A farewell to arms: The Long run developmental effects of Costa Rica's army abolishment

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Abstract

This article measures the long-term developmental effects of Costa Rica's constitutional abolishment of its army in 1949, using synthetic control estimates. We find that after the abolishment of the army, Costa Rica's per capita GDP started growing at a much faster rate than before the abolishment. Where Costa Rica's per capita GDP grew at an average annual rate of 2.49% in the 1951-2010 period, while the synthetic control grew would have grown at an annual rate of 1.43% during the same period. Furthermore, we provide evidence to claim that this shock is robust and exclusive in Latin America. Thus suggesting that the army abolishment has indeed yielded long term benefits for Costa Rica.

Introduction

Following the end of the civil in 1949, Costa Rica abolished its army and redirected its budget toward healthcare and education. Ever since and up to this day, Costa Rica has achieved some of the highest living standards and development indicators in Latin America. Furthermore, unlike most other countries in the region, Costa Rica has not had dictatorships or armed conflicts since the abolishment of its army. In addition, soon after the abolishment of its army, the country started experiencing a notable economic growth divergence relative to the rest of the countries in the region. Thus, these institutional changes along with long-standing democratic history have been considered to be factors of paramount importance that have led to these developmental achievements and democratic stability in the country up to this day.

Although the negative economic and political outcomes of wars and conflicts has been widely studied and acknowledged (Collier, 2011; Bilmes and Stiglitz, 2006; Murdoch and Sandler, 2004; Abadie and Gardeazabal, 2003; Murdoch and Sandler, 2002, Nafziger and Auvinen, 2002), to the best of our knowledge, there is still not a case study of the long run economic and developmental consequences of abolishing a country´s armed forces.

This paper quantitatively investigates the effect of Costa Rica´s army abolishment on the long run comparative development of Costa Rica with respect to Latin America. For this, we perform synthetic control estimates, which is a method that has been employed in small sample comparative case studies (Abadie et al,2014; Abadie et al,2011; Abadie et al,2010; Abadie and Gardeazabal, 2003). More explicitly, we use long time series data to systematically choose comparison Latin American countries that did not abolish their armies and compare their economic growth and developmental outcomes with Costa Rica. In tandem with this quantitative approach, we analyze long time series data along with the economic and political history of Costa Rica and the rest of Latin America in order to determine how the effect of the abolishment of Costa Rica´s army endured through changes in the country´s politics, public policies and institutions, and how these changes differ from the rest of Latin America.

Our estimates show that Costa Rica‘s per capita GDP grew at an average annual rate of 2.48% in the 1951-2010 period -the period after the abolishment of the army-, while the synthetic control grew would have grown at an annual rate of 1.43% during the same period. In other terms, with these average growth rates, these results show that Costa Rica approximately doubles its per capita GDP every 28 years. But if Costa Rica had not abolished its army, the country would have doubled its per capita GDP every 48 years instead. Hence, our estimates suggest that the constitutional abolishment of Costa Rica's army yielded a long-term legacy on the economic development of the country.

This paper is structured as follows. In the following section, we present a brief story that explains the political context and main events prior to the abolishment of Costa Rica's army in 1949. Then, we explain the synthetic control method used in this research to estimate the effect of the abolishment of the army on Costa Rica's long-run development. In the third section, we discuss our data and empirical strategy; in the fourth section we present our synthetic control estimates along with robustness checks. Finally, we present our conclusions.

A brief history of the abolishment of the army

In the 1940‘s, the Republican Party of Costa Rica which had been in power since 1932, started an alliance with the communist party and the catholic church. This alliance was kept under the presidency of Teodoro Picado during the 1944-1948 period, and benefited mostly the lower classes

of the country by the enactment of many social legislation as the creation of the public health services, the creation of the University of Costa Rica, the creation and inclusion of social protections in the constitution and the enactment of the labor code.

Between 1944 and 1948, this alliance faced strong opposition by the social democrat and conservative sectors of the population. This opposition towards the government is intensified in 1946, when the government tried to enact an income tax[1] -non-existent at the time- and its allegiance with the communists was condemned after the end of World War II. During this period and within this political context, political violence was recurrent. Namely, there were armed attacks to political parties and worker unions' buildings, murder attempts to politicians, and bombs placed in military headquarters, aqueducts, street lights and railways (Solís, 2006).

In the midst of this political turbulence and violence, presidential elections are held on February of 1948, where Rafael Calderón Guardia from the incumbent party lost to Otilio Ulate Union's party. The Republican Party then challenged the election results at the congress -where the incumbent party had majority-, and ends up annulling the election. This event triggers a civil war in the country, where José Figueres Ferrer, an exiled political figure in 1942 and leader of the revolutionary movement arrived to Costa Rica with revolutionary forces supported by other military figures in Central America and the Caribbean. This group altogether was known as "The Legion of the Caribbean", and they had all signed a pact in 1947 to put an end to all the authoritarian governments in the region (Muñoz, 1990).

By April of 1948, president Picado resigns and signs a peace accord, where the victorious revolutionary army settled a deal with Otilio Ulate under two conditions: i)Figueres would govern the country under a governing board for 18 months, after said period he will give back the power to Ulate, and ii)then elections will be called to create a new constituent Assembly to reform the constitution of 1871. It is under this process of modification of the constitution, that in December of 1948 the army is abolished and it is subsequently enshrined in the 1949 constitution.

The underlying reasons for the constitutional abolishment of the army are various and of different nature. Although the restructuring of the army was of cardinal importance for the new government (Muñoz, 1990), it was not possible to reassemble an army that was aligned with the interests of the victorious revolutionary forces due to clashing interests between the army and Figueres' forces. In particular, the Costa Rican military had no interest in overthrowing the dictatorships in the region. In addition, the Costa Rican military did not agree with the inclusion of foreign armed forces into the ranks of the army, nor with the privileges they received by the governing board. Under these circumstances, many army officers resigned and there was a failed attempt of coup d'etat by the head of the armed forces in April of 1949.

Hence, if these internal divergences and conflicts were not to be solved, the governing board would had been condemned to political isolation and it would have compromised the consolidation of the reformist progress. Therefore, Figueres breaks his compromise with the Legion of the Caribbean by abolishing the army. Doing this also created a favorable political environment for the upcoming elections for the members of the new constituent assembly to reform the constitution. On the one hand, this idea of peace favored Figueres' social democrats by fostering a favorable environment of peace and harmony, which would boost the possibilities of the Social-Democratic candidates to reach the majority of votes to be represented in the Constituent Assembly. On the other hand, abolishing the army would bring tranquility to Otilio Ulate and Figueres' followers, by letting them know that Ulate will be given back the power in time.

Also, the abolishment of the army coincides with the expansion of the Inter American system (Volio,

[1] A prior attempt to pass this tax by former president Alfredo Gonzalez Flores in 1917 ended in a coup d'etat.

1985), which established the mechanisms that regulated politically and legally the diplomatic relations of the American states, with the objective to promote peace and segurity to every member of the organization of the American states. This is by the way, the mechanism employed in 1955 to repeal the invasion from Rafael Calderon Guardia with the support of Anastacio Somoza.

Synthetic control method

In this research, we follow a synthetic control method estimation, which has been recently used in small sample comparative case studies (Abadie et al,2014; Abadie et al,2011; Abadie et al,2010; Abadie and Gardeazabal, 2003), where one has one unit that has been treated or received a shock instead of many. In such cases, it is not easy to properly identify a counterfactual to determine the effect of a public policy or shock given the small sample nature of case studies. Therefore, in order to address this issue, the synthetic control method creates a counterfactual (also known as the synthetic unit) for the unit of interest by estimating a weighted average of all the potential comparison units that best resemble the characteristics of the case of interest.

More specifically, assume that we have a sample of $J+1$ units, where $j=1$ is the unit of interest and all the unit from $j=2$ to $j=J+1$ are the potential non-treated comparison units. Now, the method considers two time periods: T_0 and T_1. Where the former is the pre-reatment period for $j=1$, and the latter is the period after the treatment. The unit of interest if exposed to a treatment, shock or intervention in any period after T_0, and the objective of the estimator is to measure the effect of the event or intervention of interest on some post-intervention in T_1. Given this set up, the synthetic control method works on the premise that the pre-intervention characteristics of the treated unit can often be much more accurately approximated by a combination of untreated units than by any single untreated unit. Thus, the synthetic unit is a weighted average of the units in the potential comparison units that were not treated in T_0. A synthetic control can be represented as a $(Jx1)$ vector of weights $W=(w_2,...w_{J+1})'$, with $0 \leqslant w_j \leqslant 1$ for $j=2,...J$ y $w_2+...+w_{J+1}=1$. Then, selecting a W is equivalent to selecting a synthetic control.

W is selected in such a way that the the characteristics of the treated unit are best resembled by the synthetic control. If X_1 is a $(kx1)$ vector containing the values of the pre-treatment characteristics of the treated unit, and X_0 is a (kxJ) matrix of the values of the same variables for the units in the donor pool, then the synthetic control method minimizes $X_1 - X_0W$, which is the difference between the values of the treated unit and the weighted values of the comparison units. More formally operationalized (Abadie et al,2011; Abadie et al,2010; Abadie and Gardeazabal, 2003), the method minimizes:

$$\sum_{m=1}^{k} v_m(X_{1m} - X_{0m}W)^2$$

Where v_m is a weight that reflects the relative importance assigned to the m-th variable when measuring the difference between $X_1 - X_0W$[2].

In comparison to a regression approach method, the synthetic control restricts the coefficients of the linear combination of each comparison unit to be between zero and one. Therefore, extrapolation outside the data is not allowed under this method, i.e. counterfactuals based on a linear regression may extrapolate beyond the support of comparison units, hence providing untruthful estimates of the counterfactual.In case studies like the one in this research, this could be very troublesome, where it is more likely to inccorectly estimate this counterfactual due to the existence of only one treated unit and many untreated units. Therefore, synthetic control methods may provide better and more reliable estimates of the counterfactual in cases as the one studied in this work.

[2]For complete proofs and display of the mathematical background of this method, please refer to (Abadie et al,2014; Abadie et al,2011; Abadie et al,2010; Abadie and Gardeazabal, 2003

Data and sample

We use annual country level panel data for most of all the Latin American countries for the 1920-2010 period. Our data for the synthetic control estimates comes from the Montevideo-Oxford Latin American (MOxLAD) Economic History database. This database contains statistical series for a wide range of economic and social indicators covering twenty countries in the region for the twentieth century up to today. In particular, this database provides series on national accounts, infrastructure, demography and labor force variables that are comparable between the countries in the region.

After excluding Bolivia, Cuba, the Dominican Republic, Haiti, Panama and Paraguay for lack of data in the pre-treatment period, our donor pool of unnafected units then consists of all the rest of Latin American countries[3]. The outcome variable measured for our synthetic control estimates the per capita GDP in PPP 1990 US dollars. For the pre-army abolishment period we use a set of available variables that are predictors of economic growth:

- **Population density:** total population divided by the country's area in square kilometers.
- **Telephone density:** amount of telephone lines divided by the total population of the country.
- **Car density:** total amount of cars divided by the total population of the country.
- **Railway density:** length of open railways in kilometers divided by the country's area in square kilometers.
- **Road density:** length of routes in kilometers divided by the country's area in square kilometers.
- **Manufacturing value added:** manufacturing value-added as a percentage of the country's GDP.
- **Agriculture value added:** manufacturing value-added as a percentage of the country's GDP.
- **Trade openness:** exports plus imports as percentage of GDP.
- **Economic active population (EAP) as percentage of total population:** the number of employed and unemployed persons divided by total population.
- **Agriculture economic active population as percentage of total population:** the number of employed and unemployed persons in agriculture divided by total population.
- **Manufacturing economic active population as percentage of total population:** the number of employed and unemployed persons in the manufacturing industry divided by total population.
- **Index of unit value of imports:** index of price of imports, generally constructed using the Laspeyres formula.
- **Index of unit value of exports:** index of price of exports, generally constructed using the Laspeyres formula.
- **Foreign direct investment as percentage of GDP:** total foreign direct investment divided by the country's GDP.
- **External debt as percentage of GDP:** total external debt divided by the country's GDP.
- **Land area:** country's total area in square kilometers.

[3]The complete list of countries used in this research is: Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Peru, Uruguay and Venezuela.

This set of predictor variables was chosen for two reasons. First of all, they are all positively correlated with the economic activity of a country. Secondly, this is the set of variables for which we can express all of them in the same terms for every country in the sample and that are the most homogenous between countries. Lastly, even though the constitutional abolishment of the army occurred in 1949, it was enacted on November of said year. Also, the abolishment was not fully implemented until 1951. Therefore, we take 1951 as the treatment year for our synthetic control estimates since it is the year in which the army abolishment was truly implemented in the country. However, we also did run the estimates using 1949 and 1950 as the treatment years and all of the results hold.

Constructing a synthetic control with Latin American countries

In table 1 we show the mean value for each the per capita GDP and its predictors in the pre-treatment period. The second column shows the average values of each variable for all the Latin American countries except Costa Rica. The column that follows shows the actual mean values for Costa Rica, and the following column shows the average values for the synthetic Costa Rica. The table shows that the synthetic control estimation does approximate the GDP per capita of Costa Rica before our treatment period than the simple average value of the Latin American countries in our sample. The same occurs for most of the GDP per capita predictors considered for the estimations. Although the land of a country in square miles is not necessarily a good predictor of a country's economic growth, it is included in our estimations so that the method would consider this variable when choosing the sample of countries used to create Costa Rica's synthetic control. Therefore, the synthetic control method would favor countries with similar land areas to Costa Rica. Given that Costa Rica is a very small country in comparison to most of the other Latin American countries, it is not unlikely that considerably bigger countries could have very different political and economic dynamics given their size. Nevertheless, the results are not affected if this variable is excluded from our estimates.

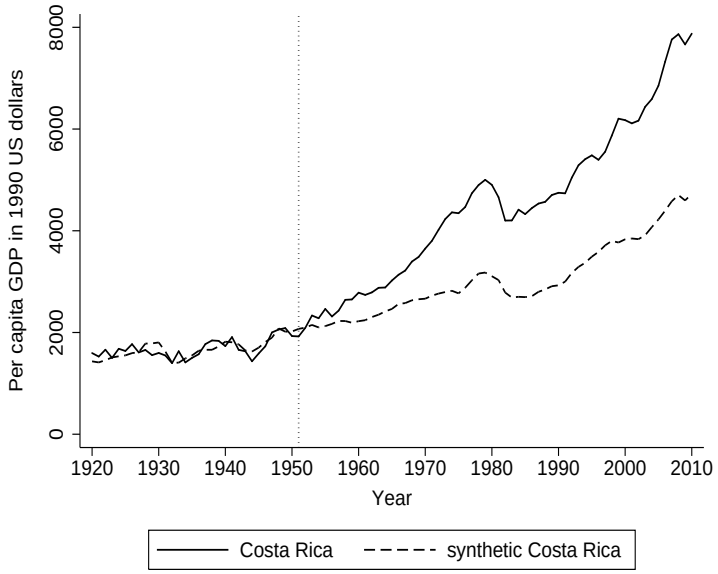
Table 1
Pre Costa Rica's army abolishment characteristics, 1920-1950

	Latin America sample	**Costa Rica**	**Synthetic Costa Rica**
Per capita GDP	2053	1679.516	1672
Population density	0.014	0.013	0.036
Telephone density	0.008	0.005	0.005
Car density	0.007	0.005	0.004
Railway density	0.009	0.01	0.02
Road density	0.0000434	0.0000588	0.0001082
Manufacturing value added	0.13	0.10	0.10
Agriculture value added	0.33	0.39	0.39
Trade openness	0.43	0.59	0.40
EAP as percentage of total population	0.34	0.28	0.32
Agriculture EAP as percentage of total population	0.15	0.16	0.20
Manufacturing EAP as percentage of total population	0.06	0.03	0.03
Index of unit value of imports	50.76	50.42	47.48
Index of unit value of exports	46.96	34.39	39.38
FDI as percentage of GDP	0.27	0.41	0.34
External debt as percentage of GDP	0.53	0.36	0.20
Land area	1372104	51060	145859.2

Source: Authors' estimates using MOxLAD database.

In figure 1, we plot Costa Rica's per capita GDP and its synthetic control estimate. After 1951, there is a notable growing divergence between Costa Rica's per capita GDP and its synthetic control over time. Thus suggesting that the constitutional abolishment of the army fostered the country's economic growth and did have long term effects in the country.

Figure 1
Per capita GDP in 1990 PPP US dollars for Costa Rica



For our estimates shown in figure 1, we used all the economic growth predictors discussed in the previous section. However, many of these predictors are not available for every year for every country. Therefore, the estimates shown use all the available information regardless of availability across countries and time. On the other hand, we also did other synthetic control estimates with different sets of variables and only considering the variables which are available for every country throughout the entire pre-treatment period, namely: population density, manufacturing value-added as a percentage of the country's GDP, manufacturing value-added as a percentage of the country's GDP, trade openness, index of unit value of imports, index of unit value of exports and land area. The results do not change by the exclusion or inclusion of these predictors.

Table 2 further inquires into this increase of Costa Rica's per capita GDP, where we show the average growth rate of this variable and the number of years it would take the country to double its per capita GDP with this growth rate before and after Costa Rica's army abolishment. In the final two columns, we present the difference in these growth rates and number of years between periods.

Table 2

Average per capita GDP growth rate and implied doubling time years by period

Country	Before abolishment 1920-1951		After abolishment 1952-2010		Differences	
	Per capita growth	Doubling time years	Per capita growth	Doubling time years	Per capita growth	Doubling time years
Argentina	1.44	48.36	1.51	46.37	0.06	1.99
Brazil	2.15	32.59	2.55	27.49	0.40	5.10
Chile	2.04	34.28	2.27	30.84	0.23	3.44
Colombia	2.42	29.03	2.02	34.59	-0.39	-5.56
Costa Rica	**0.97**	**71.77**	**2.49**	**28.22**	**1.52**	**43.56**
Ecuador	1.91	36.63	2.12	33.07	0.21	3.56
El Salvador	2.07	33.79	1.18	59.30	-0.90	-25.51
Guatemala	2.20	31.79	1.35	51.84	-0.86	-20.04
Honduras	0.39	177.70	1.04	66.69	0.65	111.02
Mexico	1.11	62.99	2.08	33.61	0.98	29.38
Nicaragua	1.53	45.65	0.45	154.23	-1.08	-108.58
Peru	2.30	30.50	1.63	42.97	-0.67	-12.47
Uruguay	1.79	38.96	1.61	43.27	-0.18	-4.31
Venezuela	6.56	10.91	0.98	71.13	-5.58	-60.22

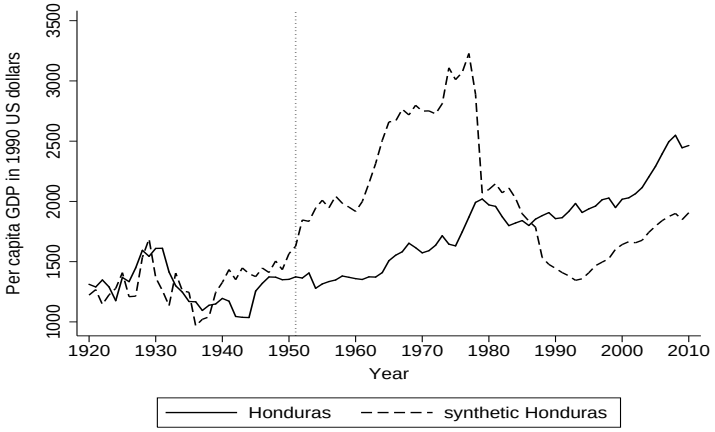
Source: Authors' estimates using estimates using MOxLAD database.

We find that prior to the abolishment of its army, Costa Rica was the penultimate country in GDP per capita growth, and the country with the second highest number of years required to double its GDP per capita given its average growth rate between 1920 and 1951. However, after the abolishment of the army, this reverses and Costa Rica becomes the second best country in each of these indicators. Furthermore, Costa Rica is the country with the most favorable change in its average annual per capita GDP growth between the two periods considered and the second best performer in lowering the number of years required to double its GDP per capita. These results reflect that the effect found in figure 1 is indeed an important structural change for Costa Rica and its economic growth path. In addition, it is clear that no other country in the sample experienced a similar change as Costa Rica did. While it is true that Chile, Colombia, Brazil, Ecuador and Mexico has somewhat similar GDP per capita growth rates in the post army abolishment period, the change between periods is not even close to the one experienced by Costa Rica. Something very similar can be said also about the doubling time years and its changes between periods. Therefore, it seems to be that our estimates are correctly identifying an effect of a Costa Rican specific shock rather than a shock that affected several countries at the same time.

In spite of the robustness of the results, it could still be a possibility that the effect shown in figure 1 does not correspond to the effect of the abolishment of Costa Rica's army, but rather may be obtained by pure serendipity or by an event of similar nature that occurred in the donor pool. To address this concern, we performed a series of placebo studies that consist in applying the same method used to compute Costa Rica´s synthetic control to other countries that did not abolish their army. In figure 2, we present the placebo study done with Honduras, which was the country that was assigned the largest weight in the synthetic control estimates in figure 1. The rationale of using Honduras as a placebo study is to assess if the effect found is idiosyncratic to Costa Rica. The results in figure 2 reveal that the synthetic control estimator does not do a good job of predicting actual Honduras, nor there is an upward pattern in the GDP per capita of Honduras after 1951. Thus, while the data of Honduras is useful at predicting Costa Rica, this is not because both countries went through similar institutional shocks at the same time.

Along similar lines, we also conducted placebo studies with the rest of the countries in our sample by iteratively applying the synthetic control method used to estimate the effect of Costa Rica´s army abolishment to every other country in Latin America. In other words, as in the case of Honduras, we proceeded as if each of the countries in Latin America had abolished its army and yielded its effects by 1951. This exercise generates a distribution of estimated gaps for the coun-

Figure 2
Per-capita gdp gaps in Costa Rica and placebos



tries for which no army was abolished. In figure 3 we display this exercise with the countries that constituted the donor countries for Costa Rica's synthetic control estimates. We selected these countries specifically because according to the method, these are the countries that predict Costa Rica the best prior to the treatment in 1951. Therefore, this is a good way on to determine whether the shock experienced by Costa Rica is unique and if Costa Rica is well predicted by this set of countries.

As in the case of Honduras, we did not find any evidence suggesting that any other country in Latin America had a political or economic shock similar to the one experienced in Costa Rica in 1951. As expected, compared to the other countries, there is a small gap for Costa Rica prior to the treatment and an increasing gap starting in 1951. Whereas the other countries that best reproduced Costa Rica prior to the treatment do not show any abrupt shock or trend change in 1951. Hence, providing further empirical proof that Costa Rica's shock was unique and not resembled by any of the countries that were used to construct Costa Rica's synthetic control. Furthermore, the figure also provides an idea of how good is the fit of Costa Rica prior to the treatment date in comparison to the performance of the other placebo studies. Whereas it can be appreciated, the gap between actual Costa Rica and its synthetic control is as small, or smaller than the gaps for the other countries in the pre-treatment period.

Lastly, another concern with our results is that our estimates might be picking up one of multiple shocks that affected Costa Rica in the long run. In particular, there are two events that might have had long lasting effects on Costa Rica's development around the time the country abolished its army: the set of social reforms implemented in the early 1940's and a series of commercial and customs treaties at the end of the 1950's that would eventually constitute in Central American common market in the 1960's[4]. To address these concerns, we estimated the synthetic control models for 1944 and 1960. These estimates are shown in figure 4 below.

We do not find any estimated positive effect on any of these dates. In the case of the synthetic control estimates for 1944, even though there is a tendency for Costa Rica's per capita GDP to rise around this year, it is not until 1951 that the synthetic control estimates and the real gdp per capita series diverge. This further suggests that even if there were policies and events that contributed to the long-run development of Costa Rica, it is not until the abolishment of the army that Costa

[4]These treaties were: the Central American multilateral treaty of commerce and economic integration of June 10 of 1958, the Central American agreement of industries of July of 1958, and the Central American agreement of import taxes equalization of September of 1959. Costa Rica had also previously signed free trade agreements with El Salvador and Guatemala in 1954 and 1957.

Figure 3
Per-capita gdp gaps in Costa Rica and placebos

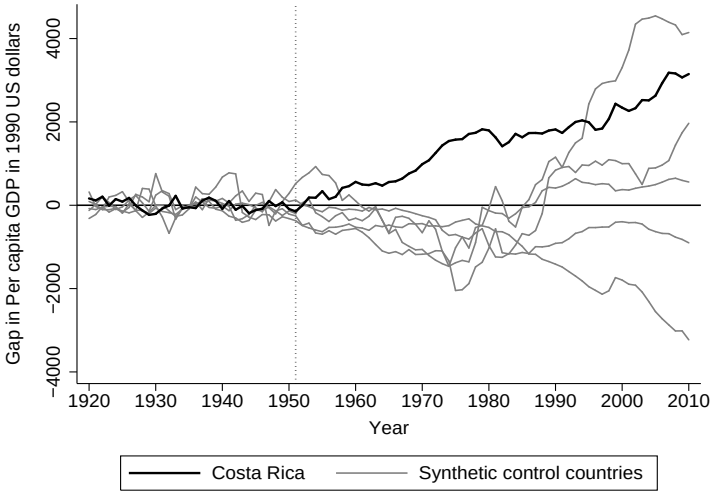
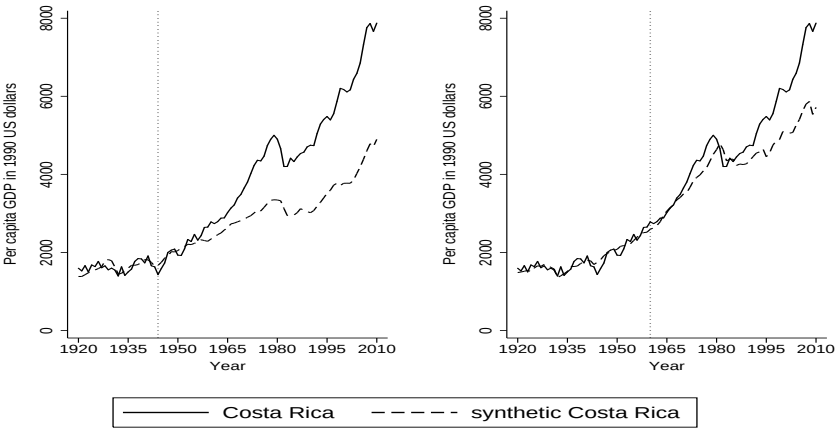


Figure 4
Synthetic control estimates for 1944 and 1960



Rica that these policies truly take effect on the country. On the other hand, the synthetic control estimates on 1960 show that there are no significant shocks or discernible differences from the long run trend. Therefore, there does not seem to be evidence to claim that our results are being driven by a temporal misplacement of the treatment or another shock that had in fact produced our previously observed results.

Discussion

Thus far, our results along with their robustness checks provide empirical evidence to claim that Costa Rica's army abolishment contributed significantly to the long-run development of the country. However, although our synthetic control shows that the constitutional abolishment of Costa Rica's army was followed by a notable increase in growth rate of the country's GDP per capita, this does not explain why this higher growth rate was sustained over time.

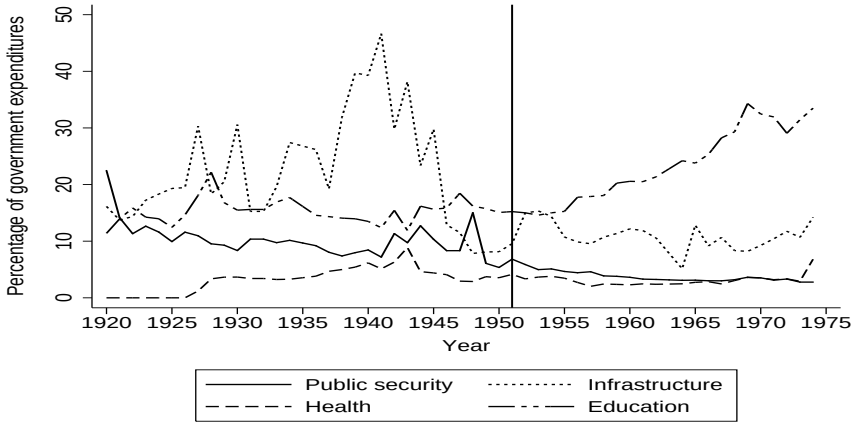
The most popular explanation for this sustained GDP per capita growth is that the government redirected its military spending towards health and education. In figure 5 below, we show the percentage of the government's expenditure that infrastructure, health, education and public security[5] spending represented from 1920 to 1974. As in the synthetic control estimates, we show a vertical line on 1951 because this is the year where government spending had been fully considered without thinking about spending resources on an army. In other words, since the army was constitutionally abolished on November of 1949, the government budget of 1950 had been previously set for this year. Hence, 1951 is the first year where the government no longer considers the army in its expenditure.

On the one hand, public security spending started a decreasing trend as soon as the abolishment of the army took effect on the government spending on 1951. Also, in 1951, infrastructure spending experienced a short term boost until 1944, but then its magnitude relative to the all government spending oscillated around a 10% for the next twenty years. Therefore, infrastrucure spending became more stable over the years rather than having the very variant and non-stable nature it had for the thirty years prior to the army's abolishment. Educational spending started a sudden increase as a percentage of total government spending on 1955, where in 1969 in represented a 35% of the total government expenditures. As for health expenditures, these represented around a 3% of the total government expenditure for the next 25 years. It is worth noting though, that this expenditure does not include the social security expenditure, which is financed by contributions from all workers in the country and was increasing over all this time period.

Precisely, one of the main changes in the 1949 Constitution was to stablish a minimum mandatory percentage of the public budget to Public Education (and 10% of this budget earmarked for higher education). Nevertheless, the constitution included another series of modifications that also guaranteed an institutional change. One of the main the purposes of the 1949 Constitution was to strengthen political stability and reduce the imbalance of power held by presidential power in the previous Constitution of 1871. This ideas led to the creation of autonomous state institutions, which are public institutions that enjoy administrative independence from the executive power, and up to this date are responsible for areas such as state banking, insurance industries and electric supply. In addition to the creation of the autonomous state institutions, the newly crafted constitution gave the Supreme Electoral Tribunal a Constitutional status, a minimum percentage of government spending is guaranteed for Public Education, the Civil Service is introduced, among other institutional changes that have endured ever since (Dabène, 1992). Therefore, the 1949 constitution ended up being a redistribution of executive power and government spending in institutions and policies that fostered social development and government transparency and

[5]This spending category constituted the country's military expenditure until 1950.After the abolishment of the army, it included police expenditures and other spending related to national security that did not involved an army.

Figure 5
Government expenditures, 1920-1975



accountability.

However, one of the main factors that ensured an effective political stability was undoubtedly the abolition of the army. The history of Latin America has been sadly eloquent enough, in comparison to the rest of latin America, Costa Rica has barely experienced political and civil violence. In table 3 below, we show the number of coup d'etats and episodes of political violence in Latin America since 1951.

Table 3
Number of Coup d'etats and years of political violence involving the state by country, 1951-2010

		International		**Civil**		**Ethnic**	
	Coup d'etats	**Violence**	**Warfare**	**Violence**	**Warfare**	**Violence**	**Warfare**
Argentina	15	0	1	1	5	0	0
Bolivia	17	0	0	1	0	0	0
Brazil	2	0	0	1	0	0	0
Chile	2	0	0	2	3	0	0
Colombia	1	0	0	36	10	0	0
Costa Rica	1	0	0	1	0	0	0
Cuba	1	1	0	0	3	0	0
Dominican Republic	5	0	0	1	0	0	0
Ecuador	7	1	0	0	0	0	0
El Salvador	4	0	1	0	14	0	0
Guatemala	12	0	0	1	0	0	31
Honduras	7	7	1	21	0	0	0
Mexico	0	0	0	5	0	4	0
Nicaragua	3	7	0	0	12	0	0
Panama	6	1	0	0	0	0	0
Paraguay	4	0	0	0	0	0	0
Peru	5	1	0	16	0	0	0
Uruguay	1	0	0	0	0	0	0
Venezuela	4	0	0	1	0	0	0

Source: author's estimates using the Integrated Network for Societal Conflict Research data base.

Since 1951, Latin America has experienced 97 sucessful or unsucessful coup d'etats, 21 episodes of international political violence, 134 episodes of civil political violence and 35 episodes of ethnic

violence. The table shows that Costa Rica and Uruguay are remarkably different from the rest of the countries in Latin America in terms of episodes of political violence and coup d'etats. However, this table does take into account dictatorships. Once this is considered, Costa Rica is an exceptional country, where the only episode of political violence in the country was an unsuccessful coup d'etat in 1955 that lasted less than a month and was solved via diplomatic channels rather than warfare. This political stability most likely allowed not only saved the country from violence and strongmen, but generated an institutional setting that allowed continuity in reforms, conflict resolution via non-violent channels.

Conclusions

Much has been said about the pernicious effects of political conflict on the economy. But in this article, we provide evidence that relinquishing an army can have positive effects on an economy.Through synthetic control methods, this article presents evidence of the positive economic effect of the abolition of Costa Rica´s army. We find these effects to be robust, and exclusive to the country. Prior to the abolishment of its army, Costa Rica was the penultimate country in GDP per capita growth in Latin America; following the abolishment of the army, the country becomes the second best country in this indicator. While the country's GDP per capita grew at an average annual rate of 0.97% from 1920 to 1951, this rate increased to 2.49% in the 1952-2010 period. This change makes Costa Rica the country with the largest positive increase in this indicator in all Latin America.

We additionally point out how the gap between Costa Rica's GDP and its counterfactual is indeed explained by a phenomenon that started after 1951, and had correspondence with institutional changes such as the the increasing educational expenditure, and other power counter-balances included in the Constitution. However, as regional history of the second half of the century has revealed, the only compromise that a society can have to make these institutional changes long lasting, is through the abolition of the army in this constitution.

Our research generates evidence that for a small developing country, the abolishment of its armed forces has yielded long-run positive effects on its economy. However, it does no follow from our results that such changes would accrue similar results in other countries with different characteristics with respect to Costa Rica. Therefore, more study is required in order to assess similar effects in other case studies.

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Annex

Figure 6
Synthetic control estimates for 1944 and 1960