan

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	3,429.8	3,469.8
Consumption	98.7	86.6
GCF	27.5	27.6
Exports	50.1	60.6
Imports	76.3	74.7
Net Fuel Exports	-10.2	-9.3
School Enrollment	86.0	67.9
M2	118.5	81.9

Synthetic Control: Synthetic Control: China (0.138); Djibouti (0.21); Grenada (0.086); Guyana (0.356); Hong Kong SAR, China (0.045); Moldova (0.13); Zimbabwe (0.035).

Kenya

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	872.1	873.4
Consumption	82.0	85.4
GCF	82.0	85.4
Exports	27.5	27.2
Imports	31.0	34.4
M2	32.0	22.9
Polity2	-6.2	-6.1

Synthetic Control: Bhutan (0.247); Botswana (0.016); Cameroon (0.152); Honduras (0.062); Mauritania (0.066); Philippines (0.016); Saudi Arabia(0.003); Sierra Leone (0.363); Togo (0.076).

Kyrgyz Republic

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	744.3	755.4
Consumption	93.1	94.5
GCF	19.9	19.3
Exports	35.7	32.4
Imports	46.0	46.3
School Enrollment	91.4	35.3
M2	15.9	23.0
Polity2	-3.0	0.0

Synthetic Control: Chad (0.127); Equatorial Guinea (0.004); Gambia (0.348); Lesotho (0.009); Moldova (0.237); Rwanda (0.065); Togo (0.21).

Morocco

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	2,259.8	2,255.3
Consumption	76.9	76.8
GCF	29.2	29.2
Exports	27.0	26.9
Imports	33.1	33.0
Net Fuel Exports	-4.8	-1.8
School Enrollment	44.3	47.6
M2	76.5	62.0
Polity2	-6.5	-0.1

Synthetic Control: Algeria (0.026); Bhutan (0.169); China (0.146); Djibouti (0.036); India (0.306); Moldova (0.012); Mozambique (0.01); Rwanda (0.004); Suriname (0.059); Switzerland (0.009); Togo (0.092); Zimbabwe (0.13).

Table A.5 (continued): Real GDP Characteristics of Countries that Experienced Mass Political Instability

Nigeria

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	1,511.3	1,541.1
Consumption	72.6	84.6
GCF	22.8	18.5
Exports	23.8	24.5
Imports	17.3	27.7
Net Fuel Exports	29.3	-0.3
School Enrollment	18.9	15.3
M2	23.6	23.6
Polity2	-3.0	-6.7

Synthetic Control: Argentina (0.036); China (0.031); Cote d'Ivoire (0.332); Gabon (0.003); Iran, Islamic Rep. (0.086); Niger (0.511).

Pakistan

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	713.9	711.9
Consumption	88.7	87.3
GCF	18.8	18.8
Exports	13.9	14.3
Imports	21.3	20.5
Net Fuel Exports	-3.6	-1.8
School Enrollment	19.9	23.3
M2	42.7	29.7
Polity2	1.2	-2.6

Synthetic Control: Bangladesh (0.456); Benin (0.113); China (0.159); Gambia (0.061); Japan (0.006); Sierra Leone (0.204).

Paraguay

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	2,624.7	2,634.7
Consumption	73.4	86.7
GCF	21.0	20.9
Exports	55.1	40.0
Imports	49.6	47.7
Net Fuel Exports	-3.0	-2.5
School Enrollment	33.7	35.0
M2	24.1	26.9

Synthetic Control: Belize (0.174); Ecuador (0.012); Gambia (0.552); Iceland (0.045); Indonesia (0.18); Panama (0.037).

Peru

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	4,606.5	4,639.9
Consumption	75.6	76.4
GCF	32.3	29.9
Exports	71.9	66.2
Imports	79.7	72.4
Net Fuel Exports	-4.7	-3.3
School Enrollment	60.3	64.1
M2	48.6	60.9
Polity2	1.5	-1.1

Synthetic Control: Fiji (0.003); Gabon (0.169); Guyana (0.629); Honduras (0.128); Indonesia (0.004); New Zealand (0.028); Norway (0.006); Oman (0.002); Peru (0.032).

Table A.5 (continued): Real GDP Characteristics of Countries that Experienced Mass Political Instability

Philippines

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	1,390.3	1,459.6
Consumption	76.2	85.1
GCF	26.0	19.3
Exports	20.6	22.0
Imports	22.9	26.3
Net Fuel Exports	-3.8	-2.7
School Enrollment	54.7	48.6
M2	24.3	25.5
Polity2	-3.1	3.8

Synthetic Control: Ghana (0.125); India (0.063); Korea, Rep. (0.08); Peru (0.1); Sri Lanka (0.59); Uruguay (0.042).

Portugal

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	7,698.4	7,758.6
Consumption	77.5	52.7
GCF	28.7	19.6
Exports	19.5	25.2
Imports	24.3	-1.4
Net Fuel Exports	-1.5	32.7
School Enrollment	42.0	0.0
Polity2	-8.6	5.0

Synthetic Control: Algeria (0.006); Congo, Rep. (0.082); Israel (0.102); Japan (0.351); Korea, Rep. (0.304); Malaysia (0.149); Thailand (0.007).

Spain

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	13,491.5	13,515.0
Consumption	74.3	74.3
GCF	28.2	29.1
Exports	10.7	17.6
Imports	13.1	20.5
Net Fuel Exports	-1.7	-1.9
School Enrollment	63.3	73.9
Polity2	-5.7	4.0

Synthetic Control: Ecuador (0.062); Finland (0.238); Indonesia (0.003); Japan (0.267); Korea, Rep. (0.13); Norway (0.065); Portugal (0.236).

Thailand

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	3,317.6	3,314.2
Consumption	67.7	66.5
GCF	31.3	29.4
Exports	46.1	48.4
Imports	45.1	44.3
Net Fuel Exports	-3.8	4.3
School Enrollment	48.0	52.3
M2	90.3	78.1
Polity2	6.7	-1.0

Synthetic Control: China (0.156); Ghana (0.005); Guinea-Bissau (0.046); Indonesia (0.449); Malaysia (0.339); Papua New Guinea (0.005).

Table A.5 (continued): Real GDP Characteristics of Countries that Experienced Mass Political Instability

Togo

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	514.2	540.8
Consumption	94.5	93.6
GCF	16.1	17.0
Exports	36.0	25.5
Imports	46.6	36.0
Net Fuel Exports	-6.5	-2.7
School Enrollment	26.0	25.6
M2	31.1	19.7
Polity2	-3.9	-1.2

Synthetic Control: Benin (0.003); Burundi (0.007); Congo, Rep. (0.023); Ghana (0.142); Jordan (0.004); Malawi (0.756); Senegal (0.066).

Tunisia

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	3,287.7	3,298.7
Consumption	78.3	78.2
GCF	25.2	25.1
Exports	43.5	43.5
Imports	47.0	46.9
Net Fuel Exports	-0.7	1.4
School Enrollment	71.3	66.0
M2	51.3	53.3
Polity2	-3.7	5.2

Synthetic Control: Belarus (0.041); Bhutan (0.072); Bolivia (0.188); Botswana (0.059); Congo, Rep. (0.054); Guinea-Bissau (0.037); Honduras (0.081); India (0.067); Malaysia (0.02); Mauritius (0.232); Mozambique (0.001); Sri Lanka (0.007); Swaziland (0.001); Trinidad and Tobago (0.027); Zimbabwe (0.049).

Turkey

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	7,665.3	7,625.7
Consumption	80.3	79.7
GCF	21.8	21.2
Exports	19.7	20.9
Imports	21.8	21.8
Net Fuel Exports	-2.7	1.6
School Enrollment	66.1	72.0
M2	33.2	33.3
Polity2	7.6	7.0

Synthetic Control: Argentina (0.214); China (0.007); Colombia (0.474); Guinea-Bissau (0.052); India (0.007); Korea, Rep. (0.108); Moldova (0.048); Sweden (0.032); Trinidad and Tobago (0.035); Venezuela, RB (0.023).

Ukraine

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	2,095.2	2,051.8
Consumption	76.1	77.1
GCF	22.5	23.0
Exports	51.2	47.5
Imports	49.8	47.4
Net Fuel Exports	-13.5	1.8
School Enrollment	100.2	66.7
M2	22.2	24.2
Polity2	6.5	2.4

Synthetic Control: Congo, Rep. (0.149); India (0.251); Mongolia (0.087); Russian Federation (0.172); Tajikistan (0.342).

Table A.5 (continued): Real GDP Characteristics of Countries that Experienced Mass Political Instability

Yemen

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	1,183.9	1,181.6
Consumption	86.6	91.3
GCF	19.2	19.3
Exports	30.7	26.2
Imports	36.6	36.7
M2	36.8	29.9
Polity2	-2.3	-1.8

Synthetic Control: Algeria (0.002); Cameroon (0.074); Mozambique (0.131); Norway (0.003); Pakistan (0.218); Rwanda (0.013); Sudan (0.015); Swaziland (0.122); Tanzania (0.275); Togo (0.074); Zimbabwe (0.074).

Table A.6: Real GDP Characteristics of Countries that Only Experienced Political Regime Crises

Angola

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	2,689.8	2,712.1
Consumption	67.8	74.2
GCF	22.2	22.6
Exports	68.9	47.4
Imports	58.9	44.1
School Enrollment	16.1	53.7
M2	23.3	23.5
Polity2	25.9	24.6

Synthetic Control: Azerbaijan (0.378); Congo, Rep. (0.28); Djibouti (0.093); Niger (0.179); Nigeria (0.034); Oman (0.037).

Australia

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	23,706.5	23,905.3
Consumption	68.8	68.8
GCF	31.7	29.0
Exports	13.1	27.4
Imports	13.6	25.4
School Enrollment	80.8	74.2
M2	46.2	46.3
Polity2	10.0	9.4

Synthetic Control: Israel (0.009); Japan (0.016); Norway (0.301); Sweden (0.458); Venezuela, RB (0.216).

Ecuador

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	4,049.8	4,052.2
Consumption	78.8	78.8
GCF	22.2	22.2
Exports	24.6	24.8
Imports	25.7	25.9
Net Fuel Exports	8.0	5.0
School Enrollment	58.8	63.5
M2	22.0	32.4
Polity2	7.4	6.0

Synthetic Control: Argentina (0.006); Bangladesh (0.001); Colombia (0.508); Congo, Rep. (0.052); Gabon (0.059); India (0.146); Madagascar (0.049); Mexico (0.031); Moldova (0.022); Mozambique (0.041); Ukraine (0.085).

Estonia

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	4,181.5	4,191.2
Consumption	82.9	82.9
GCF	17.7	17.7
Exports	13.2	13.2
Imports	13.8	13.8
Net Fuel Exports	-0.8	1.4
School Enrollment	52.8	27.0
M2	16.7	20.5
Polity2	5.7	1.7

Synthetic Control: Bulgaria (0.27); Congo, Rep. (0.059); Equatorial Guinea (0.037); Ireland (0.129); Jordan (0.011); Lithuania (0.182); Malaysia (0.119); Panama (0.192).

Table A.6 (continued): Real GDP Characteristics of Countries that Only Experienced Political Regime Crises

Gambia

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	524.2	522.3
Consumption	94.0	89.4
GCF	17.6	19.8
Exports	42.5	24.9
Imports	54.1	34.1
Net Fuel Exports	-4.3	-3.2
School Enrollment	15.2	15.8
M2	22.4	25.6
Polity2	7.6	-6.6

Synthetic Control: Burundi (0.256); Egypt, Arab Rep. (0.059); Guyana (0.013); Malawi (0.388); Papua New Guinea (0.078); Sierra Leone (0.084); Togo (0.12).

Ghana

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	1,014.5	1,014.6
Consumption	89.1	93.6
GCF	13.5	11.1
Exports	18.9	16.9
Imports	21.4	21.6
Net Fuel Exports	-2.0	-1.3
School Enrollment	38.3	16.8
M2	22.0	18.1
Polity2	-5.8	-2.2

Synthetic Control: Guyana (0.033); Madagascar (0.853); Peru (0.114).

Malaysia

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	2,957.3	2,980.7
Consumption	71.4	79.2
GCF	25.3	25.4
Exports	49.7	42.2
Imports	46.5	46.9
Net Fuel Exports	3.2	2.6
M2	75.1	33.6
Polity2	4.3	2.1

Synthetic Control: Algeria (0.087); China (0.02); India (0.031); Indonesia (0.163); Singapore (0.127); Sri Lanka (0.522); Trinidad and Tobago (0.068).

Niger

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	345.2	361.2
Consumption	94.8	99.9
GCF	15.0	15.1
Exports	16.8	15.6
Imports	26.5	30.6
Net Fuel Exports	-3.3	-3.2
School Enrollment	7.9	15.3
M2	14.1	21.3
Polity2	2.5	2.7

Synthetic Control: Burundi (0.519); Madagascar (0.417); Senegal (0.064).

Table A.6 (continued): Real GDP Characteristics of Countries that Only Experienced Political Regime Crises

Slovak Republic

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	12,595.0	12,428.9
Consumption	75.3	73.6
GCF	28.6	27.5
Exports	63.6	58.9
Imports	67.4	60.4
Net Fuel Exports	-4.4	1.9
School Enrollment	89.8	85.5
M2	59.7	60.7
Polity2	8.7	8.6

Synthetic Control: Bulgaria (0.001); Czech Republic (0.487); Guyana (0.14); Hungary (0.001); Lesotho (0.044); Malaysia (0.054); Mauritius (0.001); Sweden (0.006); Trinidad and Tobago (0.262).

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