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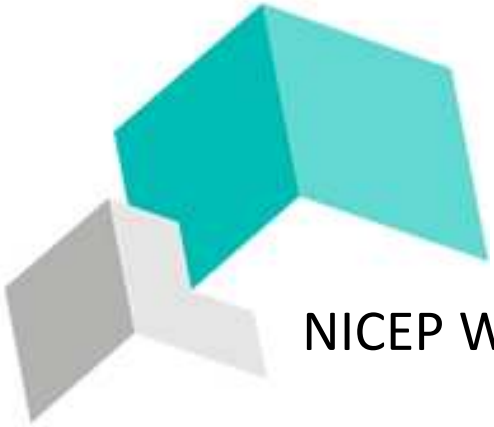

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The economic impact of political instability and mass civil protest

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The Economic Impact of Political Instability and Mass Civil Protest

by

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Abstract

An extensive literature has examined the economic effects of non-violent political instability events. Nonetheless, the issue of whether economies react differently over time to such events remains largely unexplored. 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. Furthermore, this paper provides new evidence that regime crises (with and without mass civil protest) have heterogeneous (country-specific) effects on output per capita.

Keywords: Political Instability, Civil Protest, Economic Crisis, Economic Recovery, Synthetic Control Method.

JEL Classification: C23, F43, P16.

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1. Introduction

There is consensus in the political economy literature that armed conflicts and politically motivated violence such as assassinations depress economic 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 et al. (1996) and Jong-A-Pin (2009) find a negative impact of political instability on growth, but with different measures of political instability and econometric approaches. Leadership changes in less democratic regimes can also affect the growth rate, either positively or negatively (Collier and Hoeffler, 2015; Jones and Olken, 2005). In addition, the issue of whether countries recover the output loss from such political instability events by catching up later, or whether the loss is permanent, remains largely unexamined. This is particularly relevant because research has shown that major "disruptive events" such as unusually deep recessions or currency crises tend to cause permanent output losses (Cerra et al., 2013; Cerra and Saxena, 2008; Hong and Tornell, 2005).

The contribution of the present paper is thus two-fold: (1) It makes use of the recently developed synthetic control methodology (SCM) to uncover, for the first time, the output recovery path after non-violent political instability events; and (2) it shows that non-violent political regime crises have significantly larger negative output effects when 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 or cabinet ministers, major changes to the constitution or to the political regime, coups d'état 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. Such events are often, but not always, 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 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 between the actual output performance of the country and that of its synthetic counterpart. As in difference-in-difference (DiD) estimation, the aim is to find an untreated matching country with which to compare each treated country. By allowing weighted averages of other countries to act as matches, which DiD does not, SCM expands the pool of possible comparators, which is valuable when the number of untreated countries is limited. 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 real per capita GDP 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). An attractive feature of SCM is that, like DiD, it should not be affected by global economic shocks that are common to all countries in either the pre-treatment or the post-treatment period, unlike methods based on comparing the treated country just with its own past

(Calvo et al., 2006; Cerra and Saxena, 2005; Reinhart and Rogoff, 2014) or with forecasts based on projections from its own past (ESCWA, 2016).

We are careful to discard cases where other disruptive events, such as armed conflicts or earthquakes, might have affected the result, which leaves us with 38 episodes of regime crises accompanied by mass civil protest, and a further 10 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. However, these results do not tell the whole story as our empirical findings also suggest that regime crises (with and without mass civil protests) have heterogeneous effects across countries, hence improving on the previous literature which focused on evaluating the average treatment effect of political instability (Aisen and Veiga, 2013; Alesina and Perotti, 1996; Jong-A-Pin, 2009).

The remainder of the paper is structured as follows. Section **Error! Reference source not found.** provides a brief discussion of theory and a 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 **Error! Reference source not found.** reports the results for individual countries. Finally, section 7 concludes.

2. Theory and Literature Review

There are several potential mechanisms through which mass civil protest might worsen the negative impact of regime crises. One possibility is that mass protest signals the risk of more

fundamental political and economic changes in the future. Events that do not lead to protest may be "business as usual" – a changing of roles within the existing elites, but not a structural change to the day-to-day operations of businesses. However, when people go on to the streets, this might signal the threat of a major regime change – in the worst case, a revolution. Here, we are limited by our data, which records crises as simple binary events, with no measure of severity. A second mechanism is that protests and strikes may impose additional constraints on firms' operations as the cost of production indirectly increases due to transportation disruptions; labour productivity falls due to missing labour; and business meetings get delayed (Mas, 2008; Shonchoy and Tsubota, 2016). However, it is not obvious why such effects would persist for many years after the instigating event. Finally, mass civil protests are often associated with crime events such as theft, vandalism and robbery (Roberts, 2012; Roman, 2013; Tadjoeddin, 2013) which would have a direct negative effect on business confidence and investment. For instance, during and after the 2011 Tunisian revolution, political instability was a major constraint on firms located in the interior region of Tunisia which experienced the highest number of protests and strikes (Matta et al., 2018). Unfortunately, we cannot empirically investigate the validity of this channel as we do not have firm-level data that spans across all countries and time periods.

There has been a considerable volume of research on the theory and empirics of civil conflict, which is relevant here because such conflict can be regarded as political instability that is raised to the level of serious violence. Fearon and Laitin (2009) identify 139 civil wars across the globe during the period 1945-2008, of which they count 79 as ethnic and 24 ambiguously so, which suggests that ethnic tensions often play a part in political instability. The main conclusion of empirical research is that countries with little ethnic diversity have less conflict, but conflict can be high in both highly fractionalised states (with many small ethnic groups) and highly polarised ones (with two large competing groups) (Bleaney and Dimico, 2011). Cederman et al. (2009) develop a new perspective, focusing not so much on the statistics of the ethnic composition of states, but on

whether ethnic groups are part of the ruling coalition or not. They argue that conflict overwhelmingly tends to occur between the state and groups that are politically organised but are excluded from the ruling coalition. They then hypothesise that the excluded groups are more likely to engage in armed conflict when they are relatively numerous, are more distant from the capital, and/or inhabit rougher terrain, and therefore have greater chances of success, and they find some supportive evidence in the data. Applying this idea to milder forms of political instability highlights the possibility that mass civil protest may not be entirely spontaneous but may be part of a strategic decision by opposition political groups. In short, the occurrence of mass political protest may sometimes reflect a deliberate decision to escalate a challenge for political power, and therefore have greater effects on the economy than when such activity is absent.

However, it is still difficult to judge whether any statistical association between mass civil protest (MCP) and the likelihood of significant negative economic effects of political instability arises because MCP actually causes these economic effects, or whether it is just a symptom of some other factor or a particularly deep crisis, and less deep ones do not have similar effects. To address this issue, we attempt to differentiate between more and less intense regime crises. If the estimated MCP effect can be entirely explained by the intensity of the political crisis, that would tend to suggest that MCP is not causative. It is also possible to test whether the forms of MCP that have more obvious economic consequences (strikes rather than riots or demonstrations) are associated with larger output losses.

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 (Barro, 1991; Fosu, 2001), although Alesina et al. (1996) also include constitutional government changes, provided that they represent a significant chance in ideology. 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 Exploratory Factor Analysis (EFA) on 25 measures of instability previously used in the literature (see Table A.1 in the appendix for details).[1] 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.[2] 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

[1] All tables and figures that start with an "A" are in the appendix.

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

natural disasters respectively. Only the last of these uses the synthetic control methodology (SCM) that we employ here. Matta et al. (2019) 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,[3] 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: there is a coup, a major constitutional change and/or a major government crisis.[4]

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,[5] we use the 2015 version of the CNTS, which compiles political instability indicators based on the daily editions of the New York Times.[6] 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.

[3] For an extensive review, see Blattman and Miguel (2010).

[4] 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).

[5] 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 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).

[6] 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.

In certain cases, however, episodes of political instability occurred in the midst of large-scale natural disasters (floods, earthquakes, hurricanes). To accurately capture the economic impact of political instability and minimize potential biases, we exclude these episodes 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 was available only from 2000, five years after the coup has happened. Overall, we omit 28 episodes. **Error! Reference source not found.** 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 48 events presented in Table A.4, of which 38 are accompanied by mass civil protest (panel I), while 10 are not (panel II).

4. Empirical Method

Synthetic Control Methodology (SCM), which is considered by Athey and Imbens (2017) 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).

SCM is a generalization of the matching and difference-in-difference (DiD) techniques conventionally employed in large microeconomic 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 allowing the use of weighted averages of other units as the counterfactual. This requires a reasonable number of pre-treatment observations for each unit 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 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; Billmeier and Nannicini, 2013). 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),[7] 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

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

[7] Matta et al. (2019) explain in details the assumptions of SCM.

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. This selection 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 to 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).[8] We also exclude all control countries that experienced mass political turmoil and/or were impacted by an exogenous shock (natural disaster, war, etc.) during the corresponding post-treatment year.[9] For example, we omitted Arab Spring countries (Egypt, Tunisia, Libya, Yemen, etc.) as many Arab countries experienced some of the same political problems since 2011. 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

[8] The cases of Bahrain and Ukraine are special as the structure of these economies are very similar to their neighbours (other GCC countries in the case of Bahrain and Russia in the case of Ukraine), meaning that we could not get reliable counterfactuals after omitting neighboring countries. However, the removal of Bahrain and Ukraine from our sample does not impact our main results.

[9] The list of countries that were excluded from the set of controls corresponding to each political regime crisis that occurred with *(without)* mass civil protests can be found in Table OA.1.1 (*Table OA.1.2)* in the online appendix.

[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.

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 (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, to avoid distortion from cyclical variation, we use ten-year average values rather than each annual observation.[14] We also add four-year averages of per capita GDP to our set of covariates. 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.[15] Table A.5 provides the definition, unit and source of each variable.

[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.

[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 **Error! Reference source not found.**.

[14] In other words we use the average value of years 1 to 10 for the first half of the pre-treatment period, and the average of years 11 to 20 for the second half.

[15] 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.

5. Economic Effects of Political Regime Crises

5.1 With Mass Civil Protest

Figure A.1 depicts the evolution of actual minus counterfactual real GDP per capita (as a percentage of the actual figure) in the 38 countries that experienced a regime crisis accompanied by mass civil protest (which is termed here a "mass political instability event"), together with the average across the 38 countries. The average is very close to zero for the pre-treatment period, but turns markedly negative after the political crisis, with the gap increasing over time up to year T+5, although with some signs of levelling off.[16] This implies not only that the immediate output loss is not recovered, but that output losses continue to accumulate over the subsequent five years.

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:

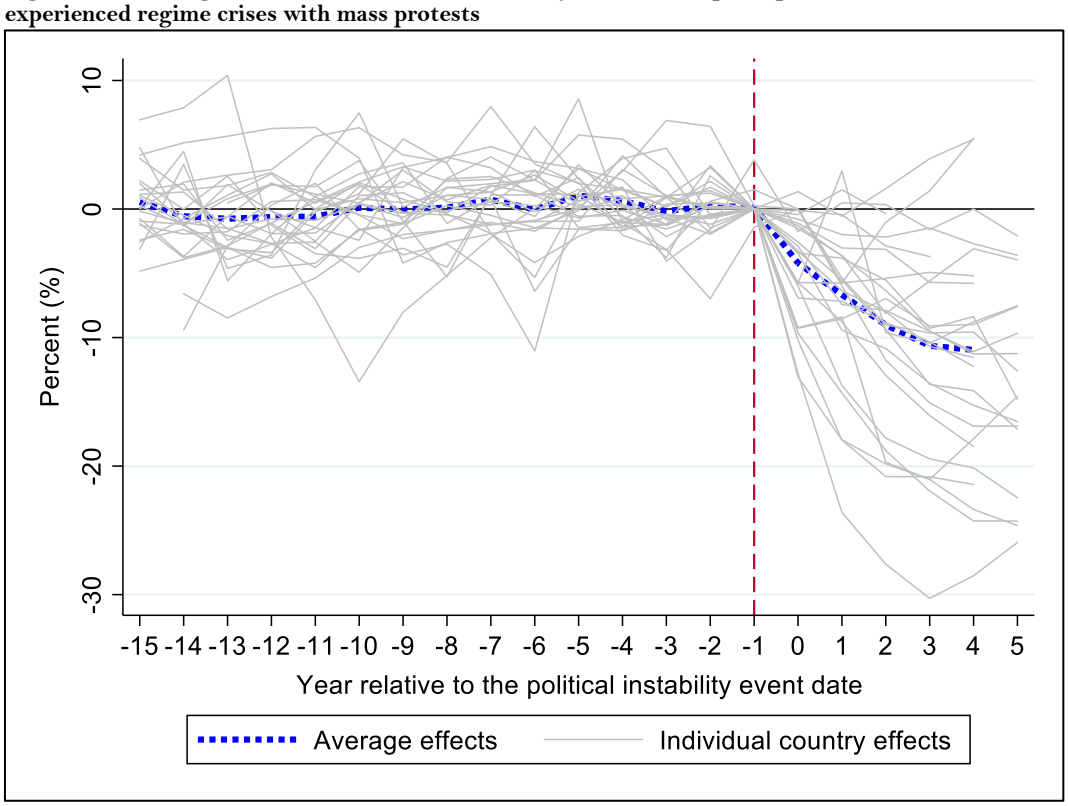
$$Diff_{i,t} = \left(\frac{A_{i,t} - S_{i,t}}{A_{i,t}}\right) \times 100 \;\; for\; t \leq T + 5. \tag{3}$$

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 calendar year, and T is the event year during which political turmoil occurred. Table 1 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

[16] For the graphs of the actual and synthetic GDP for each country, see Appendix Figure A.1.

event, the actual GDP per capita is, on average, 4.3 percent lower than its counterfactual.[17] Moreover, we find that during the next five years, the percentage difference increases gradually from 6.7 percent in year T+1 to 13.5 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,[18] but even that would imply that the initial output loss was, on average, never recovered.

Figure 1: Percentage difference between actual and synthetic GDP per capita for countries that experienced regime crises with mass protests



Source: Authors' own calculations. Note: The grey lines represent the SCM results for individual countries that experienced regime crises with mass protests, while the blue dashed line represents the average results across all the countries.

[17] It should be noted, however, that the significance of *Diff* is exaggerated to the extent that it takes no account of uncertainty about the accuracy of the weights used in the counterfactual.

[18] The Wald test for joint significance of the recovery coefficients (T+1,…,T+5) had a p-value of 0.39.

Table 1: Percentage Difference in GDP by Year - Mass Political Instability Events

	N	mean	sd	min	max
T-2	32.0	0.1	2.6	-7.0	6.4
T-1	32.0	0.1	0.8	-1.4	3.8
T	32.0	-4.3***	4.7	-18.6	1.4
T+1	32.0	-6.7***	6.5	-23.6	3.0
T+2	32.0	-9.0***	7.6	-27.6	1.7
T+3	30.0	-10.6***	8.6	-30.3	3.9
T+4	29.0	-11.5***	9.3	-29.3	5.5
T+5	19.0	-13.5***	7.2	-25.9	-2.1

Source: Authors' own calculations. Notes: T denotes the year of the political instability event. We exclude Albania, Peru, Togo, Argentina, Venezuela, Cote d'Ivoire 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 the output effect of other disruptive events such as currency crises, banking crises and exceptionally deep recessions. 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 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 deep recession in which growth turns negative tends to be slower than after milder recessions, and that this is particularly true of recessions associated with banking crises.

However, the differences in the means in Table 1 do not tell the whole story, as the trajectories of actual and synthetic GDP per capita are not uniform across countries. For instance, actual GDP per capita of Haiti fell sharply and then remained flat compared to its estimated counterfactual, whereas in Kyrgyzstan actual per capita GDP fell initially but bounced back to its counterfactual level four years later, and in Thailand it 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. To test our conjecture, we apply the SCM used above on the set of nine countries listed in panel II of Table A.4 which, according to the CNTS database, experienced major changes in the political regime

without being accompanied by mass civil protest. Figure A.2 below illustrates the path of the actual and counterfactual real GDP per capita for these countries, while Table A.7 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 A.2 and Figure A.3 that the estimated counterfactuals for Angola and Ghana 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.

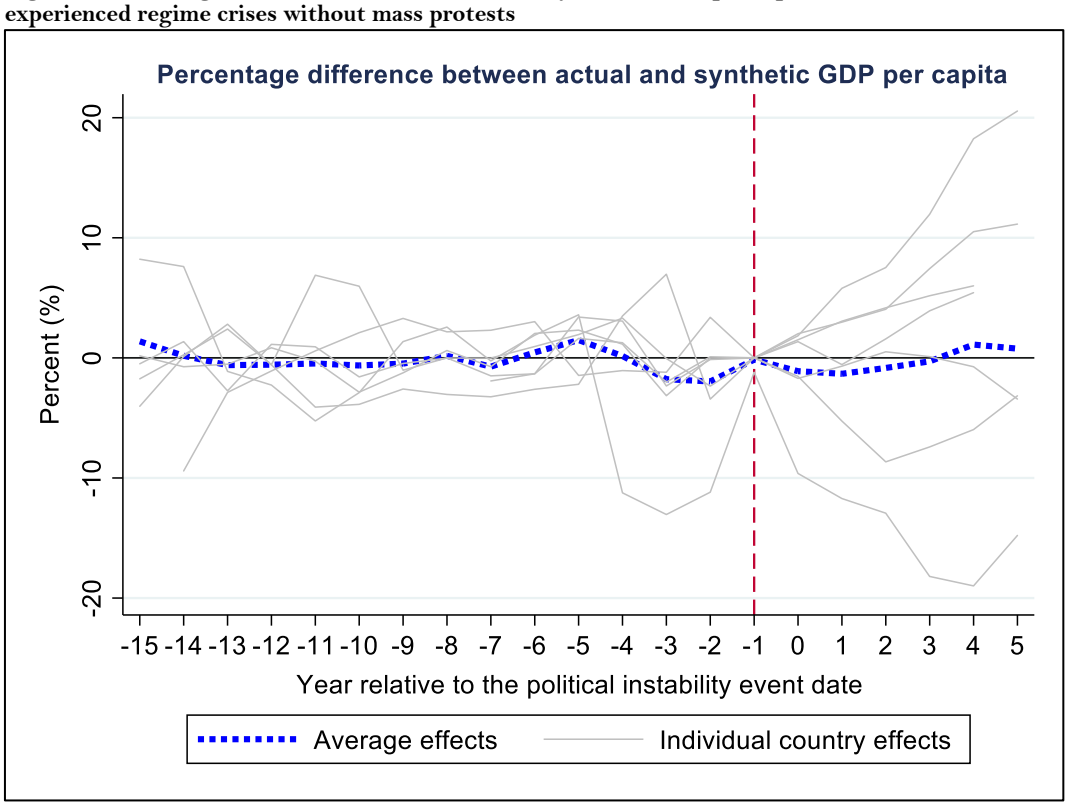
A visual inspection of the graphs in .

We 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 3. 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.

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 2 confirms our observation as the estimated output gap between the actual and synthetic per capita GDP is, on average, only minus 1.1 percent during the event year but turns positive thereafter, in stark contrast with the 4.3 percent average drop in the case of mass political instability reported in Table 1. 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.

We 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 3. 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.

Figure 2: Percentage difference between actual and synthetic GDP per capita for countries that experienced regime crises without mass protests



Source: Authors' own calculations. Note: The grey lines represent the SCM results for individual countries that experienced regime crises with mass protests, while the blue dashed line represents the average results across all the countries.

Table 2: Percentage Difference in GDP by Year - Regime Crises without Mass civil protest

	N	mean	sd	min	max
T-2	8.0	-2.0	4.3	-11.2	3.4
T-1	8.0	-0.1	0.4	-1.2	0.0
T	8.0	-1.1	3.9	-9.6	2.0
T+1	8.0	0.1	3.7	-5.3	5.8
T+2	8.0	0.9	4.9	-8.7	7.5
T+3	8.0	2.3	6.4	-7.4	12.0
T+4	8.0	3.8	8.2	-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.

Table 3: 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	-4.146***	-5.940***	-8.838***	-11.161***	-13.118***	-14.249***
	(1.176)	(1.685)	(2.410)	(3.076)	(3.703)	(5.172)
Constant	-0.407	-0.282	1.243	2.330	3.798	3.674
	(0.731)	(1.255)	(1.870)	(2.297)	(2.810)	(4.185)
Observations	35	35	35	33	32	22

Source: Author's own calculations. Notes: Bootstrapped standard errors in parentheses. *, **, *** indicate significance levels of 10%, 5%, and 1%, respectively.

6. Significance of the Results

The SCM procedure generates a point estimate of the path of output of the counterfactual in each year, and not a confidence interval. However, it is possible to do some comparisons of the post-crisis evolution of the estimated percentage difference between actual and synthetic GDP ($Diff_{i,t}$) with the pre-crisis difference. For each country we regress $Diff_{i,t}$ on two dummy variables: the first ($Event_{i,t}$) takes the value 1 only in the year of the political instability event (year T), while the second ($Post_{i,t}$) takes the value 1 in each of the subsequent five years only (years T+1 to T+5). In other years both variables are zero. More specifically, we estimate the following regression for each of the countries that suffered from major political regime crises:[19]

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

The regression sample starts from the beginning of the data set and ends five years after the political instability event in each case, so data after year T+5 are not used. The intercept c is a

[19] 38 were accompanied by mass civil protest, while 10 were not. As mentioned earlier, we exclude from our sample Peru, 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.

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 $\beta_2\,\beta_1$ 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). If β_2 is less negative than β_1, that indicates some recovery of the output lost in period T, whereas if it is more negative, there is further output loss after period T.

Table 4 reports the estimation results for each country: the point estimates of β_1 and β_2, their t-statistics and the number of observations. Panel I contains the findings for the countries that experienced major political crises with mass civil protest, and the findings for those without MCP are shown in Panel II. In Panel I, out of the 32 cases, 23 (71.9%) had a significantly negative β_1 coefficient, implying that these countries were considerably damaged by mass political instability during the event year. Moreover, in 25 cases (78.1%) the β_2 coefficients are significantly negative, indicating that the actual GDP per capita did not fully recover its initial output loss. In panel II, on the other hand, out of eight cases, only Australia, Ecuador and The Gambia had significantly negative β_1 and only two (Australia and The Gambia) had significantly negative β_2. In summary, these findings 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 4: Time Series Regressions for Individual Countries

Country	β_1		β_2		Obs
	Coeff.	t-stat	Coeff.	t-stat	
	Panel I - *with* mass popular protests				
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	1.37	1.44	2.61	1.67	19
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
Philippines	-12.90	-33.33***	-27.29	-23.71***	27
Portugal	-7.78	-7.43***	-6.75	-6.01***	21
Spain	-3.28	-4.93***	-12.97	-9.05***	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
Bulgaria	-5.65	-8.57***	-6.55	-2.67**	23
Greece	-10.14	-12.58***	-20.20	-18.74***	26
Indonesia	-12.47	-21.61***	-20.77	-16.24***	26
Latvia	1.43	1.1	-3.89	-2.97***	19
South Africa	-0.35	-0.74	-13.67	-6.79***	26
Algeria	0.06	0.05	-9.18	-5.76***	18
	Panel II - *without* mass popular protests				
Australia	-2.76	-4.36***	-4.80	-5.9***	21
Ecuador	-1.70	-5.39***	-0.84	-1.16	27
Estonia	1.73	1.89*	12.71	4.11***	13
Gambia, The	-1.86	-2.4**	-6.42	-5.44***	27
Malaysia	1.78	3.05***	6.99	4.19***	27
Niger	5.19	5.36***	11.37	5.48***	27
Slovak Republic	3.82	4.17***	6.91	6.35***	24
Ireland	1.37	1.44	2.61	1.67	19

Source: Author's own calculations. Notes: Robust standard errors are used. 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). We remove Albania, Peru, Togo, Argentina, Venezuela, Cote d'Ivoire, Angola and Ghana because they did not have good counterfactuals. *, **, *** indicate significance levels of 10%, 5%, and 1%, respectively.

Our results differ from those of other authors, because of different measures of political instability and also because others do not use SCM. As discussed in Section Two, Jong-A-Pin (2009) uses four measures of political instability. He estimates a GMM model of growth rates of real per capita GDP, using six non-overlapping five-year periods from 1974 to 2003. He finds that political regime crises have a significant negative effect on growth, but that mass civil protests have no effect. Aisen and Veiga (2013) estimate a similar panel regression with five-year averages of growth over the period 1960-2004. Their principal measure of political instability is what they term "cabinet changes" (the number of times per year that the head of government or more than 50% of the cabinet changes). They find that such cabinet changes, as reported in the CNTS data base, have a significant negative effect on growth. They do not test for any effects of mass civil protest. These studies differ from ours in the following major ways: (1) by using an econometric method that includes country fixed effects, they are comparing growth only with the country's own growth in other periods, and not with comparable other countries; (2) they do not explicitly test for any lagged effects on growth, so they tell us nothing about the recovery process (in their models there is no difference between an immediate post-crisis period and a pre-crisis period); and (3) they do not make any adjustment for exactly when in a five-year period the instability starts; if it starts close to the end of the period, then much of the growth effect might appear in the subsequent five-year period rather than the current one. In an earlier paper, Alesina et al. (1996) find that growth is negatively correlated with significant changes of government, using annual data from 1960 to 1982. They do not use country fixed effects but they do include regional dummies. They also do not include a lag of their government change measure, so they cannot test whether the estimated growth effects are persistent or to some extent reversed in later periods.

We may use the data in Table A.4 to estimate whether different types of regime instability or MCP make a difference. Table 5 compares the estimated output effects of: (1) no MCP; (2) MCP that is only demonstrations and/or riots, but not strikes; (3) MCP that includes strikes; (4) regime

instability that consists of only one element (usually government changes); and (5) regime instability that consists of at least two of government changes, constitutional changes and coups. To take account of the differing degrees of uncertainty about the estimated output effect in each country, we weight each coefficient by the inverse of its standard error (in other words we use the t-statistics rather than the point estimates of the coefficient). We also omit Yemen, which is a large outlier, giving us 39 countries in all.

The first row of Table 5 shows that with no mass civil protest, there is no significant fall in output, either in year T or subsequently. With MCP excluding strikes, the average t_1 is -6.95 and the average t_2 is nearly as large, at -6.29. With MCP including strikes, the average t_1 is even more negative, at -8.63, but the average t2 is much the same as without strikes, at -6.19. Turning to different types of regime instability, we see from Table 5 that the output effects are slightly larger with two or three indicators of instability than just one (the t_1 average is -6.80 compared with -5.47, and the t_2 average is -4.73 compared with -4.60). It is clear from Table 5, therefore, that what is associated with a larger negative output effect is whether there is mass civil protest, rather than the type of protest or the type of regime instability.

Table 5: Average effects on output in year T and years T+1 to T+5

	Number of countries	**t_1**	**t_2**
No mass civil protest	8	0.47	0.22
MCP without strikes	19	-6.95	-6.29
MCP with strikes	12	-8.63	-6.19
Mild regime instability	25	-5.47	-4.60
Intense regime instability	14	-6.80	-4.73

Source: Author's own calculations. Notes. "t_1" is the coefficient of the dummy variable that is equal to 1 in year T, divided by its standard error, averaged over the number of countries in that category; "t_2" is the coefficient of the dummy variable that is equal to 1 in years T+1 to T+5, divided by its standard error, averaged over the number of countries in that category. The figures in Table 5 are based on the numbers in Table 4, with Yemen omitted. "Mild regime instability" means only one "yes" in Table A.4, and "intense regime instability" means more than one "yes".

7. Conclusion

We have used synthetic control methodology to estimate the effects of certain types of political instability on the path of output up to a five-year horizon. In particular, we have focused on regime crises, and found a significant difference between crises accompanied by mass civil protest and those 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 relative to the synthetic counterfactual that is not only not recovered over the subsequent five years, but even tends to increase. This is similar to what previous research has found 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 tends 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. More importantly, our empirical approach also uncovers a high degree of heterogeneity in economies' reactions to political regime crises (with and without mass civil protest).

There are several potential mechanisms through which 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, it is not obvious why such effects would persist over time. A second possibility is that mass protests tend to be associated with

more severe and profound regime crises such as full-fledged revolutions. Here we are limited by our data, which does not include a 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. In the theory of Cederman et al. (2009), political conflict often occurs between ethnic groups in the governing coalition and excluded but politically organised ethnic groups who choose their strategy according to circumstances (for instance smaller groups are less likely to initiate armed conflict because of their lower probability of success). To the extent that mass civil protest is not purely spontaneous but is fostered by opposition groups, it may signal a more profound contest for political power. Further research is required to distinguish between these hypotheses.

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Appendix (for online publication only)

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 - Political regime crises *with* mass popular protests
Guatemala /1	2009	Political crisis followed by natural disasters in 2010 and 2011
Iran, Islamic Rep. /2	1978	Followed by the war with Iraq that started in 1980
Lebanon /3	2005	Followed by the 2006 war with Israel
Nepal /4	2002	Happened during the 1996-2006 civil war
Panama /5	1987	Panama was invaded by the U.S. in 1989
		Panel II - Political regime crises *without* mass popular protests
Afghanistan /6	1979	Soviet army invades and props up communist government
Azerbaijan /7	1993	Coup d'etat that happened during the Nagorno-Karabakh conflict which ended in 1994
Bengladesh /8	1991	Constitutional change which coincded with a cyclone that caused large economic losses
Bhutan /9	2005	Constitutional change in the midst of a guerilla war with Indian rebels
Colombia /10	1989	Government crisis during the war with the FARCS
Japan /11	1993	Government crisis that was followed by a 1995 financial crisis

/1 https://www.fas.org/sgp/crs/row/R42580.pdf ;
2/ http://www.iranchamber.com/history/iran_iraq_war/iran_iraq_war1.php;
3/ https://www.imf.org/external/np/dm/2007/012507.htm;
4/ https://www.lindenwood.edu/jigs/docs/volume1Issue1/essays/114-131.pdf
5/ http://andromeda.rutgers.edu/~hbf/panama.htm;
6/ http://www.bbc.co.uk/news/world-south-asia-12024253;
7/ http://www.bbc.co.uk/news/world-europe-18270325;
8/ http://link.springer.com/article/10.1007/BF00690911;
9/ https://www.theguardian.com/world/2003/dec/20/randeepramesh
10/ http://globalstudies.washington.edu/wp-content/uploads/2015/01/v2n1-Lopez.pdf; 11/ http://www.brie.berkeley.edu/publications/WP%2085.pdf

Table A.4: Episodes of Significant Change in the Political Regime

Country	Year	Event	Mass Civil Protests			Instability of the Political		
			Riots	Strikes	Demonstr	Gov.	Const.	Coup
Panel I - Political regime crises *with* mass popular protests								
Albania	1997	The government resigned after violent protests	yes	no	yes	yes	no	no
Algeria	1992	Head of State is assassinated	yes	no	yes	yes	no	yes
Argentina	2001	Government resigns due to widespread riots that turned into violence	yes	yes	yes	yes	no	no
Bahrain	2011	Uprisings against the regime	yes	no	yes	yes	no	no
Bulgaria	1997	Mass protests over economic crisis. Opposition boycotts parliament and calls for elections.	no	yes	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
Cote d'Ivoire	2000	The president flees in the wake of a popular uprising	yes	no	yes	yes	no	no
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
Greece	2011	Prime minister resigns over economic collapse	yes	yes	yes	yes	no	no
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
Indonesia	1998	Protests and rioting topple president following economic collapse	yes	yes	yes	yes	no	no
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
Latvia	2009	Demonstrators clash with police over austerity measures	yes	no	yes	yes	no	no
Morocco	2011	Constitutional reform following protests	yes	no	yes	no	yes	no
Myanmar**	1988	The 8-8-88 movement that called for a transition to democracy	yes	yes	yes	yes	yes	yes
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
South Africa	1990	Rioting spread across the country	yes	yes	yes	yes	no	no
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: CNTS database and online check based on BBC timeline of events.

Table A.4 (continued): Episodes of Significant Change in the Political Regime

Country	Year	Event	Mass Civil Protests			Instability of the Political		
			Riots	Strikes	Demonstr	Gov.	Const.	Coup
Panel II - Political regime crises *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
Ireland	2008	Prime minister steps down over following controversy over his financial affairs	no	no	no	yes	no	no
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
Qatar	1995	Sheikh Khalifa deposed by his son in a bloodless coup	no	no	no	no	yes	no
Slovak Republic	2011	Ruling coalition collapses after EU bailout bote	no	no	no	yes	no	no

Source: CNTS database and online check based on BBC timeline of events.

Table A.5: 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.6: Real GDP Characteristics of Countries that Experienced Mass Political Instability

Albania (1997)

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 (2011)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	21,914.3	21,915.9
Consumption	63.2	75.6
GCF	21.9	20.9
Exports	77.9	57.9
Imports	62.9	54.5
Net Fuel Exports	16.2	16.4
School Enrollment	100.1	71.5
M2	68.6	46.4
Polity2	-7.8	-7.0

Synthetic Control: Oman (0.103); Saudi Arabia (0.238); Swaziland (0.344); Switzerland (0.102); United Arab Emirates (0.151); Vietnam (0.062).

Bolivia (2003)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	1,489.3	1,503.0
Consumption	89.1	89.0
GCF	16.2	18.3
Exports	21.4	19.5
Imports	26.6	26.8
Net Fuel Exports	3.2	-0.5
School Enrollment	78.0	48.6
M2	36.7	48.4
Polity2	8.9	-1.0

Synthetic Control: Argentina (0.001); Burkina Faso (0.028); Egypt, Arab Rep. (0.399); El Salvador (0.109); Madagascar (0.301); Malawi (0.055); Peru (0.104); Uruguay (0.003).

Chile (1973)

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.6 (continued): Real GDP Characteristics of Countries that Experienced Mass Political Instability

Egypt, Arab Rep. (2011)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	2,116.8	2,136.2
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	-0.8
School Enrollment	75.7	55.8
M2	85.9	50.9
Polity2	-5.1	2.7

Synthetic Control: Australia (0.01); Bolivia (0.307); Central African Republic (0.004); China (0.107); Colombia (0.003); Gambia (0.078); Guinea-Bissau (0.12); Oman (0.013); Pakistan (0.257); Poland (0.021); Rwanda (0.086); Sri Lanka (0.04); Tajikistan (0.042).

Fiji (2005)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	3,167.8	3,185.9
Consumption	84.2	84.0
GCF	17.9	20.0
Exports	56.3	56.1
Imports	58.4	60.0
Net Fuel Exports	-6.3	-2.0
School Enrollment	78.0	48.6
M2	46.8	36.5
Polity2	4.5	0.6

Synthetic Control: Synthetic Control: Malaysia (0.053); Namibia (0.263); Papua New Guinea (0.136); Paraguay (0.05); Philippines (0.101); Swaziland (0.328); Trinidad and Tobago (0.056); Uruguay (0.013).

Georgia (2003)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	1,348.2	1,322.7
Consumption	100.2	97.5
GCF	21.1	23.5
Exports	24.8	19.8
Imports	46.2	40.9
Net Fuel Exports	-5.0	-2.8
School Enrollment	79.1	38.8
M2	9.0	34.3
Polity2	4.9	4.1

Synthetic Control: Albania (0.409); Cambodia (0.195); Comoros (0.029); Costa Rica (0.05); Mozambique (0.319); Niger (0.012); Uruguay (0.03).

Guinea (2007)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	409.7	409.8
Consumption	82.5	91.1
GCF	19.5	18.6
Exports	26.9	19.0
Imports	28.8	28.8
Net Fuel Exports	-3.7	-3.7
School Enrollment	17.5	26.5
Polity2	-3.2	1.0

Synthetic Control: Bhutan (0.014); Malawi (0.028); Nepal (0.499); Niger (0.405); Tajikistan (0.035); Togo (0.018).

Table A.6 (continued): Real GDP Characteristics of Countries that Experienced Mass Political Instability

Haiti (2004)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	747.1	753.1
Consumption	95.3	95.3
GCF	27.1	24.8
Exports	12.5	14.8
Imports	35.0	35.6
M2	39.1	39.1
Polity2	0.2	0.2

Synthetic Control: Argentina (0.042); Bangladesh (0.12); Bhutan (0.016); Liberia (0.068); Eritrea (0.145); Mozambique (0.292); Solomon Islands (0.008); Uganda (0.309).

Honduras (2009)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	1,770.4	1,779.1
Consumption	83.1	86.5
GCF	28.8	25.6
Exports	45.6	42.5
Imports	57.6	54.6
Net Fuel Exports	-8.0	-6.1
School Enrollment	47.9	44.8
M2	41.9	37.5
Polity2	6.4	0.9

Synthetic Control: Bhutan (0.028); Ghana (0.446); Malaysia (0.121); Mauritania (0.244); Moldova (0.161).

Iran, Islamic Rep. (2009)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	4,670.4	4,806.9
Consumption	65.1	66.3
GCF	65.1	66.3
Exports	21.0	23.0
Imports	20.8	22.4
Net Fuel Exports	14.6	4.1
School Enrollment	70.5	62.3
M2	43.8	90.6
Polity2	-3.0	-3.3

Synthetic Control: Albania (0.103); Australia (0.021); China (0.563); India (0.166); Saudi Arabia (0.145); Sudan (0.022).

Italy (1992)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	25,818.5	25,896.8
Consumption	76.6	75.3
GCF	76.6	75.3
Exports	19.3	19.4
Imports	19.5	19.8
Net Fuel Exports	-3.2	-1.7
School Enrollment	72.2	75.4
Polity2	10.0	6.9

Synthetic Control: Bangladesh (0.03); France (0.402); Guatemala (0.173); Japan (0.274); Norway (0.122).

Table A.6 (continued): Real GDP Characteristics of Countries that Experienced Mass Political Instability

Jordan (2011)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	3,429.8	3,467.9
Consumption	98.7	94.2
GCF	27.5	26.3
Exports	50.1	51.6
Imports	76.3	72.1
Net Fuel Exports	-10.2	-9.1
School Enrollment	86.0	76.4
M2	118.5	62.2

Synthetic Control: Albania (0.239); China (0.157); Dominica (0.058); Grenada (0.017); Guyana (0.287); Hong Kong SAR, China (0.047); Moldova (0.195).

Kenya (1997)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	872.1	869.5
Consumption	82.0	87.3
GCF	82.0	87.3
Exports	27.5	27.5
Imports	31.0	36.3
M2	32.0	21.7
Polity2	-6.2	-5.8

Synthetic Control: Bhutan (0.239); Botswana (0.04); Georgia (0.024); Mauritania (0.094); Mongolia (0.018); Morocco (0.021); Niger (0.135); Saudi Arabia (0.005); Sierra Leone (0.372); Togo (0.051).

Kyrgyz Republic (2005)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	744.3	749.4
Consumption	93.1	93.4
GCF	19.9	19.5
Exports	35.7	32.8
Imports	46.0	45.9
School Enrollment	91.4	40.7
M2	15.9	22.8
Polity2	-3.0	0.5

Synthetic Control: Equatorial Guinea (0.001); Gambia (0.317); Lesotho (0.032); Malawi (0.116); Moldova (0.253); Mozambique (0.005); Sierra Leone (0.159); Vietnam (0.116).

Morocco (2011)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	2,259.8	2,262.5
Consumption	76.9	76.9
GCF	29.2	29.2
Exports	27.0	26.9
Imports	33.1	33.0
Net Fuel Exports	-4.8	-2.6
School Enrollment	44.3	47.6
M2	76.5	63.4
Polity2	-6.5	3.4

Synthetic Control: Bhutan (0.063); Burkina Faso (0.027); China (0.137); Congo, Rep. (0.005); Djibouti (0.109); Gabon (0.019); Honduras (0.134); India (0.422); Moldova (0.04); Mozambique (0.022); Russian Federation (0.004); Switzerland (0.003); United Kingdom (0.015).

Table A.6 (continued): Real GDP Characteristics of Countries that Experienced Mass Political Instability

Nigeria (1993)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	1,500.7	1,547.7
Consumption	72.6	79.7
GCF	22.8	18.5
Exports	23.8	30.5
Imports	17.3	28.4
Net Fuel Exports	29.3	-1.8
School Enrollment	18.9	20.2
M2	23.6	29.7
Polity2	-3.0	-5.1

Synthetic Control: Cote d'Ivoire (0.714); Gabon (0.006); India (0.14); Peru (0.002); Zimbabwe (0.139).

Pakistan (1999)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	713.9	744.1
Consumption	88.7	83.6
GCF	18.8	21.2
Exports	13.9	16.0
Imports	21.3	21.0
Net Fuel Exports	-3.6	-1.1
School Enrollment	19.9	19.3
M2	42.7	33.8
Polity2	1.2	-5.4

Synthetic Control: Burundi (0.209); Cameroon (0.124); China (0.3); Japan (0.004); Niger (0.295); Sierra Leone (0.067).

Paraguay (1999)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	2,624.7	2,619.8
Consumption	73.4	87.2
GCF	21.0	21.0
Exports	55.1	42.1
Imports	49.6	50.4
Net Fuel Exports	-3.0	-2.1
School Enrollment	33.7	33.1
M2	24.1	28.2

Synthetic Control: The Bahamas (0.013); Belize (0.19); Gambia (0.382); Oman (0.068); Panama (0.075); Tunisia (0.072).

Peru (2000)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	3,253.1	3,206.1
Consumption	70.8	78.4
GCF	21.2	21.1
Exports	17.4	20.1
Imports	9.5	19.6
Net Fuel Exports	1.1	2.7
School Enrollment	65.8	41.7
M2	24.7	36.1
Polity2	4.4	-1.5

Synthetic Control: Control: Australia (0.003); Bangladesh (0.227); Cameroon (0.336); China (0.092); Saudi Arabia (0.035); South Africa (0.306).

Table A.6 (continued): Real GDP Characteristics of Countries that Experienced Mass Political Instability

Philippines (1984)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	1,390.3	1,446.7
Consumption	76.2	77.0
GCF	26.0	23.6
Exports	20.6	22.6
Imports	22.9	23.2
Net Fuel Exports	-3.8	0.1
School Enrollment	54.7	26.5
M2	24.3	26.7
Polity2	-3.1	-2.8

Synthetic Control: Algeria (0.006); India (0.048); Indonesia (0.172); Peru (0.208); Thailand (0.399); Togo (0.167).

Portugal (1975)

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 (1978)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	13,491.5	13,422.6
Consumption	74.3	72.2
GCF	28.2	28.4
Exports	10.7	13.6
Imports	13.1	14.2
Net Fuel Exports	-1.7	-2.1
School Enrollment	63.3	78.9
Polity2	-5.7	9.7

Synthetic Control: Finland (0.399); India (0.244); Japan (0.357).

Thailand (2006)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	3,233.1	3,244.3
Consumption	67.7	71.9
GCF	31.3	24.6
Exports	46.1	47.6
Imports	45.1	44.0
Net Fuel Exports	-3.8	2.0
School Enrollment	48.0	31.8
M2	90.3	43.2
Polity2	6.7	3.3

Synthetic Control: China (0.081); Gabon (0.005); Korea, Rep. (0.168); Japan (0.023); Papua New Guinea (0.747).

Table A.6 (continued): Real GDP Characteristics of Countries that Experienced Mass Political Instability

Togo (2005)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	514.2	678.5
Consumption	94.5	94.8
GCF	16.1	19.1
Exports	36.0	25.9
Imports	46.6	39.9
Net Fuel Exports	-6.5	-5.1
School Enrollment	26.0	31.5
M2	31.1	26.7
Polity2	-3.9	-0.8

Synthetic: Ghana (0.1); Jordan (0.07); Malawi (0.649); Moldova (0.07); Mozambique (0.11).

Tunisia (2011)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	3,287.7	3,304.6
Consumption	78.3	78.2
GCF	25.2	25.1
Exports	43.5	43.4
Imports	47.0	46.9
Net Fuel Exports	-0.7	3.3
School Enrollment	71.3	70.7
M2	51.3	52.5
Polity2	-3.7	5.6

Synthetic Control: Bhutan (0.021); Bolivia (0.26); Canada (0.003); China (0.036); Congo, Rep. (0.101); Honduras (0.156); Mauritius (0.206); Oman (0.005); Sri Lanka (0.257); Trinidad and Tobago (0.003).

Turkey (2007)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	7,665.3	7,576.4
Consumption	80.3	79.7
GCF	21.8	21.0
Exports	19.7	21.0
Imports	21.8	21.8
Net Fuel Exports	-2.7	1.0
School Enrollment	66.1	72.5
M2	33.2	33.2
Polity2	7.6	7.4

Synthetic Control: Argentina (0.241); Colombia (0.459); Costa Rica (0.003); Ecuador (0.044); Guinea-Bissau (0.029); India (0.012); Korea, Rep. (0.1); Malaysia (0.002); Mauritius (0.026); Moldova (0.041); Sweden (0.036); Trinidad and Tobago (0.006).

Ukraine (2005)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	2,095.2	2,058.6
Consumption	76.1	79.4
GCF	22.5	22.6
Exports	51.2	47.8
Imports	49.8	49.7
Net Fuel Exports	-13.5	-1.3
School Enrollment	100.2	67.6
M2	22.2	22.6
Polity2	6.5	2.9

Synthetic Control: Cambodia (0.041); Congo, Rep. (0.09); India (0.188); Mongolia (0.168); Russian Federation (0.18); Tajikistan (0.334).

Table A.6 (continued): Real GDP Characteristics of Countries that Experienced Mass Political Instability

Yemen (2011)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	1,183.9	1,189.1
Consumption	86.6	92.1
GCF	19.2	19.3
Exports	30.7	25.1
Imports	36.6	36.5
M2	36.8	37.4
Polity2	-2.3	2.2

Synthetic Control: Benin (0.161); Cameroon (0.021); Central African Republic (0.019); Djibouti (0.045); Fiji (0.105); Gabon (0.001); Mozambique (0.274); Oman (0.008); Pakistan (0.285); Togo (0.037); United States (0.002); Zimbabwe (0.041).

Argentina (2001)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	7,670.9	7,670.9
Consumption	80.6	80.3
GCF	18.7	20.1
Exports	9.0	17.9
Imports	8.3	18.4
Net Fuel exports	0.2	2.5
School Enrollment	70.4	65.3
M2	21.7	30.5
Polity2	5.2	5.2

Synthetic Control: Australia (0.075); Bangladesh (0.083; Columbia (0.127); Ecuador (0.227); Mexico (0.264); Uruguay (0.223).

Bulgaria (2011)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	3,755.1	3,763.2
Consumption	76.1	81.0
GCF	23.5	27.7
Exports	43.3	41.3
Imports	43.0	49.9
Net Fuel Exports	-13.8	-11.6
School Enrollment	95.0	82.6
M2	75.0	30.1
Polity2	-0.8	1.9

Synthetic Control: Georgia (0.389); Gyana (0.126); Korea, Rep. (0.23); Moldoba (0.169); Morocco (0.086).

Indonesia (1998)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	1,393.1	1,403.9
Consumption	68.4	30.7
GCF	29.3	22.5
Exports	26.0	23.1
Imports	23.7	18.7
Net Fuel Exports	10.1	-0.1
School Enrollment	42.1	37.5
M2	31.5	53.0
Polity2	-7.0	-4.6

Synthetic Control: Cameroon (0.035); China (0.575); Gabon (0.018); Korea, rep. (0.068); Malaysia (0.038); Papa New Guinea (0.125); Sierra Leone (0.142).

Latvia (2009)

South Africa (1990)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	8,426.0	8,426.2
Consumption	81.7	81.0
GCF	32.3	26.2
Exports	38.7	48.0
Imports	52.8	55.1
Net Fuel Exports	-4.9	-0.3
School Enrollment	99.0	98.9
M2	31.2	31.0
Polity2	8.0	8.0

Synthetic Control: Kzakhstan (0.121); Korea, rep. (0.053); Lithuania (0.822); Peru (0.004)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	6,599.5	6,593.3
Consumption	71.3	73.8
GCF	25.3	23.8
Exports	28.2	27.4
Imports	24.8	25.0
Net Fuel Exports	1.1	5.3
School Enrollment	62.7	58.5
Polity2	4.0	2.9

Synthetic Control: Argentina (0.23); Australia (0.042); Congo, Rep. (0.076); Jamaica (0.197); Mexico (0.013); Oman (0.025); Peru (0.246); Trinidad and Tobago (0.17).

Venezuela (1989)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	3,702.7	3,718.9
Consumption	65.8	65.7
GCF	32.6	29.9
Exports	26.4	29.5
Imports	24.9	24.9
Net Fuel Exports	21.5	20.4
School Enrollment	46.1	38.4
Polity2	-7.3	-6.5

Synthetic Control: Bhutan (0.061); China (0.434); Congo, Rep. (0.192); Gabon (0.153); Nigeria (0.145); Switzerland (0.016).

Cote d'Ivoire (2000)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	1,549.1	1,552.2
Consumption	81.3	85.0
GCF	13.7	53.0
Exports	37.3	26.8
Imports	32.3	39.8
School Enrollment	19.5	19.7
Polity2	-7.5	-6.2

Synthetic Control: Cameroon (0.279); Gabon (0.053); Guyana (0.013); Mauritania (0.466); India (0.352); Sierra Leone (0.189).

Table A.7: Real GDP Characteristics of Countries that Only Experienced Political Regime Crises

Angola (2010)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	2,689.8	2,675.3
Consumption	67.8	78.4
GCF	22.2	22.9
Exports	68.9	56.9
Imports	58.9	58.2
School Enrollment	16.1	65.0
M2	23.3	32.4
Polity2	-2.4	-3.0

Synthetic Control: Azerbaijan (0.398); Congo, Rep. (0.107); Djibouti (0.126); Gabon (0.015); Guyana (0.088); Paraguay (0.119); Swaziland (0.148).

Australia (1975)

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 (2010)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	4,049.8	4,057.0
Consumption	78.8	78.4
GCF	22.2	22.2
Exports	24.6	25.1
Imports	25.7	25.7
Net Fuel Exports	8.0	5.1
School Enrollment	58.8	64.8
M2	22.0	32.5
Polity2	7.4	6.2

Synthetic Control: Argentina (0.008); Colombia (0.524); Congo, Rep. (0.057); Gabon (0.056); Guinea-Bissau (0.006); India (0.151); Madagascar (0.064); Mexico (0.019); Moldova (0.034); Mozambique (0.001); Ukraine (0.078); Venezuela, RB (0.001).

Estonia (2002)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	9,435.6	9,341.9
Consumption	76.5	76.6
GCF	30.2	31.2
Exports	66.6	65.7
Imports	73.3	73.4
School Enrollment	95.4	79.0
Polity2	7.0	7.0

Synthetic Control: Bahrain (0.001); Belgium (0.018); Bulgaria (0.043); Congo, Rep. (0.146); Equatorial Guinea (0.026); Guyana (0.092); Ireland (0.117); Lithuania (0.279); Panama (0.278).

Table A.7 (continued): Real GDP Characteristics of Countries that Only Experienced Political Regime Crises

Gambia (1994)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	524.2	523.7
Consumption	94.0	91.1
GCF	17.6	19.3
Exports	42.5	24.8
Imports	54.1	34.7
Net Fuel Exports	-4.3	-3.6
School Enrollment	15.2	16.2
M2	22.4	22.9
Polity2	7.6	-5.0

Synthetic Control: Malawi (0.309); Mali (0.285); Papua New Guinea (0.105); Sierra Leone (0.164); Sri Lanka (0.069); Togo (0.069).

Ghana (1979)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	1,014.5	1,033.9
Consumption	89.1	91.7
GCF	13.5	12.4
Exports	18.9	14.6
Imports	21.4	18.7
Net Fuel Exports	-2.0	-0.9
School Enrollment	38.3	18.0
M2	22.0	18.8
Polity2	-5.8	-0.8

Synthetic Control: India (0.124); Madagascar (0.713); Malaysia (0.013); Pakistan (0.006); Peru (0.144).

Malaysia (1988)

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 (2010)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	345.2	345.4
Consumption	94.8	99.0
GCF	15.0	15.6
Exports	16.8	16.5
Imports	26.5	31.1
Net Fuel Exports	-3.3	-3.3
School Enrollment	7.9	16.5
M2	14.1	21.0
Polity2	2.5	3.2

Synthetic Control: Burundi (0.445); Madagascar (0.555).

Table A.7 (continued): Real GDP Characteristics of Countries that Only Experienced Political Regime Crises

Slovak Republic (2011)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	12,595.0	12,503.7
Consumption	75.3	71.9
GCF	28.6	27.3
Exports	63.6	57.5
Imports	67.4	56.7
Net Fuel Exports	-4.4	9.0
School Enrollment	89.8	80.5
M2	59.7	59.5
Polity2	8.7	8.8

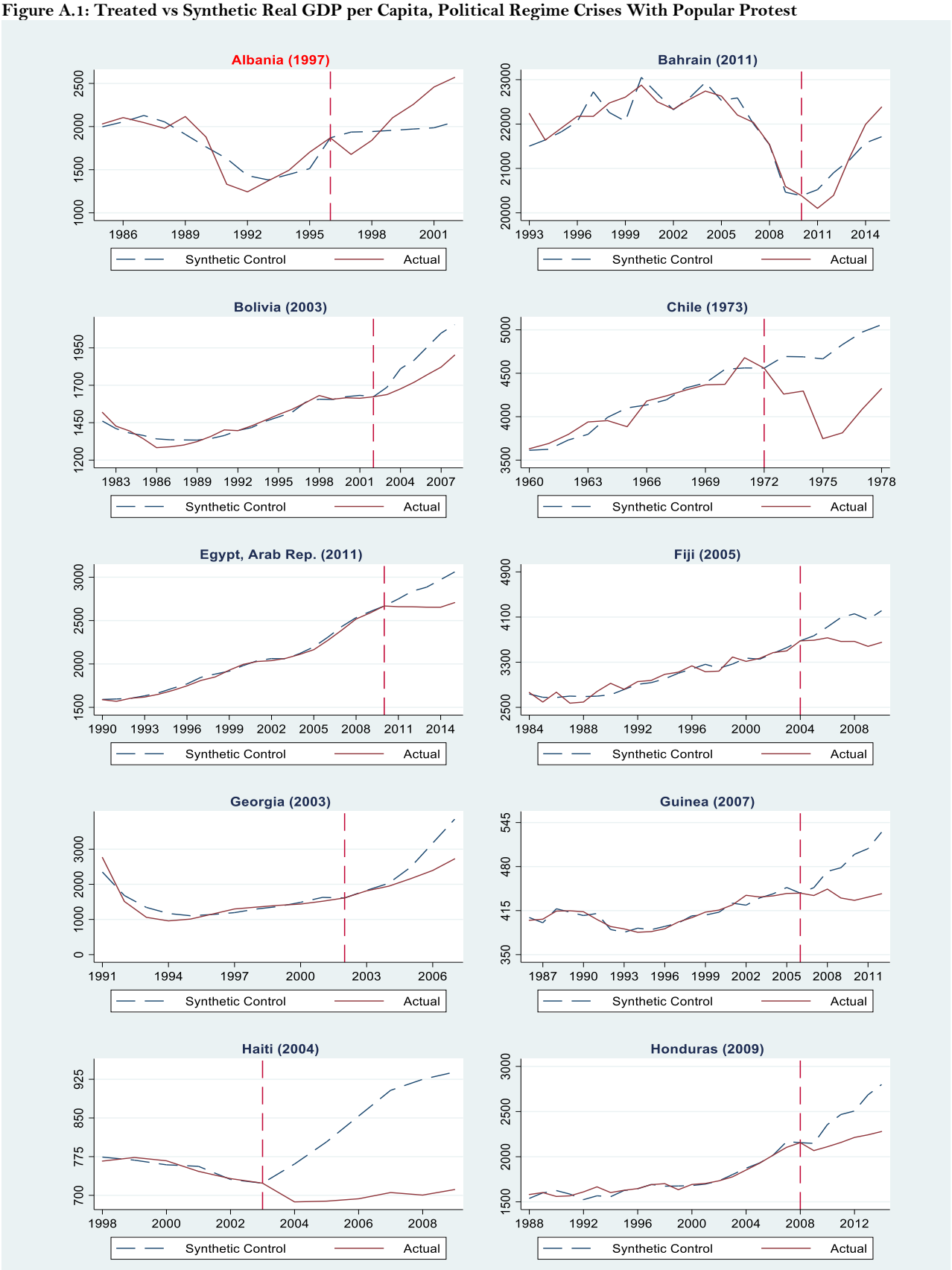
Synthetic Control: Australia (0.084); Azerbaijan (0.019); Czech Republic (0.057); Lesotho (0.042); Malaysia (0.045); Panama (0.311); Trinidad and Tobago (0.442).

Ireland (2008)

Averages of GDP per capita Characteristics		
	Actual	Synthetic Control
Real GDP per capita	43,299.7	31,194.3
Consumption	61.9	61.3
GCF	27.4	126.5
Exports	81.7	142.4
Imports	71.0	28.6
School Enrollment	105.3	56.4
Polity2	10.0	0.7

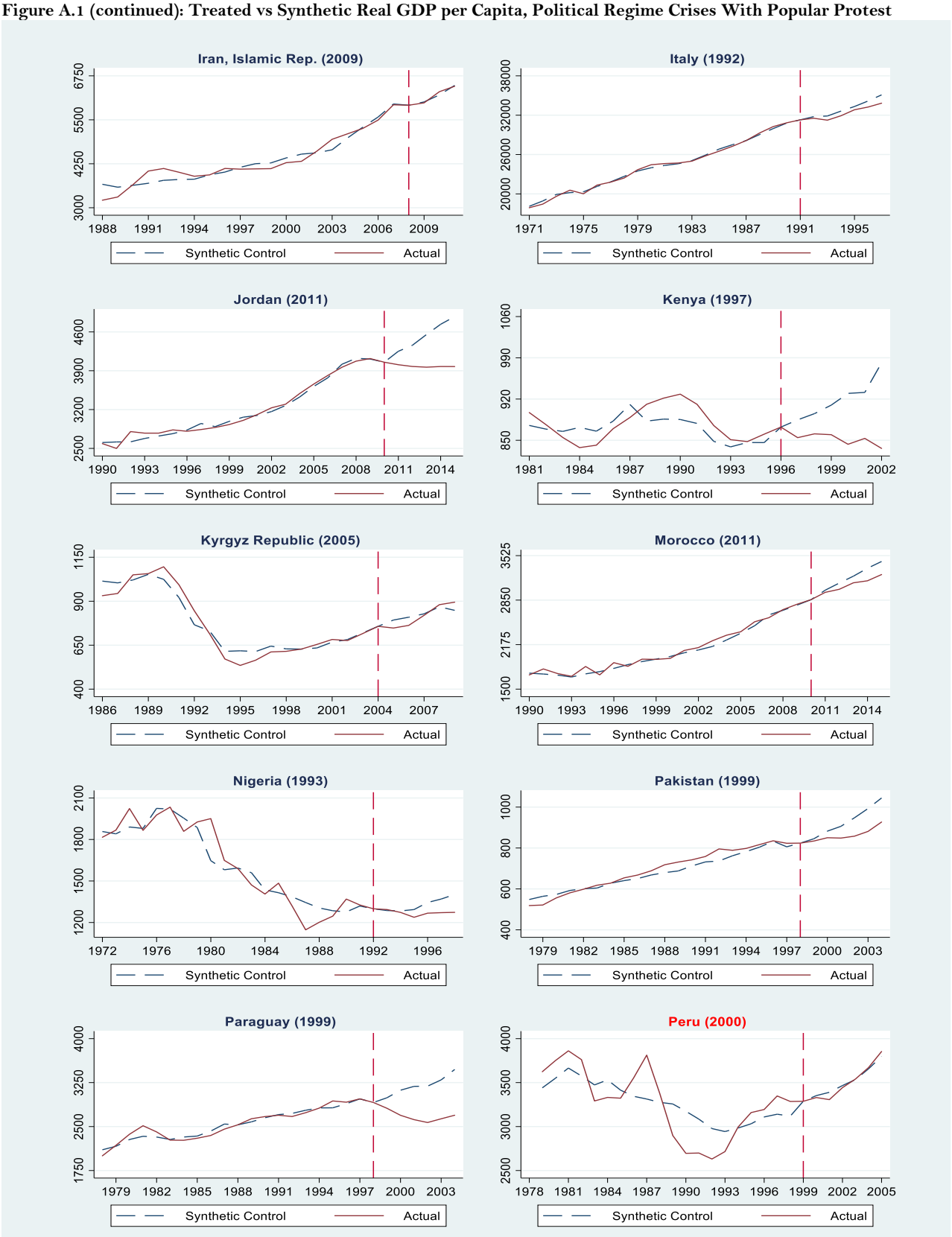
Synthetic Control: Equitorial Guinea (0.581); Luxembourg (0.149).

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



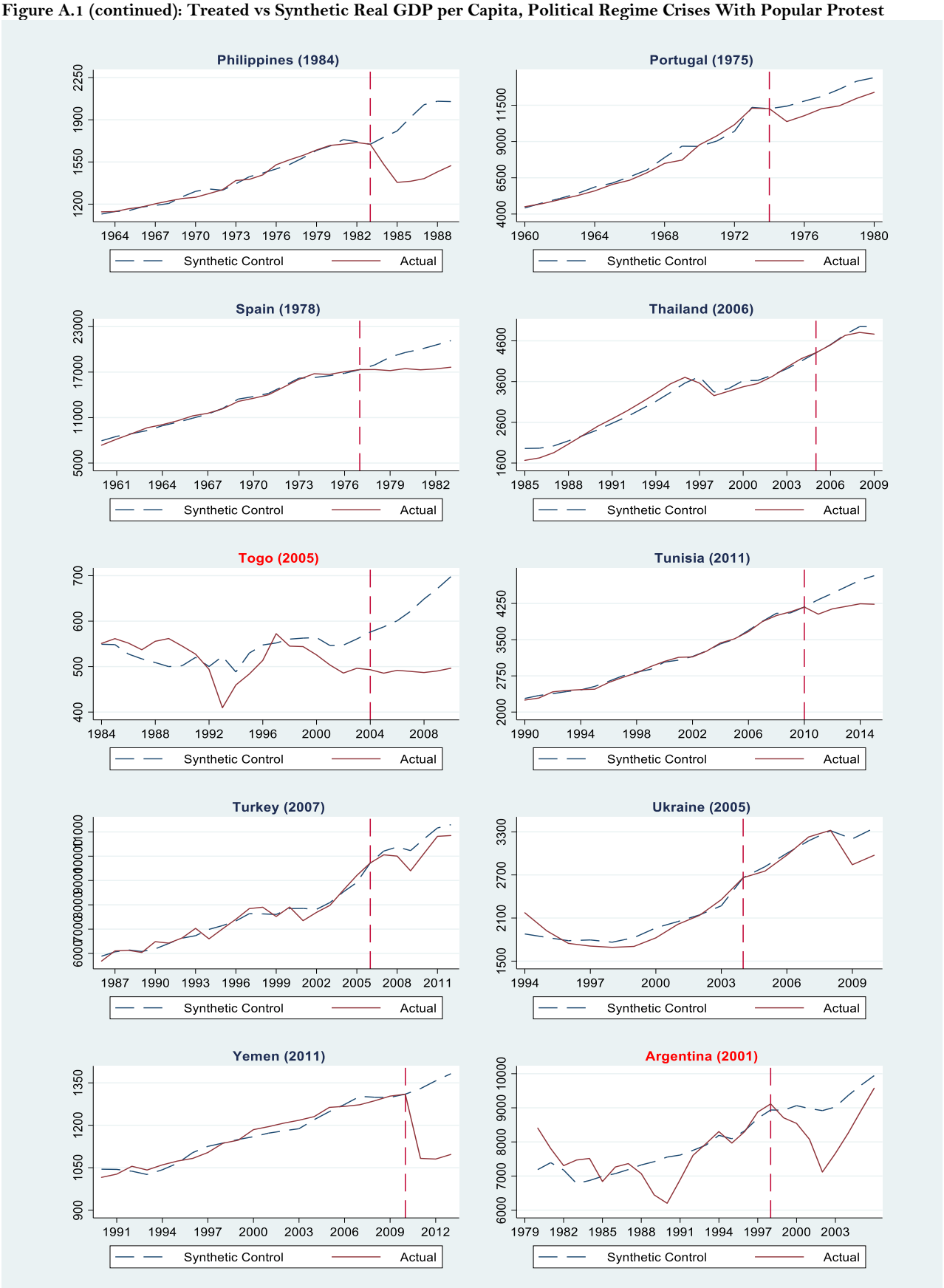
Source: Author's own calculations. Note: Each graph plots the real GDP per capita of the country that experienced political instability and that of its synthetic counterfactual. The dashed vertical line indicates the year preceding the beginning of the political instability period.

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



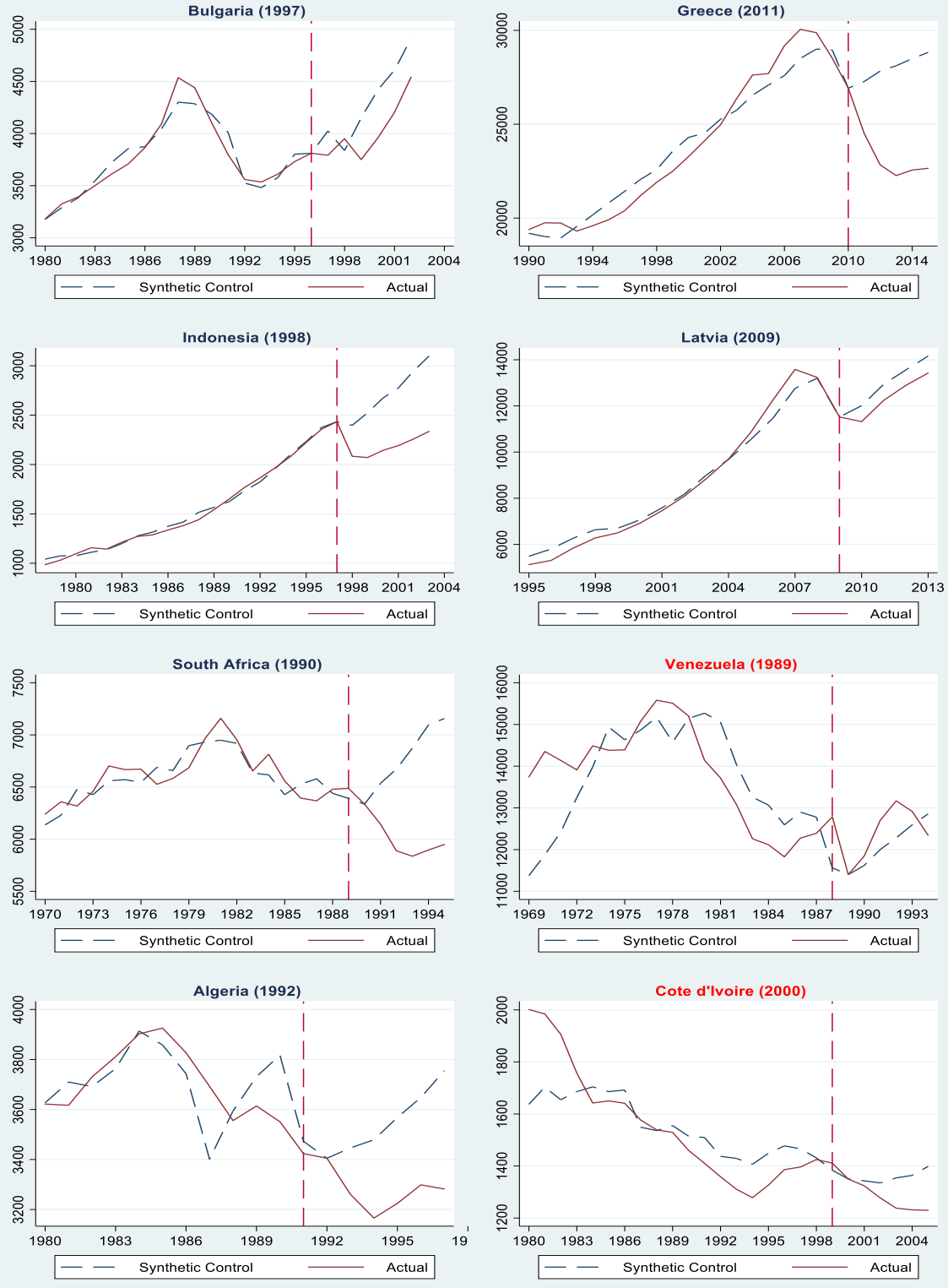
Source: Author's own calculations. Note: Each graph plots the real GDP per capita of the country that experienced political instability and that of its synthetic counterfactual. The dashed vertical line indicates the year preceding the beginning of the political instability period.

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



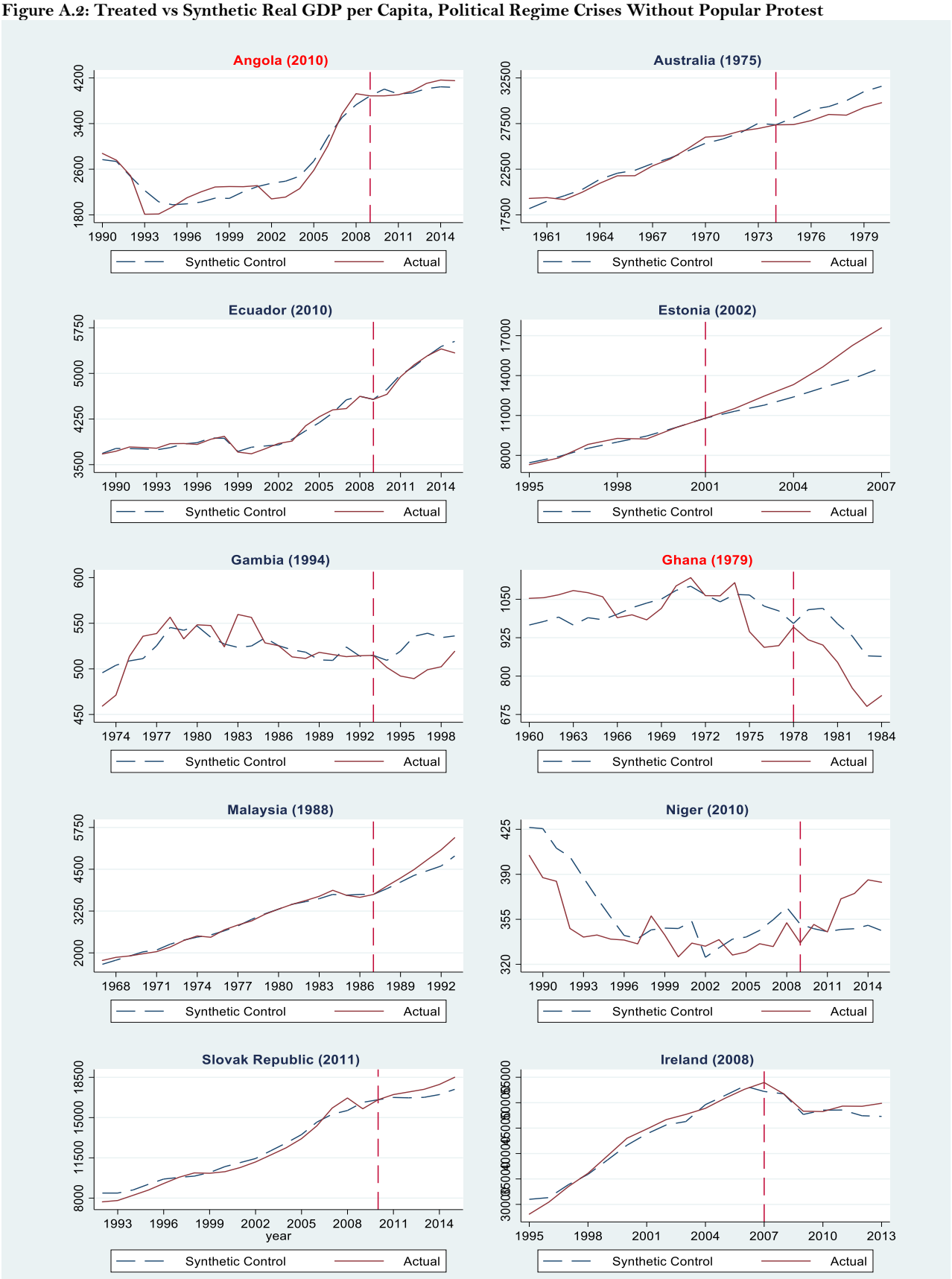
Source: Author's own calculations. Note: Each graph plots the real GDP per capita of the country that experienced political instability and that of its synthetic counterfactual. The dashed vertical line indicates the year preceding the beginning of the political instability period.

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



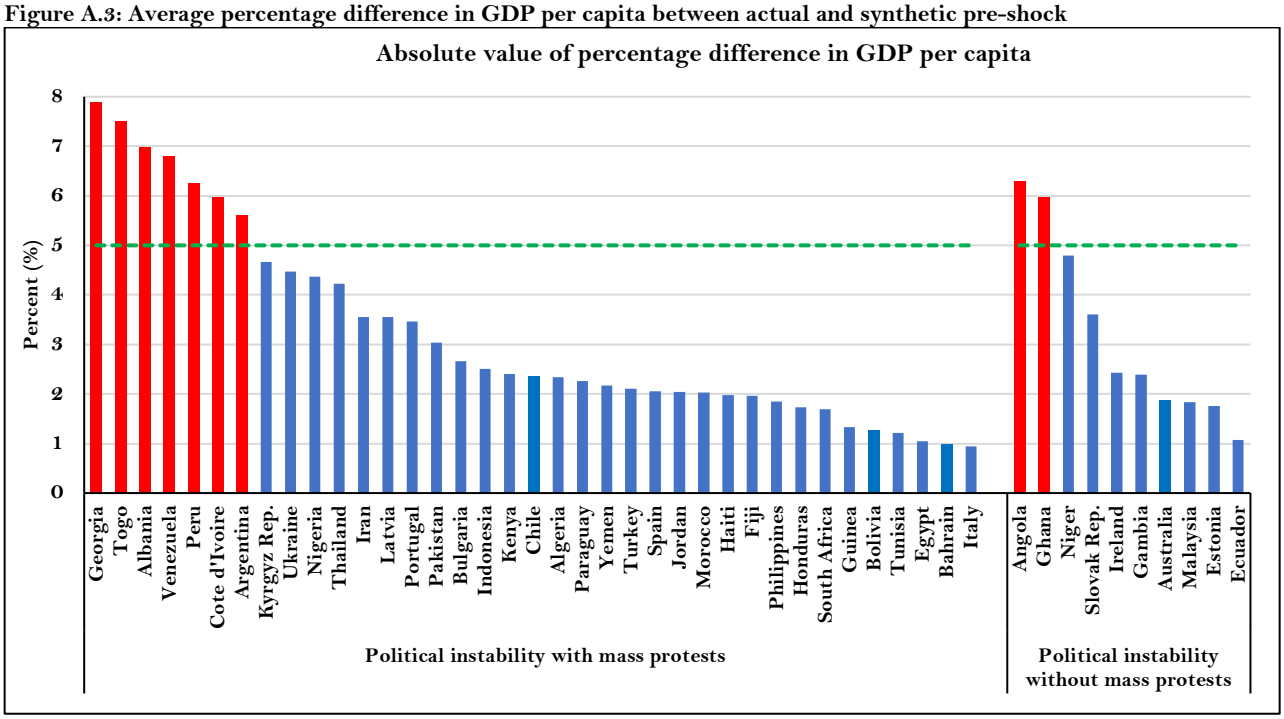
Source: Author's own calculations. Note: Each graph plots the real GDP per capita of the country that experienced political instability and that of its synthetic counterfactual. The dashed vertical line indicates the year preceding the beginning of the political instability period.

Figure A.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.

Figure A.3: Average percentage difference in GDP per capita between actual and synthetic pre-shock



Source: Author's own calculations. Note: Blue (red) bars indicate countries for which the SCM counterfactual was good (not good) enough to get a post-shock evaluation.