1 Online Supplemental Information

This section contains the online supplemental appendix for the paper "No Business Like FIRC Business: Foreign-Imposed Regime Change and Bilateral Trade." First, the appendix presents a technical description of our estimation procedure for the synthetic controls. It contains our estimation equation as well as graphs of the resulting controls. Second, it shows the results from our estimation of an alternate explanation for the decrease in trade: an increase in military expenditure. Third, it presents our main results with data from Cuba. Fourth, it shows our models with year fixed effects instead of cubic restricted time splines. Fifth, we present our models with alternate lags for some of our independent variables of interest. Finally, we conduct the matching analysis referenced in the paper and show those results.

1.1 Synthetic Control Technical Appendix

This section of the appendix explains how the synthetic controls are calculated for countries that experienced a FIRC. In addition, it provides the equation for calculating each synthetic control. For each country, a graph is rendered showing total trade for the country that experienced a FIRC and the total trade for the synthetic control country for up to 20 years following the FIRC. The year of the FIRC is also depicted on each graph. Finally, we show the statistics used to identify whether trade after a FIRC is statistically similar or statistically different than the synthetic control.

In creating the synthetic controls, we first had to identify countries for which trade data was available, and which did not experience a FIRC at any point in time. The

countries fitting this description can be found in Table AX1. In addition to a list of countries, this table contains information on the first year for which trade data is available for each country. In order to create a synthetic control, we use the following format:

$$logTotTradeFIRCCountry_t = \beta_0 + \sum_{i=1}^{n} \beta_1 lnTotalTradeNonFIRCCountry + \epsilon_t \quad (1)$$

Here, i represents each country used to create the synthetic control. This equation is estimated using only data on trade before the country experiences a FIRC. This creates an estimate of total trade in the country experiencing a FIRC. For the time period before the FIRC, the estimate should be very similar to the actual level of total trade in the country, depending on the fit of the equation used to calculate the estimate. However, the equation can also be used to generate predicted levels of trade for years following the FIRC. This creates an estimate of total trade each year in the country experiencing a FIRC. The predicted values of trade post-FIRC represent what would have happened in the country in the absence of a FIRC. This paper examines FIRCs in the 20th century. However, some countries in Latin America, Peru for example, experienced a FIRC before 1900. These countries are not listed in Table AX1 because no country that has experienced a FIRC in the past should be used in the generation of a synthetic control. Additionally, many of the FIRCs examined occurred in the early 20th century. Since data from before the FIRC is used to create the synthetic control, countries used in the equation should have a long history of trade data. Given these restrictions, Belize, Guyana, and Suriname

are unlikely candidates to be used to create a synthetic control.

Table AX1: Possible Countries to use in Synthetic Control Calculations

Country	First Year of Trade Data
Belize	1981
Bolivia	1887
Brazil	1873
Colombia	1873
Ecuador	1888
Guyana	1966
Suriname	1973
Uruguay	1873
Venezuela	1873

Note: Peru and El Salvador excluded because they experienced FIRCs prior to 1900.

For each country experiencing a FIRC, equation AX1 is used to estimate the corresponding synthetic control. For each country, the equation chosen for the synthetic control uses the combination of countries that maximizes the adjusted R^2, which measures the goodness of fit of the line. The adjusted R^2 is used since this measure is not dependent on the number of independent variables used in the equation. For instance, using Ecuador in an equation will lead to losing up to 15 observations (data from 1873-1887). Therefore, Ecuador is only included in the calculation of a synthetic control if including this independent variable increases the model fit. The equations used to determine synthetic controls for each country are listed in Table AX2:

Table AX2: Equations Used to Generate Synthetic Controls

Country	Synthetic Control Equation	Adj. R^2
Chile	$lnTotalTradeChile_t = 17.44 + 1.18lnTotalTradeBrazil_t + 0.49lnTotalTradeColombia_t + 0.46lnTotalTradeUruguay_t - 0.34lnTotalTradeVenezuela_t + \epsilon_t$	0.851
Costa Rica	$lnTotalTradeCostaRica_t = 11.67 + 0.11lnTotalTradeBrazil_t + 0.11lnTotalTradeBolivia_t - 0.16lnTotalTradeColombia_t - 0.13lnTotalTradeUruguay_t - 0.23lnTotalTradeVenezuela_t + \epsilon_t$	0.614
Dominican Republic	$lnTotalTradeDominicanRepublic_t = -11.29 + 1.57lnTotalTradeBrazil_t + 0.02lnTotalTradeColombia_t + 0.14lnTotalTradeUruguay_t - 0.37lnTotalTradeVenezuela_t + \epsilon_t$	0.733
Guatemala	$lnTotalTradeGuatemala_t = 0.89 + 0.39lnTotalTradeBrazil_t + 0.01lnTotalTradeBolivia_t + 0.10lnTotalTradeColombia_t + 0.17lnTotalTradeUruguay_t + 0.20lnTotalTradeVenezuela_t + \epsilon_t$	0.932
Haiti (1915)	$lnTotalTradeHaiti_t = 16.66 - 0.35lnTotalTradeBrazil_t - 0.20lnTotalTradeColombia_t + 0.10lnTotalTradeUruguay_t + 0.60lnTotalTradeVenezuela_t + \epsilon_t$	0.266
Haiti (1994)	$lnTotalTradeHaiti_t = -4.43 + 1.35lnTotalTradeBrazil_t - 0.44lnTotalTradeColombia_t - 0.08lnTotalTradeBolivia_t + 0.13lnTotalTradeUruguay_t + 0.08lnTotalTradeVenezuela_t + \epsilon_t$	0.920
Honduras	$lnTotalTradeHonduras_t = 0.87 + 0.13lnTotalTradeBrazil_t + 0.17lnTotalTradeBolivia_t + 0.61lnTotalTradeColombia_t - 0.01lnTotalTradeUruguay_t + 0.1lnTotalTradeVenezuela_t + \epsilon_t$	0.769
Mexico	$lnTotalTradeMexico_t = -18.85 + 2.38lnTotalTradeBrazil_t - 0.01lnTotalTradeColombia_t + 0.14lnTotalTradeUruguay_t - 0.71lnTotalTradeVenezuela_t + \epsilon_t$	0.832
Nicaragua (1909)	$lnTotalTradeNicaragua_t = 15.57 + 0.085lnTotalTradeBrazil_t + 0.039lnTotalTradeBolivia_t - 0.020lnTotalTradeColombia_t - 0.057lnTotalTradeUruguay_t + 0.080lnTotalTradeVenezuela_t + \epsilon_t$	0.174
Nicaragua (1926)	$lnTotalTradeNicaragua_t = 6.53 - 0.04lnTotalTradeBrazil_t + 0.31lnTotalTradeBolivia_t - 0.12lnTotalTradeColombia_t - 0.02lnTotalTradeUruguay_t + 0.48lnTotalTradeVenezuela_t + \epsilon_t$	0.718
Panama	$lnTotalTradePanama_t = 6.95 + 0.46lnTotalTradeBrazil_t - 0.23lnTotalTradeColombia_t + 0.070lnTotalTradeUruguay_t + 0.30lnTotalTradeVenezuela_t + \epsilon_t$	0.739

Using the equations in Table AX2, we generate synthetic controls for each country that experienced a U.S. FIRC. Once the equations are generated, the time period of interest shifts to the years immediately following the FIRC. The synthetic control values for years following the FIRC represent what would have happened to trade in the country in the absence of a FIRC.

We compare the actual levels of trade with the levels of trade predicted from the synthetic control for a 20 year period following the FIRC. A t-test is used to determine if the two series are significantly different from one another at the 5 percent level. The statistics used to generate those outcomes are presented in Table AX3. The third and fourth columns represent the average value of the natural log of total trade for the 20 years following a FIRC for both the country of interest and its synthetic control. The t-statistic in the last column represents the absolute value of the t-statistic from testing the null hypothesis that these two values were equal to each other, against the alternate hypothesis that they are statistically different from one another:

$$H_0 : \text{mean}[\ln(\text{TotalTrade})|\text{country}] = \text{mean}[\ln(\text{TotalTrade})\text{SyntheticControl}]$$
$$H_a : \text{mean}[\ln(\text{TotalTrade})|\text{country}] \neq \text{mean}[\ln(\text{TotalTrade})\text{SyntheticControl}]$$

A t-statistic above 1.96 means that null hypothesis is rejected at the 95 percent confidence level. The outcomes of these t-tests are reported in Table 5 in the paper. An outcome of "Same" means that the two series are statistically similar, and that the FIRC had no impact on trade with the United States. An outcome where trade in the synthetic control series is significantly higher than the country means that trade

with the United States has fallen due to the FIRC. An outcome where trade in the synthetic control series is significantly lower than the county means that trade with the United States has risen in the aftermath of the FIRC.

Table AX3: Comparison of Trade Levels Between Country and Synthetic Control

Country	Average (Country)	Average (Synthetic Control)	T-Statistic
Chile	22.01	22.86	12.04
Costa Rica	18.65	18.91	5.00
Dominican Republic	19.19	18.71	6.16
Guatemala	20.75	20.31	16.92
Haiti (1915)	18.73	18.83	0.88
Haiti (1994)	20.77	21.33	9.21
Honduras	19.06	19.31	5.49
Mexico	21.71	21.13	4.81
Nicaragua (1909)	18.59	18.16	7.19
Nicaragua (1926)	18.50	19.27	10.14
Panama	21.56	21.48	1.22

These results can also be viewed graphically. Figures AX1-AX11 depict the time series of total trade between each country and the United States from 1900 until 20 years following the FIRC. The synthetic control is also depicted on each graph, along with a reference line showing the timing of a FIRC. The results from Table 5 in the paper can be seen by the divergence in the two series of data post FIRC. The details in this appendix help illustrate the results from the synthetic control methods discussed in the paper.

Figure AX1. Chile Synthetic Control

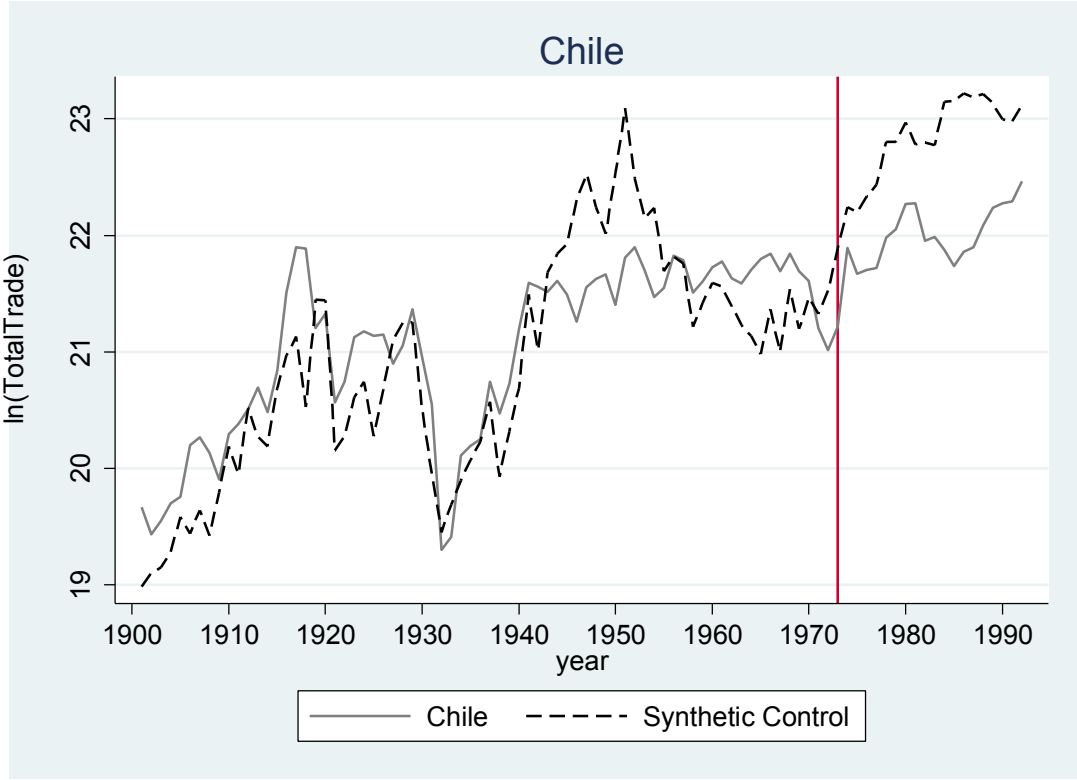


Figure AX2. Costa Rica Synthetic Control

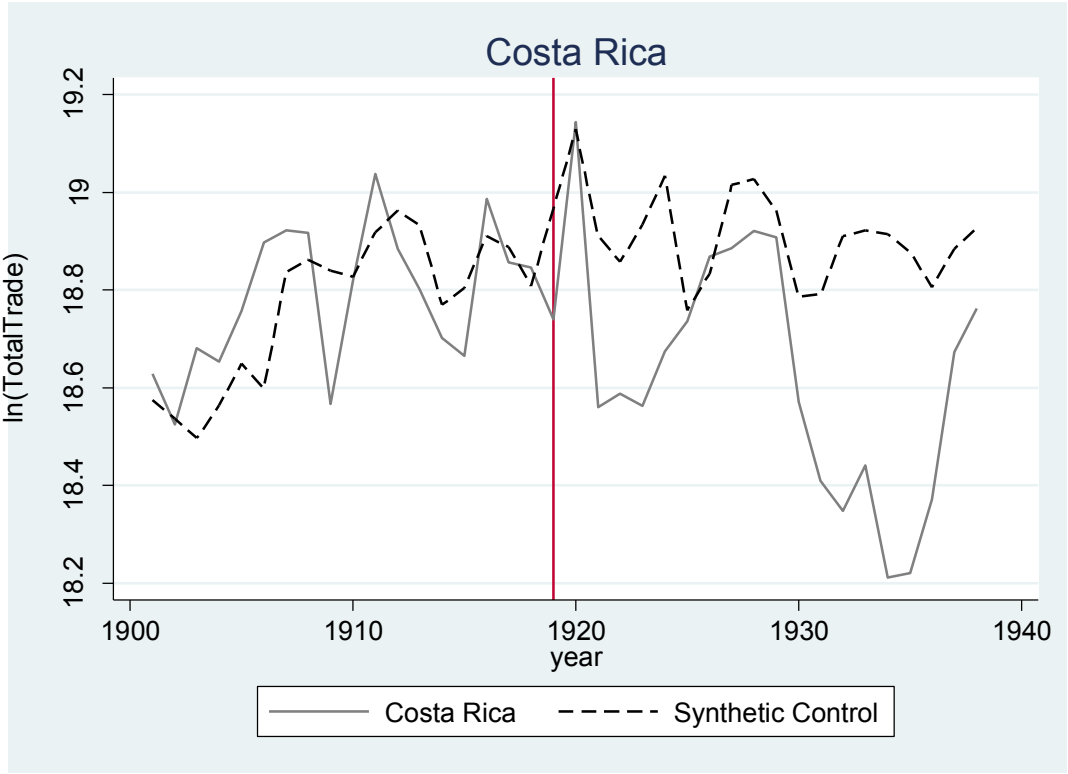


Figure AX3. Dominican Republic Synthetic Control

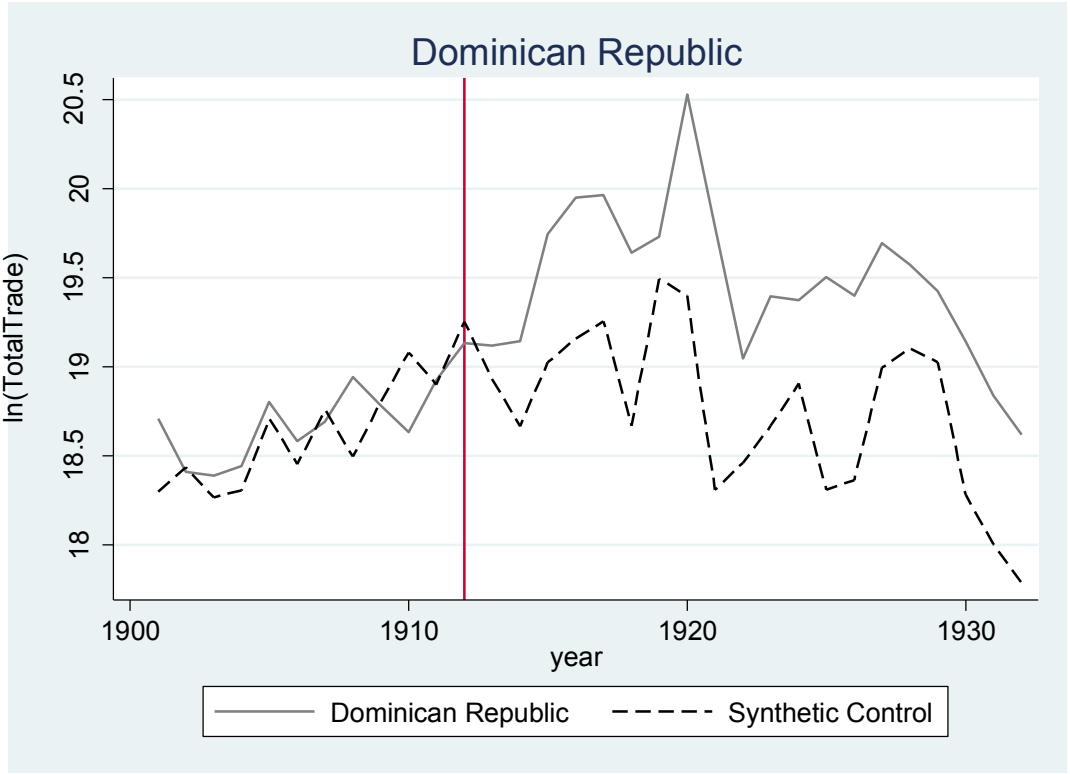


Figure AX4. Guatemala Synthetic Control

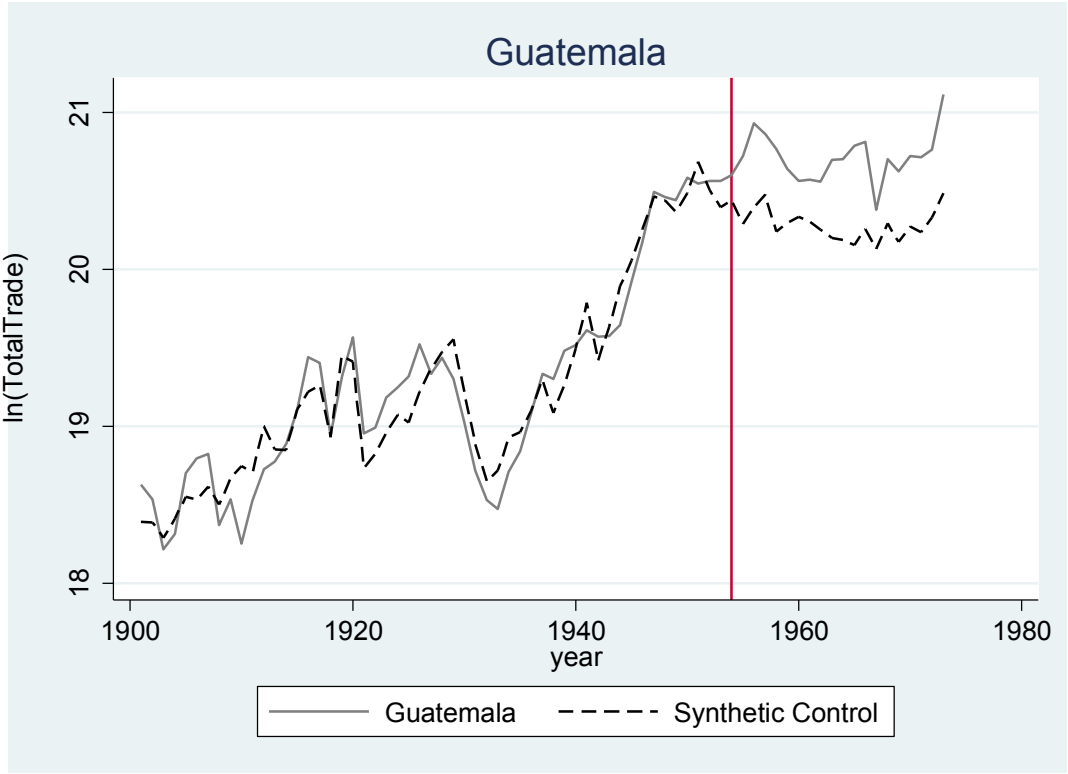


Figure AX5. Haiti (1915) Synthetic Control

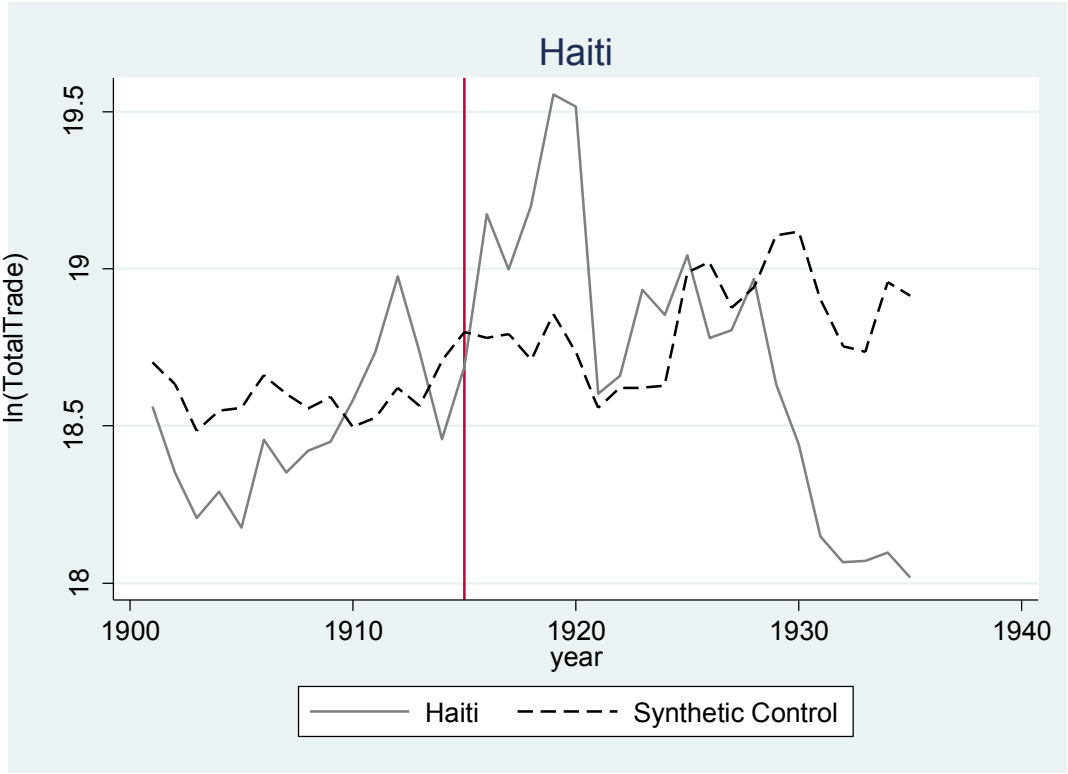


Figure AX6. Haiti (1994) Synthetic Control

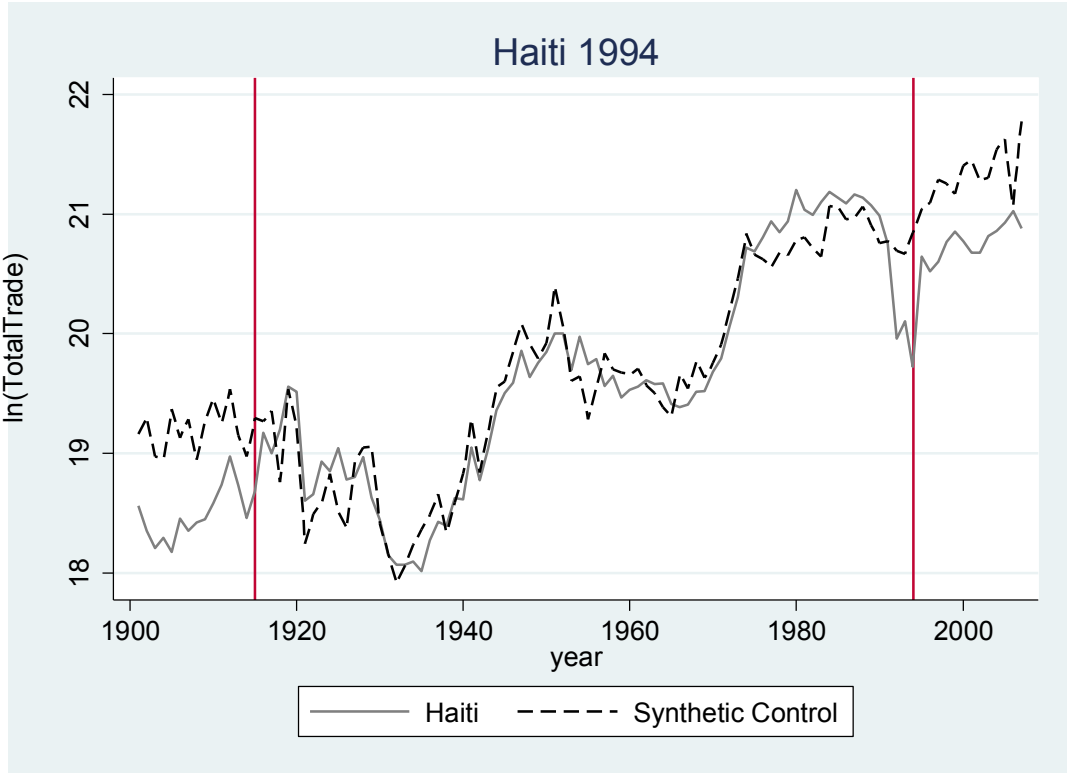


Figure AX7. Honduras Synthetic Control

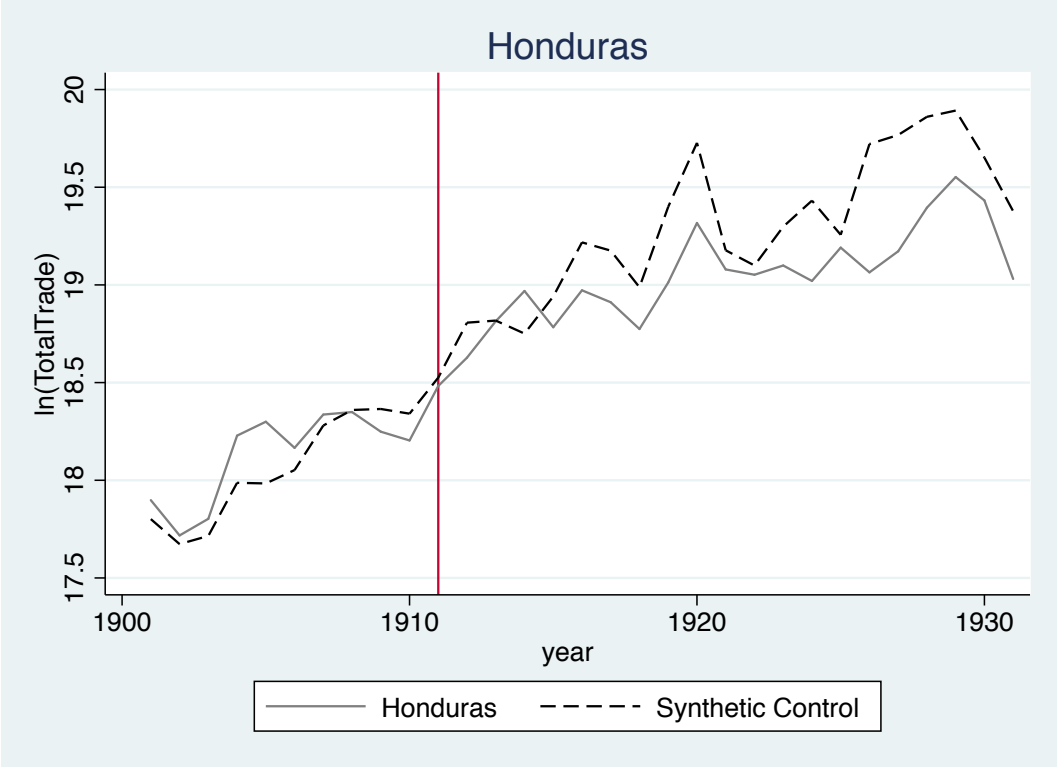


Figure AX8. Mexico Synthetic Control

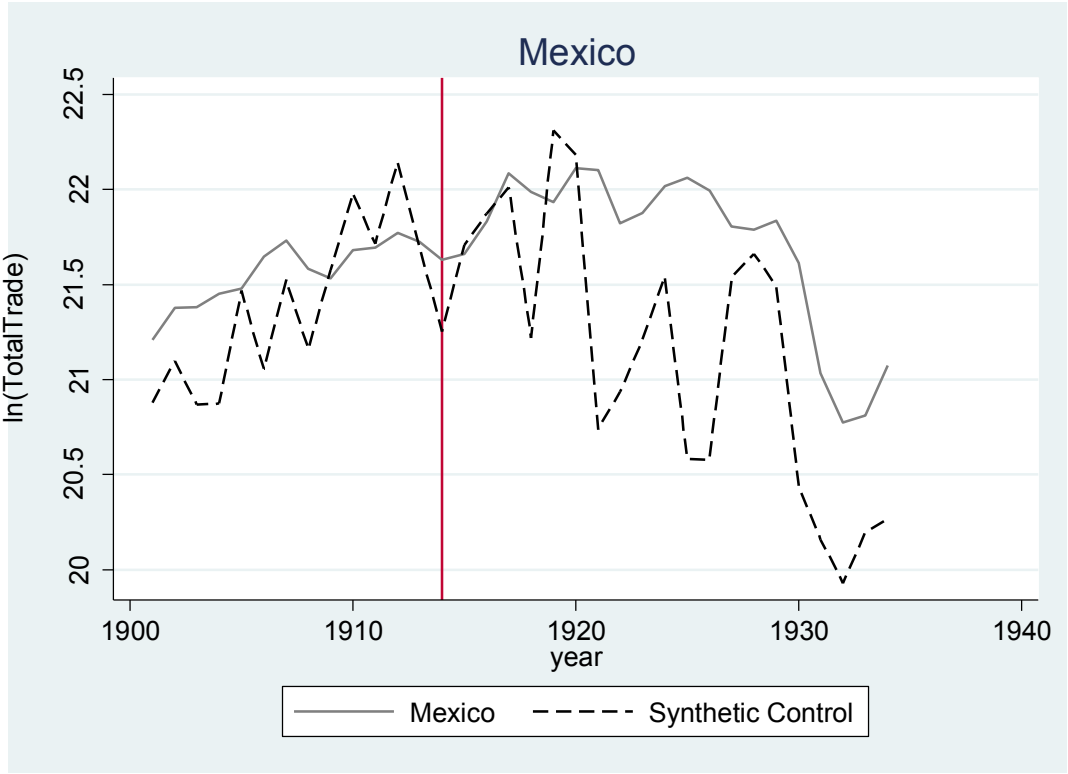


Figure AX9. Nicaragua (1909) Synthetic Control

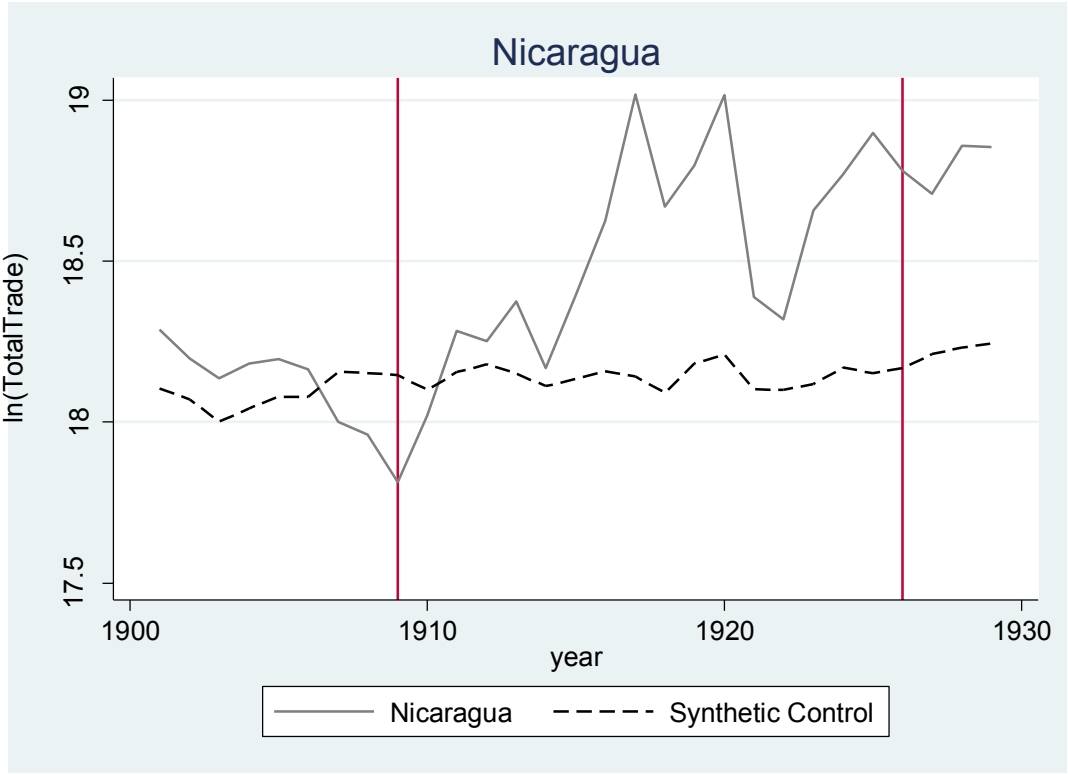


Figure AX10. Nicaragua (1926) Synthetic Control

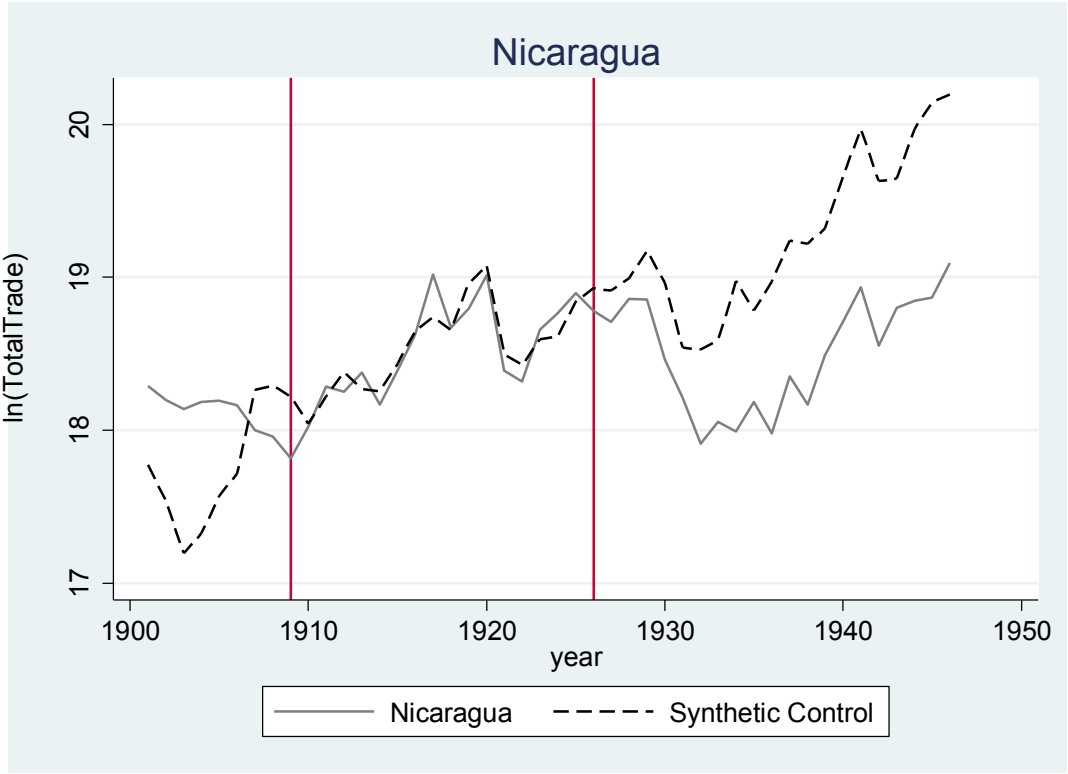
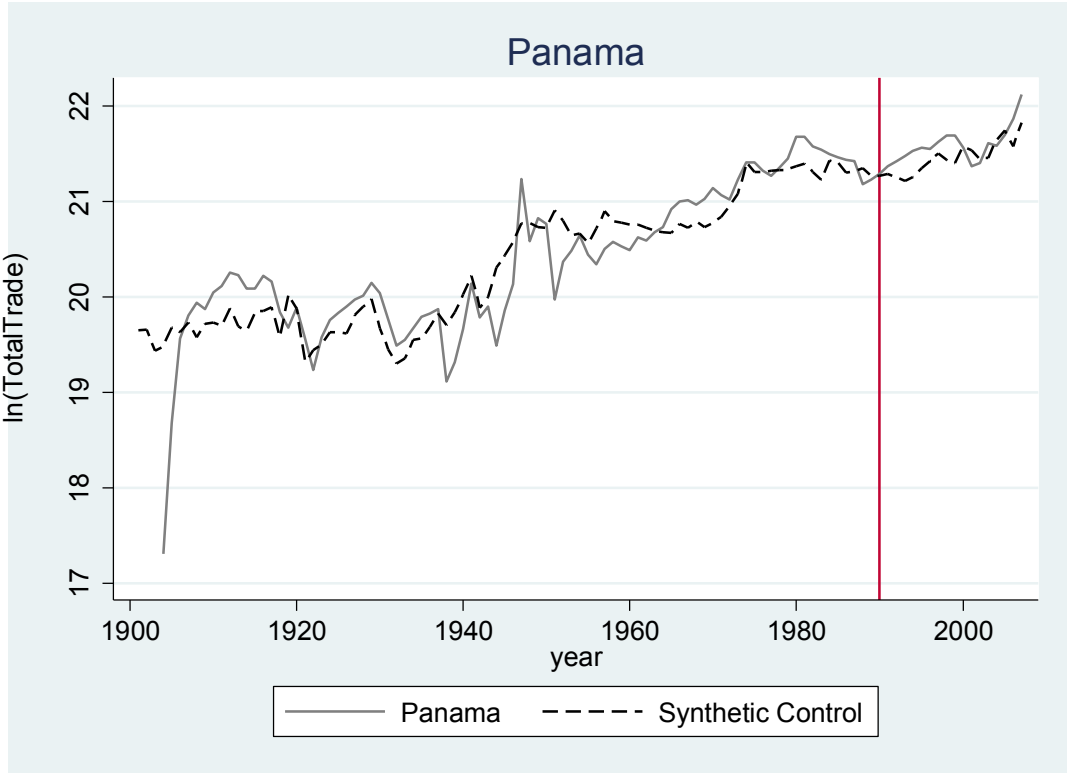


Figure AX11. Panama Synthetic Control



1.2 Military Expenditure Results

This section estimates the effect of FIRC on military expenditure, testing the argument that external interveners prompt targets of FIRC to redirect government spending away from economic pursuits (like trade) towards the military. To account for the potential that less stable regimes are more likely to spend more on their militaries than their more harmonious peers, we use data from the Correlates of War project on coups and revolutions. *Coups* takes a value of 1 in all years in which country i experiences a coup attempt and *Revolution* takes a value of 1 in all years in which country i experiences some form of revolution. As shown in Table AX4 below, and as reported in the paper, FIRC has no effect on military expenditure.

Table AX4: Effect of FIRC on Military Expenditure

DVs	(1) MilExp	(2) MilExp	(3) MilExp	(4) MilExp
FIRC	107,098	154,974		154,974
	(242,297)	(218,944)		(218,944)
FIRCDem			-746,568	
			(486,416)	
FIRCNonDem			332,764	
			(274,880)	
TradeOrg	167,178	15,551	146,493	15,551
	(160,434)	(232,056)	(169,145)	(232,056)
Democracy	128,636	69,546	151,780	69,546
	(192,861)	(198,313)	(190,922)	(198,313)
Revolution	-21,697	-32,534	-11,395	-32,534
	(131,748)	(126,694)	(126,907)	(126,694)
Coups	97,491	103,096	97,079	103,096
	(140,342)	(142,888)	(137,410)	(142,888)
Log Population	-1.502e+06	-3.033e+06*	-1.466e+06	-3.033e+06*
	(920,014)	(1.681e+06)	(895,472)	(1.681e+06)
log $GDP_{j,inc}$	1.203e+06		1.236e+06	
	(789,400)		(799,032)	
CivilWar	149,779	-48,964	89,512	-48,964
	(125,031)	(178,652)	(88,637)	(178,652)
log $GDP_{j,ycap}$		2.673e+06		2.673e+06
		(1.617e+06)		(1.617e+06)
Constant	-1.205e+07	4.099e+07	-5.256e+06	4.099e+07
	(1.551e+07)	(3.210e+07)	(1.567e+07)	(3.210e+07)
Observations	2,576	2,576	2,576	2,576
Number of Panels	23	23	23	23
Country FE	Yes	Yes	Yes	Yes
Time Splines	Yes	Yes	Yes	Yes

Robust standard errors (clustered on country) in parentheses

*** p<0.01, ** p<0.05, * p<0.1

1.3 Robustness Checks

1.3.1 Main Models with Cuban Data

In this section, we estimate our main models but include data from Cuba prior to the embargo (before 1963). These results are similar to those presented in the main body of the paper.

Table AX5: Total Trade with Pre-Embargo Cuban Data

DVs	(1) Trade	(2) Trade	(3) Trade	(4) Trade
FIRC	-0.565***	-0.582***		
	(0.195)	(0.205)		
TradeOrg	-0.491**	-0.530***	-0.496**	-0.534***
	(0.187)	(0.169)	(0.186)	(0.168)
Democracy	-0.0775	-0.0602	-0.0719	-0.0564
	(0.142)	(0.154)	(0.145)	(0.156)
log $GDP_{j,inc}$	0.502		0.514	
	(0.312)		(0.316)	
log GDP_{USA}	0.588**	0.586**	0.594**	0.590**
	(0.248)	(0.258)	(0.246)	(0.257)
CivilWar	0.162	0.118	0.147	0.108
	(0.231)	(0.243)	(0.232)	(0.244)
log $GDP_{j,ycap}$		0.438		0.444
		(0.464)		(0.467)
FIRCNonDem			-0.505**	-0.545**
			(0.209)	(0.218)
FIRCDem			-0.789***	-0.723***
			(0.194)	(0.205)
Constant	36.73	35.21	38.74	36.42
	(43.45)	(41.80)	(43.22)	(41.60)
Observations	2,576	2,576	2,576	2,576
Number of Panels	23	23	23	23
Country FE	Yes	Yes	Yes	Yes
Time Splines	Yes	Yes	Yes	Yes

Robust standard errors (clustered on country) in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table AX6: Imports and Exports with Pre-Embargo Cuban Data

DVs	(1) Imports	(2) Imports	(3) Imports	(4) Exports	(5) Exports	(6) Exports
FIRC	-0.463**	-0.500**		-1.118**	-1.129**	
	(0.189)	(0.212)		(0.480)	(0.485)	
TradeOrg	-0.454**	-0.504***	-0.505***	-0.866**	-0.840**	-0.843**
	(0.179)	(0.172)	(0.172)	(0.368)	(0.309)	(0.307)
Democracy	-0.0376	-0.00357	-0.00257	-0.143	-0.137	-0.134
	(0.134)	(0.150)	(0.151)	(0.238)	(0.250)	(0.251)
log $GDP_{j,inc}$	0.686**			-0.255		
	(0.250)			(0.829)		
log GDP_{USA}	0.547**	0.537**	0.538**	0.620*	0.610*	0.613*
	(0.255)	(0.258)	(0.259)	(0.348)	(0.335)	(0.334)
CivilWar	0.145	0.0989	0.0962	0.121	0.164	0.156
	(0.206)	(0.230)	(0.230)	(0.353)	(0.356)	(0.358)
log $GDP_{j,ycap}$		0.426	0.428		-0.475	-0.471
		(0.467)	(0.468)		(1.193)	(1.197)
FIRCNonDem			-0.491**			-1.100**
			(0.225)			(0.511)
FIRCDem			-0.538**			-1.238**
			(0.200)			(0.505)
Constant	54.92	42.36	42.67	14.45	-0.222	0.710
	(47.34)	(38.71)	(38.54)	(56.00)	(57.24)	(57.76)
Observations	2,576	2,576	2,576	2,576	2,576	2,576
Number of Panels	23	23	23	23	23	23
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Time Splines	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors (clustered on country) in parentheses

*** p<0.01, ** p<0.05, * p<0.1

1.3.2 Time Fixed Effects

In the main estimates for our paper, we use cubic-restricted time splines to model non-linear time effects. It is possible that these might miss important effects from particular years. We therefore reestimate our main models with year fixed effects. Additionally, we also include country fixed effects to account for unobserved heterogeneity in each panel. The results for FIRC are basically unaffected.

Table AX7: Main Estimation Table with Year Fixed Effects

DVs	(1) Trade	(2) Trade	(3) Trade	(4) Trade
FIRC	-0.594***		-0.610***	
	(0.199)		(0.210)	
TradeOrg	-0.467**	-0.475**	-0.498**	-0.504**
	(0.196) (0.195)	(0.179)	(0.180)	
Democracy	-0.109	-0.103	-0.0989	-0.0942
	(0.146)	(0.149)	(0.157)	(0.159)
ln $GDP_{j,inc}$	0.453	0.466		
	(0.319)	(0.324)		
lnUSGDP	-3.237***	-3.099***	-3.694***	-3.611***
	(0.927)	(0.969)	(0.937)	(0.970)
CivilWar	0.274	0.256	0.230	0.217
	(0.203)	(0.204)	(0.221)	(0.221)
log $GDP_{j,ycap}$			0.415	0.422
			(0.473)	(0.475)
FIRCNonDem		-0.532**		-0.568**
		(0.210)		(0.218)
FIRCDem		-0.828***		-0.768***
		(0.215)		(0.227)
Constant	72.09***	69.36***	81.28***	79.64***
	(18.57)	(19.55)	(17.54)	(18.33)
Observations	2,515	2,515	2,515	2,515
Number of panels	22	22	22	22
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Robust standard errors (clustered on country) in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table AX8: Imports and Exports with Year Fixed Effects

DVs	(1) Imports	(2) Imports	(3) Exports	(4) Exports
FIRC	-0.484**		-0.520**	
	(0.193)		(0.216)	
TradeOrg	-0.454**	-0.461**	-0.493**	-0.826**
	(0.194)	(0.195)	(0.190)	(0.331)
Democracy	-0.0478	-0.0417	-0.0230	-0.186
	(0.134)	(0.138)	(0.150)	(0.257)
ln $GDP_{j,inc}$	0.642**	0.654**		
	(0.255)	(0.259)		
lnUSGDP	-1.220	-1.095	-1.970*	-4.108***
	(1.028)	(1.062)	(0.995)	(1.416)
CivilWar	0.253	0.238	0.207	0.273
	(0.163)	(0.167)	(0.196)	(0.360)
log $GDP_{j,ycap}$			0.411	-0.498
			(0.466)	(1.223)
FIRCNonDem		-0.427**		-1.138**
		(0.199)		(0.521)
FIRCDem		-0.697***		-1.298**
		(0.221)		(0.552)
Constant	30.67	28.18	47.94**	100.0***
	(19.92)	(20.71)	(17.09)	(21.31)
Observations	2,515	2,515	2,515	2,515
Number of panels	22	22	22	22
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Robust standard errors (clustered on country) in parentheses

*** p<0.01, ** p<0.05, * p<0.1

1.3.3 Alternate IV Lags

This section performs two tests. First, it tests the speed with which trade declines following a FIRC by estimating different lags for our treatment variable. PostFIRC1 includes the year after a FIRC; PostFIRC5 includes the five years following a FIRC; PostFIRC10 includes the ten years following a FIRC; and PostFIRC20 includes the twenty years following a FIRC. The results show that the negative effect of FIRC takes time to manifest itself. In the immediate aftermath of FIRC, trade is largely unaffected. By five years later, however, the effect of FIRC is negative and significant for total trade and exports, and the magnitude of the effect continues to grow out to 20 years. For imports, the negative effect of FIRC is not significant until 20 years later. Second, the section tests the effect of alternative lags for civil war on trade. If finds to significant effects.

Table AX9: Total Trade with Alternate Time Lags

	(1)	(2)	(3)	(4)
DVs	Trade	Trade	Trade	Trade
PostFIRC1	0.147			
	(0.209)			
PostFIRC5		-0.254*		
		(0.124)		
PostFIRC10			-0.330**	
			(0.119)	
PostFIRC20				-0.422***
				(0.128)
TradeOrg	-0.418**	-0.429**	-0.434**	-0.447**
	(0.195)	(0.195)	(0.194)	(0.196)
Democracy	0.0212	0.0310	0.0302	0.0428
	(0.127)	(0.128)	(0.125)	(0.123)
ln $GDP_{j,inc}$	0.520	0.525	0.526	0.520
	(0.325)	(0.317)	(0.317)	(0.316)
lnUSGDP	0.597**	0.574**	0.576**	0.591**
	(0.263)	(0.258)	(0.259)	(0.255)
CivilWar	0.160	0.164	0.188	0.267
	(0.237)	(0.235)	(0.223)	(0.200)
Constant	28.53	26.51	27.71	28.61
	(40.60)	(40.72)	(40.89)	(41.08)
Observations	2,515	2,515	2,515	2,515
Number of panels	22	22	22	22
Country FE	Yes	Yes	Yes	Yes
Time Splines	Yes	Yes	Yes	Yes

Robust standard errors (clustered on country) in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table AX10: Exports with Alternate FIRC Lags

DVs	(1) Exports	(2) Exports	(3) Exports	(4) Exports
PostFIRC1	0.479			
	(0.400)			
PostFIRC5		-0.428**		
		(0.189)		
PostFIRC10			-0.581***	
			(0.186)	
PostFIRC20				-0.691***
				(0.208)
TradeOrg	-0.733*	-0.755*	-0.764*	-0.784*
	(0.369)	(0.376)	(0.375)	(0.379)
Democracy	0.0423	0.0656	0.0647	0.0846
	(0.233)	(0.237)	(0.233)	(0.230)
ln $GDP_{j,inc}$	-0.225	-0.204	-0.203	-0.213
	(0.849)	(0.835)	(0.835)	(0.835)
lnUSGDP	0.623	0.593	0.594	0.622*
	(0.368)	(0.359)	(0.361)	(0.359)
CivilWar	0.000919	0.00755	0.0513	0.177
	(0.408)	(0.404)	(0.379)	(0.333)
Constant	-2.930	-5.684	-3.749	-2.120
	(50.36)	(51.13)	(51.57)	(51.80)
Observations	2,515	2,515	2,515	2,515
Number of panels	22	22	22	22
Country FE	Yes	Yes	Yes	Yes
Time Splines	Yes	Yes	Yes	Yes

Robust standard errors (clustered on country) in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table AX11: Imports with Alternate FIRC Lags

DVs	(1) Imports	(2) Imports	(3) Imports	(4) Imports
PostFIRC1	-0.0157			
	(0.181)			
PostFIRC5		-0.168		
		(0.147)		
PostFIRC10			-0.197	
			(0.142)	
PostFIRC20				-0.306**
				(0.143)
TradeOrg	-0.405**	-0.410**	-0.412**	-0.424**
	(0.186)	(0.184)	(0.185)	(0.189)
Democracy	0.0491	0.0523	0.0515	0.0612
	(0.119)	(0.120)	(0.119)	(0.118)
ln $GDP_{j,inc}$	0.710**	0.707**	0.707**	0.703**
	(0.262)	(0.255)	(0.255)	(0.254)
lnUSGDP	0.569**	0.550*	0.553*	0.561**
	(0.271)	(0.265)	(0.268)	(0.264)
CivilWar	0.167	0.169	0.184	0.244
	(0.196)	(0.196)	(0.191)	(0.176)
Constant	48.99	47.33	48.21	48.70
	(45.01)	(44.74)	(44.86)	(44.93)
Observations	2,515	2,515	2,515	2,515
Number of panels	22	22	22	22
Country FE	Yes	Yes	Yes	Yes
Time Splines	Yes	Yes	Yes	Yes

Robust standard errors (clustered on country) in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table AX12: Total Trade with Alternate Civil War Lags

	(1)	(2)	(3)
DVs	Exports	Exports	Exports
FIRCNonDem	-0.535**	-0.519**	-0.510**
	(0.211)	(0.211)	(0.215)
FIRCDem	-0.797***	-0.798***	-0.796***
	(0.198)	(0.199)	(0.199)
TradeOrg	-0.464**	-0.466**	-0.462**
	(0.184)	(0.182)	(0.182)
Democracy	-0.0745	-0.0754	-0.0793
	(0.149)	(0.148)	(0.148)
ln $GDP_{j,inc}$	0.498	0.501	0.502
	(0.319)	(0.319)	(0.321)
lnUSGDP	0.586**	0.584**	0.565**
	(0.256)	(0.260)	(0.261)
CivilWar	0.275		
	(0.189)		
CivilWarlag5		0.183	
		(0.199)	
CivilWarlag10			0.123
			(0.205)
Constant	37.19	36.99	36.11
	(43.38)	(43.41)	(44.12)
Observations	2,515	2,515	2,515
Number of panels	22	22	22
Country FE	Yes	Yes	Yes
Time Splines	Yes	Yes	Yes

Robust standard errors (clustered on country) in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table AX13: Exports with Alternate Civil War Lags

	(1)	(2)	(3)
DVs	Exports	Exports	Exports
FIRCNonDem	-1.137**	-1.121**	-1.115*
	(0.534)	(0.534)	(0.541)
FIRCDem	-1.228**	-1.229**	-1.229**
	(0.473)	(0.476)	(0.477)
TradeOrg	-0.817**	-0.818**	-0.814**
	(0.353)	(0.349)	(0.351)
Democracy	-0.148	-0.153	-0.166
	(0.244)	(0.246)	(0.249)
ln $GDP_{j,inc}$	-0.276	-0.274	-0.275
	(0.846)	(0.847)	(0.852)
lnUSGDP	0.598	0.596	0.592
	(0.357)	(0.359)	(0.371)
CivilWar	0.251		
	(0.334)		
CivilWarlag5		0.126	
		(0.325)	
CivilWarlag10			0.0118
			(0.337)
Constant	11.51	11.31	11.20
	(55.80)	(55.88)	(57.24)
Observations	2,515	2,515	2,515
Number of panels	22	22	22
Country FE	Yes	Yes	Yes
Time Splines	Yes	Yes	Yes

Robust standard errors (clustered on country) in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table AX14: Imports with Alternate Civil War Lags

DVs	(1) Imports	(2) Imports	(3) Imports
FIRCNonDem	-0.444**	-0.429**	-0.420*
	(0.202)	(0.201)	(0.203)
FIRCDem	-0.640***	-0.641***	-0.640***
	(0.201)	(0.199)	(0.199)
TradeOrg	-0.440**	-0.442**	-0.438**
	(0.179)	(0.178)	(0.178)
Democracy	-0.0339	-0.0339	-0.0395
	(0.140)	(0.138)	(0.137)
ln $GDP_{j,inc}$	0.683**	0.686**	0.687**
	(0.256)	(0.257)	(0.258)
lnUSGDP	0.555**	0.553*	0.536*
	(0.266)	(0.268)	(0.266)
CivilWar	0.262		
	(0.154)		
CivilWarlag5		0.182	
		(0.163)	
CivilWarlag10			0.109
			(0.185)
Constant	55.59	55.40	54.61
	(47.62)	(47.63)	(47.98)
Observations	2,515	2,515	2,515
Number of panels	22	22	22
Country FE	Yes	Yes	Yes
Time Splines	Yes	Yes	Yes

Robust standard errors (clustered on country) in parentheses
*** p<0.01, ** p<0.05, * p<0.1

1.4 Matching

We use matching as a robustness check of the effect of FIRC on bilateral trade. In our paper, we argue that restricting our analysis to Latin America ensures that we have a highly comparable set of control cases. However, it might be possible to obtain an even better set of control cases by using matching. Matching algorithms select control cases that minimize the average distance from the treated cases across whatever independent variables the user specifies. In this application, we use FIRC as the treatment variable and match on the other independent variables in the analysis, including the GDP of both countries, distance, GATT/WTO membership, as well as geographic size. We tried multiple types of matching; genetic and nearest neighbor matching without replacement each improved the balance between treated and control cases (see below for balance statistics). We ultimately selected the data produced by genetic matching because it resulted in superior overall balance and greater improvement in five out of six variables. To avoid post-treatment bias, matching was performed using only the country-years in which FIRC occurred; later years for FIRC and non-FIRC cases were taken from the larger dataset after matching.[1] Moreover, non-FIRC years from countries that experienced FIRC were dropped before matching was performed to avoid matching cases of FIRC to other years from the same country. Finally, because the matching procedure does not produce perfect matches, we use regression analysis with control variables rather than simple t-tests to estimate the

[1]Specifically, for countries that both did and did not experience FIRC, all country years following the country-year selected by matching were used for analysis. For Guatemala, for example, the years added were from the year of FIRC (1954) through 2007, the last year in the dataset.

effect of FIRC on trade.

1.4.1 Results

The U.S. embargo on trade with Cuba poses problems for matching. The issue is that Cuba is a very good match for several countries that experienced FIRC. When matching is performed with Cuba in the control group, the matching algorithm we used selected Cuba as a match for the Dominican Republic, Honduras, and Nicaragua. This produced a tremendous improvement in balance between treated and control cases (98.5 percent) but keeping Cuba in the subsequent analysis — as argued above — is bound to generate misleading results.[2] This leaves us with two relatively unappealing alternatives. First, we can use Cuba for matching, thereby obtaining great balance in the matched dataset, but then exclude it from the post-matching analysis. Second, we can drop Cuba from the control cases used for matching and obtain a dataset with inferior balance but retain all the matched control cases in the analysis.

In the end we tried both, but in the interests of space we report only the results of the analysis from which Cuba was excluded from the outset. Table 4 reports the balance statistics before and after matching, with measures of how much balance improved in the process. As is evident from the table, matching improved the overall propensity score — the probability that a case receives the treatment given its values

[2]Interestingly, although t-tests on the matched dataset including Cuba indicate that that the FIRC countries traded significantly more with the United States than the control countries, the multivariate analysis that includes the gravity model variables produced a negative coefficient for FIRC with a very large standard error. This result is consistent for imports, exports, and total trade.

on the covariates — only 36 percent. Also inducing caution is the fact that only four countries are represented in the control group: Paraguay, El Salvador, Belize, and Venezuela. On the other hand, matching did improve balance on four of the six variables (over 80 percent), and the difference in means between FIRC and non-FIRC cases is less than one-quarter of a standard deviation for all variables, which is considered an acceptable match (Ho et al. 2007). Although greater improvement would have been desirable, overall balance is adequate.

Table AX15. Balance Statistics before and after Genetic Matching, Cuba Excluded

	Mean Treated pre-match	**Mean control pre-match**	**Mean control post-match**	**Difference post match**	**% Improve**	**Std. Bias**
Propensity Score	0.14	0.01	0.06	0.09	36.73	-
$DISTANCE$	8.05	8.56	8.12	-0.07	86.70	0.19
$AREA_j$	11.65	13.29	11.97	-0.32	80.46	0.20
$POPULATION_j$	7.50	8.40	7.40	0.10	89.17	0.07
$TRADEORG$	0.18	0.30	0.10	0.10	19.80	0.20
GDP_j	14.98	16.30	15.00	-0.02	98.39	0.01
GDP_{USA}	21.05	21.26	21.25	-0.20	5.56	0.16

Table 4 displays the results of three regression models using the matched data: one on total bilateral trade, a second on U.S. exports, and a third on U.S. imports. The coefficient for FIRC is negative in each model but is not significant in any of them. T-tests, however, show that on average, trade between the United States and countries that experienced FIRC was significantly less than its trade with countries where FIRC did not occur. The average total trade with the United States of countries that experienced FIRC ($893,663,622) was 42 percent lower than that of countries

that did not suffer FIRC ($1,533,854,983). Similar differences are evident for imports and exports.[3] When the gravity model variables are added, however, these differences lose their statistical significance.

Table AX16. The Effect of Foreign-Imposed Regime Change (FIRC) on Bilateral Trade, U.S. Exports, and U.S. Imports, 1873-2007: Analysis of Matched Data (Fixed Effects)

	1 Total Trade	**2 Exports**	**3 Imports**
$FIRC$	-0.16	-0.28	-0.17
	(0.29)	(0.42)	(0.27)
$TradeOrg$	0.32**	0.50**	0.18
	(0.13)	(0.17)	(0.12)
$GDP_{j,inc}$	0.96***	0.96**	1.09***
	(0.24)	(0.39)	(0.20)
GDP_{USA}	0.59**	0.61	0.74***
	(0.25)	(0.39)	(0.22)
$Population$	-0.79	-0.90	-1.22**
	(0.60)	(0.95)	(0.50)
$CONSTANT$	-0.88	-1.62	-3.68
	(3.04)	(4.36)	(2.84)
R^2	0.60	0.42	0.43

Robust standard errors (clustered on country) in parentheses.
* $\alpha = .1$; ** $\alpha = .05$; *** $\alpha = .01$
(two-tailed tests)

The matched analysis offers evidence that the gravity model may have overestimated the negative effect of FIRC on U.S. trade with Latin America. Matching is

[3]U.S. exports to countries that experienced FIRC were 52 percent less on average than to non-FIRC countries; the U.S. also imported 32 percent less from FIRC countries compared to non-FIRC countries. Both differences are significant.

quite difficult to execute in our sample given the relatively small number of control countries available. This resulted in suboptimal post-matching improvements in balance. The results still contradict Hypotheses 1, 2, and 3, and support Hypothesis 8: FIRC does not increase bilateral trade with, exports to, or imports from countries where it intervenes to overthrow governments. Nevertheless, it is probably wise to view these results with some skepticism given the previously mentioned concerns.