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Diplomatic Intervention in Civil War : Trade for All or Trade for One ?*

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Résumé

This paper looks at whether diplomatic intervention in civil war has affected trade over the post World War II period. We show that the intervener derives no commercial advantage from diplomatic intervention ; trade between the intervener and the target country does not increase more than trade between the target country and its other partners. However, we find that diplomatic intervention has a positive and persistent effect on trade between the target country and all its partners.

Keywords : Civil War, Trade, Foreign Influence, Gravity Equation.

JEL : F50, F10, O11

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1 Introduction

A third of the world's countries have experienced civil conflict since the end of World War II. Civil war dramatically alters infrastructures, human capital and institutions. It also has a deep and persistent negative effect on international trade. The end of war constitutes a new starting point for the building of a peaceful society through the reconstruction of infrastructures, human capital and institutions. An analysis of this great challenge faced by countries after conflict needs to consider the role played by all the parties involved in the reconstruction. A crucial issue is the role and consequences of foreign intervention in civil war.

We exploit a dataset on diplomatic intervention in civil war over the post-World War II period. Diplomatic intervention is a non-coercive, non-violent and ultimately non-binding form of intervention. It is a voluntary process where a third party helps antagonists to define and sign a peaceful agreement. The context of civil war is a period of great political instability and diplomacy can have a strong influence on local politics. In this paper we look whether interveners derive a (commercial) advantage from diplomatic intervention ("trade for one ?"). The intervener and the target country (the country where a civil war is ongoing and where intervention occurs) may adopt formal trade preferences or the intervener may use its intervention to wield certain power and influence in order to promote bilateral trade. We also examine whether diplomatic interventions affect trade volumes between the target country and all its trading partners ("trade for all ?"). Diplomatic intervention may decrease transaction costs (through the enhancement of some trade-promoting capital such as institutions, infrastructure rebuilding, trust) and increase trade between the target country and all its trading partners (i.e. not only with the intervener).

Our results suggest that diplomatic intervention promotes "trade for all" and not "trade for one". We show that the intervener does not derive any commercial advantage from diplomatic intervention. In other words, trade between the intervener and the target country does not increase more than trade between the target country and its other partners. However, we find that diplomatic intervention has a positive and

persistent effect on trade between the target country and all its partners.

Few empirical papers deal with foreign influence and international trade. Yeats (1990) compares African countries and shows that former colonies pay an import price premium on steel to their former colonizer. A recent paper by Berger et al. (2010) focuses on US trade patterns after CIA interventions during the Cold War. They show that the share of imports of the target country from the US increases, but find no effect on exports from the target country to the US. They argue that the increase in the imports of the target country reflects a trade diversion and is due to an increase in the intervener's power and influence. Head and Ries (2010) show that trade missions conducted by the Canadian government have small, negative and mainly insignificant effects. Our paper completes this literature and studies diplomatic interventions as a potential vector of foreign influence. Whereas the U.S. (through CIA intervention) and former colonizers take advantage of their influence, we do not find that the intervener derives any advantage from diplomatic interventions in civil war. Diplomatic interventions affect international trade in a different way. Trade increases between the target country and all its partners equally. The corollary of this result is that diplomatic interventions increase trade between the intervener and the target country.

We estimate a gravity equation à la Anderson and van Wincoop (2004) using different methodologies. Our preferred methodology is the recent one proposed by Baier and Bergstrand (2009). This is the only methodology that allows one to estimate both dyadic and monadic effects, and also takes the multilateral resistance terms into account. The other available methodologies either do not take the multilateral resistance terms into account or they eliminate the monadic terms. [1]

We then show that diplomatic intervention has a "trade for all" effect. Our estimates control for the persistent effect of civil war on trade. In line with the results of Martin et al. (2008a), we find that civil war has a negative long-lasting effect after the end of civil war. It is important to stress that we estimate the effect of diplomatic intervention behind the peacemaking effect of diplomatic intervention.

1. The usual gravity equation omits the multilateral resistance terms. Using country-year fixed effect or a difference-in-difference methodology also eliminates the multilateral resistance terms.

We also tackle the potential reverse causality problem between diplomatic intervention and trade, using an instrumental variable approach. The existence and the sign of a reverse causality is uncertain. Whereas the intervener is likely to be a major trading partner of the target country, diplomatic intervention may complicate the relationship between the two and even deteriorate bilateral trade. [2]

Although we find no "trade for one" effect, one would expect the potential effect to lie in the composition (imports or exports) of trade between the target country and the intervener. We find no evidence of the intervener deriving any advantage for imports. There is no local demand diversion in its favor. Nor do we find any evidence of an advantage for exports. The target country's access to the intervener's market is not favored, compared to other countries.

The remainder of our paper is structured as follows. Section 2 describes the data on diplomatic intervention and trade. Section 3 explains the estimation procedure. Section 4 presents our empirical results regarding the effect of diplomatic intervention. Section 5 focuses on endogeneity issues. Section 6 is dedicated to the institutional channel and Section 7 concludes.

2 Data on diplomatic intervention and trade

We use Regan's database on third party interventions in civil war over the 1948-2005 period (see Regan (2002)). Diplomatic intervention is either mediation or a forum. Mediation is a non-coercive, non-violent, and, ultimately, non-binding form of intervention. The definition of mediation used to build this database is borrowed from Bercovitch and Wille (1991) who define mediation as "a process of conflict management where disputants seek the assistance of, or accept an offer of help from, an individual, group, state, or organization to settle their conflict or resolve their differences without resorting to physical force or invoking the authority of the law". An international forum is a formally organized meeting of the representatives from several countries whose outcome, in this case, is also non-binding. In our sample,

2. See for instance Greig and Regan (2009).

98% of diplomatic interventions are initiated by a third party and 2% are requested by at least one of the warring parties. The database reports 119 diplomatic interventions in civil wars (see table 6 in appendix for a list of these diplomatic interventions). Figure 1 shows that the least developed countries where civil wars are frequent, are often the targets of diplomatic interventions (in black). Figure 2 depicts the countries that intervened in civil conflict (in grey). The countries with the most developed economies are the most frequent interveners. The US, at the top of the list, launched 26 diplomatic interventions over the period. The average lapse of time between intervention and the end of war is 32 months. However, the lapse of time varies substantially (in 59 cases out of the 119 interventions, civil war ended the year of the intervention).

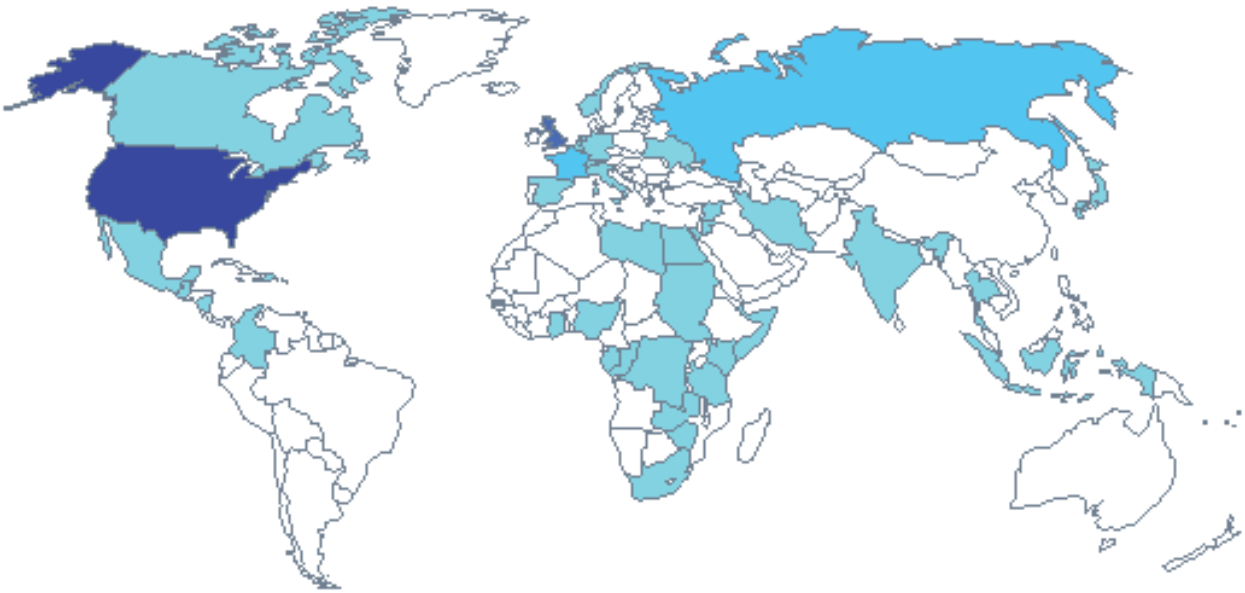
FIGURE 1 – Target countries



For civil war, we use Correlates Of War data proposed by Gleditsch (2004) and completed by Regan (2002) which takes account of civil wars with less than 1,000 deaths per year. [3]

3. The dataset contained in Regan (2002) records all the interventions in conflicts with more than 200 deaths per year.

FIGURE 2 – Interveners



3 Estimation procedure and specification

3.1 Estimation procedure : monadic and dyadic determinants

In order to estimate the effect of diplomatic intervention on trade, we use the gravity equation formulation. In this section, we describe the different methodologies that we have used and explain why we prefer Baier and Bergstrand's methodlogy.

The vast majority of empirical and theoretical formulations of the gravity equation can be summarized in the following equation for the value of X_{ijt}, the exports from country i to country j at time t :

$$X_{ijt} = G_t M_{it}^{\exp} M_{jt}^{imp} \phi_{ijt}. \tag{1}$$

Various theoretical foundations can be found in the literature (Anderson and van Wincoop, 2004; Eaton and Kortum, 2002; Chaney, 2008). $M_{it}^{\exp}$ and M_{jt}^{imp} represent the respective individual attributes of exporter i and of importer j at time t, G_t is a year-specific factor and ϕ_{ijt} represents bilateral determinants.

We specify the log of the bilateral term ϕ_{ijt} as :

$$\ln \phi_{ijt} = \boldsymbol{\delta} \boldsymbol{D}_{ijt} + \varepsilon_{ijt}, \tag{2}$$

where $\boldsymbol{D}_{ijt}$ represents the observed and ε_{ijt} the unobserved bilateral trade cost determinants. Taking the logarithm of equation (1) and substituting (2) into the new equation and defining $\rho_t = \ln G_t$, we obtain :

$$\ln X_{ijt} = \ln M_{it}^{\exp} + \ln M_{jt}^{imp} + \boldsymbol{\delta} \boldsymbol{D}_{ijt} + \rho_t + \varepsilon_{ijt}. \tag{3}$$

In the standard gravity equation, $M_{it}^{\exp}$ and M_{jt}^{imp}, the monadic terms, contain the respective GDPs of the two countries, GDP_{it} and GDP_{jt} but omit the "multilateral resistance terms" derived from the theoretical gravity model (Anderson and van Wincoop, 2003; Feenstra, 2004).

To overcome this problem and as the multilateral resistance terms are monadic determinants, most empirical methodologies to estimate the gravity equation eliminate the monadic terms (through different strategies). We first follow Baldwin and Taglioni (2006) and include origin and destination country fixed effects in the gravity equation to deal with the "multilateral resistance terms" concern. Ideally, these fixed effects should be time-varying using fixed effects for each exporter-year and importer-year in order to eliminate the two monadic determinants in (3). However, computational problems arise as this requires the creation of a large number of dummies. In our case, our data panel over 50 years with 200 countries involves 20,000 dummies and the usual STATA software imposes a limit of 11,000 independent variables, for instance. We then use a "ratios of ratios" methodology ("Tetrad") as in Head et al. (2010) to eliminate the monadic terms of the gravity equation. We use this methodology as a first estimate of the dyadic effect of diplomatic intervention on trade between the intervener and the target country.

Eliminating monadic terms is not a concern as long as the empirical application concentrates on the effect of bilateral determinants, that is $\boldsymbol{D}_{ijt}$. However, our objective is to determine two effects : the effect of diplomatic intervention on trade between the intervener and the target country (a dyadic determinant) and the effect of diplomatic intervention on trade between the target country and all its partners (a monadic determinant). The only methodology that allows one to test the two types of effects (dyadic and

monadic) is the one proposed in Baier and Bergstrand (2009). They provide a methodology to estimate the gravity equation à la Anderson and Van Wincoop without eliminating the monadic determinants. They use Taylor expansions around symmetric trade costs to derive a linear econometrically implementable equation. Following their notations, T_{ijt} is the bilateral trade cost, σ the elasticity of substitution of consumers' preferences and the equation of interest is :

$$\ln(X_{ijt}) = \beta_{0t} + \ln(GDP_{it}) + \ln(GDP_{jt}) - (\sigma - 1)\ln T_{ijt} + (\sigma - 1)\, MRT_{ijt} + \rho_t + \varepsilon_{ijt}, \quad (4)$$

where, $\beta_{0t} = -\ln\left(GDP_t^W\right)$ and GDP_t^W denotes gross world product. The MR terms are defined as follows :

$$MRT_{ijt} = \sum_{k=1}^{N} \theta_k \ln T_{jkt} + \sum_{m=1}^{N} \theta_m \ln T_{mit} - \sum_{k=1}^{N}\sum_{m=1}^{N} \theta_k \theta_m \ln T_{kmt}. \quad (5)$$

where $\theta_k = GDP_{kt}/GDP_t^W$. The multilateral resistance term, MRT_{ijt}, is an exogenous variable that takes account of multilateral price effects in the estimation.

We focus on the monadic effects and on the dyadic effect of diplomatic interventions. The monadic effects will be captured by two dummies. $INTX_{it}$ captures the effect of a diplomatic intervention on the exports of the target country. It is 1 only if the exporter, i, is the target of an intervention at time t. $INTM_{jt}$ captures the effect of a diplomatic intervention on the imports of the target country. It is 1 only if the importer, j, is the target of an intervention at time t. This distinction is useful when we allow for different effects on imports and on exports. When our interest is not in distinguishing exports and imports, these monadic variables are aggregated into a single dummy variable INT_{ijt}. This dummy variable is 1 if either the exporter i *or* the importer j experienced an intervention at time t. This variable allows us to estimate the "trade for all" effect, the impact of diplomatic interventions on trade between the target country and all its partners (indifferently).

We allow the effect of diplomatic intervention to differ for the intervener country (the "trade for one" effect) and we introduce dummy variables to capture the differential effect. $BILX_{ijt}$ captures the differential effect of the intervention on the exports of the target country. It is 1 only if country j

intervenes in country i at time t. $BILM_{ijt}$ captures the differential effect of the intervention on the imports of the target country. It is 1 only if country i intervenes in country j at time t. Again, this distinction is useful when we allow for different effects on imports and on exports. When our interest is not in distinguishing exports and imports, these dyadic variables are aggregated into a single dummy variable BIL_{ijt}. This dummy variable is 1 if one of the two countries i and j intervenes in the other one at time t.

3.2 Empirical specification

Our objective is to estimate the effect of diplomatic intervention in civil war, using the gravity equation. Our sample includes three categories of country (their composition changes from one year to the next) : countries at peace, countries in civil war where no diplomatic intervention occurs and countries in civil war where a diplomatic intervention occurs. Our objective is to estimate the effect of diplomatic intervention behind the effect of peace and civil war. We control for the effect of peace and the effect of civil war and introduce WAR_{ijt} which is a dummy variable that is 1 only if country i or country j is experiencing a civil war at time t.

Since civil war has a long-lasting negative effect on trade (Martin et al., 2008a), we think it is appropriate to study the persistence of the effect of diplomatic intervention on trade. We include several lags of the intervention dummy variables (INT and BIL) and then also include lags of the civil war dummy (WAR). We specify the trade barrier term of equation (4) as follows :

$$T_{ijt} = \exp\left(-\widetilde{\boldsymbol{\beta}}'_{int}\boldsymbol{INT}_{ijt} - \widetilde{\boldsymbol{\beta}}'_{bil}\boldsymbol{BIL}_{ijt} - \widetilde{\boldsymbol{\beta}}'_{w}\boldsymbol{WAR}_{ijt} - \widetilde{\boldsymbol{\beta}}'_{c}\boldsymbol{CONTROL}_{ijt} + \mu_{ij}\right), \quad (6)$$

where μ_{ij} is a country pair fixed effect. Bold coefficients and bold variables denote vectors. $\boldsymbol{INT}_{ijt}$ is a vector of lagged dummies (from INT_{ijt-1} to INT_{ijt-k}). $\boldsymbol{BIL}_{ijt}$ and $\boldsymbol{WAR}_{ijt}$ are coded in a similar way. $\boldsymbol{CONTROL}_{ijt}$ includes RTA_{ijt}, a dummy set to 1 if countries i and j are members of the same Regional Trade Agreement at time t, and CU_{ijt}, a dummy set to 1 if countries i and j are members of

a common Currency Union at time t. Substituting this specification into (4), we write our main equation of interest :

$$\begin{aligned} ln\left(X_{ijt}\right) &= \beta_{0t} + \ln\left(GDP_{it}\right) + \ln\left(GDP_{jt}\right) + \boldsymbol{\beta}'_{int}\boldsymbol{INT}_{ijt} + \boldsymbol{\beta}'_{bil}\boldsymbol{BIL}_{ijt} \\ &\quad + \boldsymbol{\beta}'_{w}\boldsymbol{WAR}_{ijt} + \boldsymbol{\beta}'_{c}\boldsymbol{CONTROL}_{ijt} + \boldsymbol{\beta}'_{mr}\boldsymbol{MR}_{ijt} + \mu_{ij} + \rho_t + \varepsilon_{ijt}, \end{aligned} \tag{7}$$

where $\beta_{0t} = -\ln\left(GDP_t^W\right)$, $\boldsymbol{\beta}_I = (1-\sigma)\widetilde{\boldsymbol{\beta}}_I$ for $I = int, bil, c$. The term $\boldsymbol{MR}_{ijt}$ includes the multilateral terms for all the explanatory variables (excepted for the GDPs). [4] μ_{ij} is a dyadic fixed effect, ρ_t a time dummy, and ε_{ijt} is the random error term. All MR terms are defined in a similar way as formula (5).

We also use a second specification where we distinguish the effect of interventions on imports ($\boldsymbol{\beta}'_{intm}$ and $\boldsymbol{\beta}'_{bilm}$) and the effect on exports ($\boldsymbol{\beta}'_{intx}$ and $\boldsymbol{\beta}'_{bilx}$) of the target country.

$$\begin{aligned} ln\left(X_{ijt}\right) &= \beta_{0t} + \ln\left(GDP_{it}\right) + \ln\left(GDP_{jt}\right) + \boldsymbol{\beta}'_{intm}\boldsymbol{INTM}_{it} + \boldsymbol{\beta}'_{intx}\boldsymbol{INTX}_{jt} \\ &\quad + \boldsymbol{\beta}'_{bilx}\boldsymbol{BILX}_{ijt} + \boldsymbol{\beta}'_{bilm}\boldsymbol{BILM}_{ijt} + \boldsymbol{\beta}'_{w}\boldsymbol{WAR}_{ijt} + \boldsymbol{\beta}'_{c}\boldsymbol{CONTROL}_{ijt} \\ &\quad + \boldsymbol{\beta}'_{mr}\boldsymbol{MR}_{ijt} + \mu_{ij} + \rho_t + \varepsilon_{ijt} \end{aligned} \tag{8}$$

The term $\boldsymbol{MR}_{ijt}$ includes the multilateral terms for all the explanatory variables (but GDP). [5] Our main specification includes 447,844 observations (dyads) from 1948 to 2005, and 11,054 diplomatic interventions (2.5%), i.e. 119 different diplomatic interventions (for a complete list, see Table 3 in Appendix). We choose to study the persistence of the intervention effect over a long time scale, and use dummies lagged up to 15 years. We prefer to present some of our estimates graphically [6] because our regressions

4. Formally, $\boldsymbol{\beta}'_{mr}\boldsymbol{MR}_{ijt} = \boldsymbol{\beta}'_{int}\boldsymbol{MRINT}_{ijt} + \boldsymbol{\beta}'_{bil}\boldsymbol{MRBIL}_{ijt} + \boldsymbol{\beta}'_{w}\boldsymbol{MRWAR}_{ijt} + \boldsymbol{\beta}'_{c}\boldsymbol{MRCONTROL}_{ijt}$.

5. Formally, $\boldsymbol{\beta}'_{mr}\boldsymbol{MR}_{ijt} = \boldsymbol{\beta}'_{intx}\boldsymbol{MRINTX}_{ijt} + \boldsymbol{\beta}'_{intm}\boldsymbol{MRINTM}_{ijt} + \boldsymbol{\beta}'_{bilx}\boldsymbol{MRBILX}_{ijt} + \boldsymbol{\beta}'_{bilm}\boldsymbol{MRBILM}_{ijt} + \boldsymbol{\beta}'_{c}\boldsymbol{MRCONTROL}_{ijt}$

6. Our main regression contains 79 variables and all the multilateral resistance terms. We have 158 variables excluding time dummies.

contain a large number of lagged variables (from 1 to $k = 15$ years) and tables are difficult to read. We do not present the estimated coefficients for the usual variables of the gravity equation (GDPs and controls) because they are similar to the usual results found in the literature.

For all our estimates, we take into account both the differential effect regarding trade between the intervener and the target country and the effect of diplomatic intervention on trade for all the partners of the target country. However, we prefer to present the results regarding the first type of effect ("trade for one") and the second type of effect ("trade for all") separately.

4 Trade for one : does the intervener derive a commercial advantage ?

4.1 Results

In this section we present our result on the differential effect of diplomatic intervention for the intervener. Column (A) to (D) in Table 1 presents our estimates of the "trade for one" effect (the estimates of the 15 parameters included in β'_{bil}). Column (A) shows our estimates of equation (3) with dyad fixed effects which control for the time invariant bilateral determinants. Column (B) shows our estimates with country fixed effects which control for all time invariant monadic determinants. Column (C) shows our estimates for the "Tetrad" methodology. Using equation (1), a modified gravity equation is derived for a ratio to ratios $(X_{ij}/X_{ik})/(X_{lj}/X_{lk})$ in which two reference countries (k and l) are introduced. The monadic terms disappear from the theoretical gravity equation. We report average results of tetrad regressions run for all 30 possible combinations of the six countries with the largest number of partners (France, UK, Germany, USA, Italy, and Netherlands) as the reference importers and exporters. Column (C) summarizes the results of the 30 regressions by reporting the mean and standard deviation of each variable's coefficient. Almost none the coefficients of diplomatic intervention is significant (columns (A) to (C)). In other words, there is no effect of diplomatic intervention on trade between the intervener and the target country.

Column (D) shows our estimates of equation (7) (Baier and Bergstrand, 2009). We only show here our estimates of the "trade for one" effect (our estimates of the "trade for all" effects are reported in Section 5). All the coefficients are non-significant (except for the first one which is negative). The target country does not trade more with the intervener than with its other partners. In other words, we reject the hypothesis that the intervener derives a commercial advantage. We do not identify any bilateral foreign influence on the target country.

Even though there is no "trade for one" effect, one may expect the potential effect to lie in the composition (imports or exports) of trade between the target country and the intervener. We then estimate specification (8). Remember that the difference between specification (7) and (8) is that in specification (7) we do not allow for a differential effect between imports and exports of the target country. Column (E) and (F) in table 1 present our estimates of equation (8) for the "trade for one" effect. They show our estimates regarding imports and exports of the target country, respectively (the estimates of the 15 parameters included in β'_{bilm} and the 15 parameters included in β'_{bilx}). None of the coefficients is significant (but two are negative). In other words, we again find no evidence of any advantage for the intervener. First, there is no effect regarding imports of the target country. Our interpretation is that there is no local demand diversion in favor of the intervener. Second, we again find no evidence of the intervener deriving any advantage regarding exports of the target country ; the target country has no favored access to the intervener's market.

We then check whether our results are robust to the inclusion of other control variables (we use equation (8)). We include dummy variables to control for economic and military interventions and interventions by the United Nations and Non-Governmental Organizations (NGOs). We also check the robustness of our result to the introduction of the intervener's level of development and the intensity of the conflict.

Other types of intervention : One may expect that our results depend on other types of interventions contemporary with diplomatic interventions. We introduce two vectors of dummies (with 15 lags) to

TABLE 1 – Estimates of the "trade for one" effect

Estimates	Equation (3)	Equation (3)	Equation (3)	Equation (7)	Equation (8)			
Methodology	Dyad FE	Country FE	Tetrad Head *et al.* (2010)	Baier and Bergstrand (2009)	Baier and Bergstrand (2009)			
Column	(A)	(B)	(C)	(D)	(E)		(F)	
BIL_{t-1}	-0.282***	-0.155	-0.286	-0.220**	$BILM_{t-1}$	-0.00937	$BILX_{t-1}$	-0.300**
	(0.0985)	(0.132)	(0.38)	(0.099)		(0.143)		(0.138)
BIL_{t-2}	-0.104	-0.0261	-0.112	-0.0656	$BILM_{t-2}$	0.0637	$BILX_{t-2}$	-0.0668
	(0.0997)	(0.135)	(0.31)	(0.100)		(0.145)		(0.139)
BIL_{t-3}	-0.140	-0.0101	-0.042	-0.0766	$BILM_{t-3}$	0.0326	$BILX_{t-3}$	-0.157
	(0.0977)	(0.132)	(0.34)	(0.0985)		(0.142)		(0.136)
BIL_{t-4}	-0.0385	0.0609	-0.0131	-0.0329	$BILM_{t-4}$	0.0947	$BILX_{t-4}$	-0.133
	(0.0956)	(0.129)	(0.301)	(0.0964)		(0.139)		(0.134)
BIL_{t-5}	0.0121	0.153	0.029	0.00585	$BILM_{t-5}$	-0.0136	$BILX_{t-5}$	0.0567
	(0.0941)	(0.128)	(0.261)	(0.0948)		(0.136)		(0.132)
BIL_{t-6}	-0.00378	0.132	0.037	0.0151	$BILM_{t-6}$	0.0484	$BILX_{t-6}$	0.0487
	(0.0941)	(0.128)	(0.299)	(0.0948)		(0.136)		(0.131)
BIL_{t-7}	0.0272	0.190	0.015	0.0711	$BILM_{t-7}$	-0.0325	$BILX_{t-7}$	0.174
	(0.0967)	(0.131)	(0.321)	(0.0974)		(0.140)		(0.135)
BIL_{t-8}	-0.0487	0.130	-0.026	-0.0405	$BILM_{t-8}$	-0.148	$BILX_{t-8}$	0.0837
	(0.0984)	(0.133)	(0.377)	(0.0991)		(0.142)		(0.138)
BIL_{t-9}	-0.0120	0.265*	0.016	-0.0139	$BILM_{t-9}$	-0.209	$BILX_{t-9}$	0.191
	(0.102)	(0.138)	(0.358)	(0.103)		(0.146)		(0.144)
BIL_{t-10}	-0.0448	0.152	0.067	-0.0612	$BILM_{t-10}$	-0.101	$BILX_{t-10}$	0.0297
	(0.105)	(0.142)	(0.299)	(0.106)		(0.151)		(0.148)
BIL_{t-11}	-0.0791	0.129	0.028	-0.0896	$BILM_{t-11}$	-0.276*	$BILX_{t-11}$	0.0682
	(0.112)	(0.152)	(0.362)	(0.113)		(0.158)		(0.160)
BIL_{t-12}	-0.0591	0.199	0.340	-0.0352	$BILM_{t-12}$	-0.222	$BILX_{t-12}$	0.174
	(0.118)	(0.161)	(0.425)	(0.119)		(0.165)		(0.171)
BIL_{t-13}	0.0509	0.224	0.165	0.0281	$BILM_{t-13}$	-0.219	$BILX_{t-13}$	0.225
	(0.125)	(0.170)	(0.346)	(0.126)		(0.175)		(0.180)
BIL_{t-14}	0.0888	0.379**	0.306	0.0843	$BILM_{t-14}$	-0.0430	$BILX_{t-14}$	0.157
	(0.127)	(0.173)	(0.498)	(0.128)		(0.179)		(0.182)
BIL_{t-15}	-0.0538	0.304*	0.504*	-0.0522	$BILM_{t-15}$	-0.0936	$BILX_{t-15}$	-0.0699
	(0.130)	(0.176)	(0.406)	(0.131)		(0.185)		(0.184)
WAR$_{ijt}$ (15 lags)	Yes	Yes	Yes	Yes	**WAR**$_{ijt}$ (15 lags)		Yes	
MR$_{ijt}$ (15 lags)	No	No	No	Yes	**MR**$_{ijt}$ (15 lags)		Yes	
Gravity control	Yes	Yes	Yes	Yes	Gravity control		Yes	
Bilateral fixed effects	Yes	No	Yes	Yes	Bilateral fixed effects		Yes	
Country fixed effects	No	Yes	No	No	Country fixed effects		No	
Time fixed effects	Yes	Yes	Yes	Yes	Time fixed effects		Yes	
Observations	447,844	447,844	447,844	436,490.3		447,844		
R-squared	0.278	0.691	0.280	na		0.293		

Standard errors in parentheses

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

Gravity control : Log GDP per capita, Regional Trade Agreement, Common Currency

control for economic and military interventions. Military interventions refer to interventions with military troops, naval forces, equipment or aid, intelligence or advisors, air support, or military sanctions. We also introduce United Nations and NGO interventions. Data on NGO interventions are from Regan (2002) and include diplomatic intervention by the Organization of African Unity, the Inter-Governmental Authority on Drought and Development and the Catholic Church Economic Community Of West African States. [7]

Intervener's level of economic development : The map represented in Figure 1 shows that interveners are both developed countries and developing countries. One may think that the influence of the intervener is different whether the country is developed or not. We split the sample into two groups. The first includes interveners belonging to the OECD group (over 112,000 observations) and the second group includes interveners that do not belong to the OECD (330,000 observations).

Intensity of conflict : One may also argue that diplomatic interventions occur preferentially in intense conflicts. The need for reconstruction would be greater for countries where diplomatic intervention occurred and this would explain why there is no differential effect in favor of the intervener.

The inclusion of these variables does not change our results ; we still find no support for a significant "trade for one" effect.

4.2 Endogeneity issues

A first possible bias in our estimates is the omission of explanatory variables that influence both the decision to intervene and trade flows. Following Eichengreen and Irwin (1998) we use lagged dependent variables of trade flows to manage the omitted variable bias. We re-estimate all the specifications adding one-, two- or three-year lagged bilateral trade flows to control for the possibility that the decision to intervene depends on past trade flows. Past bilateral trade flows have a positive and significant effect on current trade. However, our results regarding diplomatic intervention are unaffected.

7. The effect of military and economic interventions and NGO's interventions is ambiguous. The effect is negative for the first years following these types of intervention (some are significant) and becomes positive in the long run (12 to 15 years after the intervention).

As mentioned in the introduction, one may also suspect that the causal relationship between diplomatic intervention and trade flows is reversed because large trade flows may induce the third party to intervene. The usual methodology to overcome the reverse causality problem is to implement an instrumental variable strategy. We then need to find a bilateral time-varying variable that influences the decision to intervene but not the residual part of trade. Unfortunately, it is very difficult to find a variable that has no effect on the residual part of trade.

We overcome this problem by using the following strategy. First, we overthrow the relationship and focus on the effect of bilateral trade flows on the probability of diplomatic intervention. [8] We then correct for the endogeneity bias using the (two steps) instrumental variable method.

We first consider the effect of imports and exports on the probability for each country i to intervene in country j (which suffers from a civil war) :

$$\begin{aligned} Proba(INT_{ijt}) &= \beta_0 + \gamma_1 M_{ijt} + \gamma_2 X_{ijt} + \gamma_3 \boldsymbol{CONT_{ij}} \\ &\quad + \gamma_4 \boldsymbol{CONT_{ijt}} + \gamma_5 \boldsymbol{CONT_{it}} + \rho_t + \varepsilon_{ijt} \end{aligned} \tag{9}$$

The main variables of interest, M_{ijt} and X_{ijt}, are the import and export flows from i to j at time t, respectively. We include dyad variables invariant in time ($\boldsymbol{CONT_{ij}}$) as geographic proximity (Log distance, contiguity) and historical linkages (common language, ex-colony, common colony), and dyad time-varying variables ($\boldsymbol{CONT_{ijt}}$) for diplomatic relationships (United Nations votes, military alliances). We also control for several characteristics of the intervener (Log GDP, military capabilities, democracy index) included in ($\boldsymbol{CONT_{it}}$). Time fixed effects are also included (ρ_t). [9] We restrict our sample to the years of civil war in country j.

Our estimates are reported in Table 2. In specifications (1) to (3) we use the logit model. The results for the first specification show that imports and exports do not influence the probability of intervention

8. Greig and Regan (2009) show that the probability for a country to offer a mediation or a forum is decreasing with the level of trade between two partners. The larger the bilateral trade flow, the lower the probability for the country to launch a diplomatic intervention (in its partner which suffers from a civil war).

9. See data sources in the appendix.

(column (1)). In the second specification, we add control variables (column (2)). Import and export flows still show non-significant effects, and the coefficients of the control variables have the expected signs : Geographical distance reduces the incentive to intervene in a civil conflict whereas colonial linkages, military capabilities and GDP of the potential intervener increase the probability of intervention. Specification (3) includes dyad fixed effects controlling for bilateral time-invariant determinants of diplomatic intervention as geographic determinants or historical linkages. The logit method forces us to exclude countries that have never experienced an intervention and this reduces our sample dramatically. However, we still find no significant effect of bilateral trade on the probability of intervention. Column (4) presents our estimates when the ordinary least squares (OLS) estimation procedure is used and bilateral fixed effects are included. Again, there is no significant effect of bilateral trade on the probability of intervention. Our results are robust to the inclusion of other controls and the inclusion of lagged import and export flows. These results suggest that trade does not influence the probability of intervention.

However, we still have to correct for the reverse causality problem, because γ_1 and γ_2 from equation 9 may suffer from reverse causality. We correct this bias with an instrumental variable strategy. We use the log of remoteness for country i and the log of remoteness for country j as an instrument. Remoteness measures a country's set of alternative trade partners. Remoteness is a strong predictor of trade flows (Baier and Bergstrand, 2004). [10] The usual definition of the remoteness of country k is the following :

$$Remoteness_{kt} = -ln(\sum_{l \neq k}^{N} GDP_{lt}/d_{kl})$$

where d_{kl} is the distance between country k and country l. We use the remoteness of country i and the remoteness of country j as instruments for trade flows.

Column (5) in Table 1 presents the estimates of the second stage of the two-step IV procedure. Exports and imports still have no significant effect on the probability of intervention. The first step of the instrumentation indicates that remoteness has the expected negative effect on imports and exports

10. It is often used as an instrument for trade flows (Martin et al., 2008a).

(columns (6) and (7) in Table 1).

We envision two reasons for this non significant effect. First, trade volumes of countries in civil war are generally small and their share of the trade flows of potential interveners is also generally small. Second, diplomatic intervention may complicate the relationships between the intervener and the target country, and may even deteriorate bilateral trade.

5 Trade for all : does diplomatic intervention increase trade ?

In this section we present our result on the "trade for all" effect of diplomatic intervention. We first consider specification (7). Figure 3 shows the effect of diplomatic intervention on the trade of the target countries ($\widehat{\boldsymbol{\beta}}_{int}$). [11] The effect of diplomatic intervention is positive after the first two years and persists up to 15 years after the end of civil war (it is above natural trade). [12]

The first two years' negative and significant effect is quite surprising. We presume that this is due to the average lapse of time of 32 months between diplomatic intervention and the end of civil war. We interpret this lapse of time as inversely related to the degree of "success" of the intervention. To give some insight in this direction, we replace the diplomatic intervention variable, $\boldsymbol{INT}_{ijt}$, in specification (7) by a new dummy variable (with 15 lags), called "successful intervention", which is 1 only when a diplomatic intervention and the end of civil war occur in the same year (59 out of the 119 interventions). Figure 4 shows our estimates of the effect of this new variable. The first two years' effect is no longer negative.

We then consider equation (8) to estimate the "trade for all" effect on imports and on exports. Figure 5, in appendix, shows the estimated effect of interventions on the imports of the target country ($\widehat{\boldsymbol{\beta}}_{intm}$). The effect is generally positive and significant. Figure 6, in appendix, represents the effect of intervention

11. The coefficients are smoothed using a one-year window around the year of interest.

12. Our estimates of the long-lasting effect of civil war are consistent with the literature : it is negative and persistent up to 15 years (see figure 9 in appendix).

TABLE 2 – The effect of trade on the probability of intervention

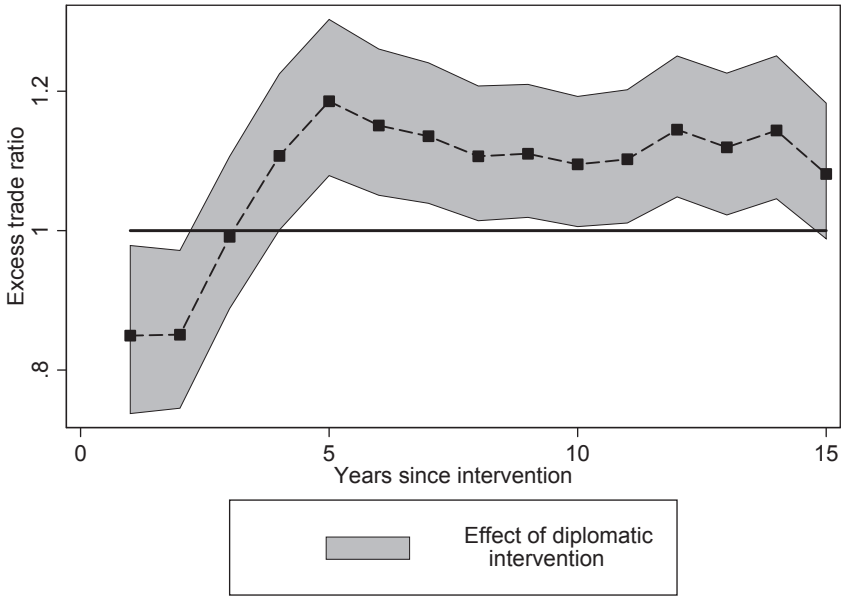
Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)
					IV	First Step	First Step
	Intervention	Intervention	Intervention	Intervention	Intervention	Log Imports	Log Exports
Log Imports$_{ijt}$	-0.156	-0.233	-0.277	-0.000281	0.0471		
	(0.164)	(0.178)	(0.536)	(0.000955)	(0.0730)		
Log Exports$_{ijt}$	0.266	0.237	0.648	0.000658	-0.0640		
	(0.169)	(0.183)	(0.510)	(0.000971)	(0.0759)		
Un Vote$_{ijt}$	0.600	0.357	1.427	0.00684	0.0179	0.215**	0.318***
	(0.488)	(0.484)	(1.229)	(0.00573)	(0.0115)	(0.105)	(0.103)
Military Alliance$_{ijt}$	0.577*	-0.258	-1.106	-0.00904	-0.00898	-0.0914	-0.0674
	(0.338)	(0.368)	(1.355)	(0.00801)	(0.0101)	(0.147)	(0.144)
Log GDP$_{it}$	-0.113	0.239	1.926	6.69e-05	0.00710	0.404***	0.405***
	(0.112)	(0.146)	(1.304)	(0.00323)	(0.00591)	(0.0590)	(0.0581)
Democracy Index$_{it}$	-0.0262	-0.0272	0.0445	-0.000376	-6.25e-05	0.0230***	0.0216***
	(0.0262)	(0.0275)	(0.135)	(0.000294)	(0.000425)	(0.00540)	(0.00532)
Militaries Capabilities$_{it}$	23.62***	22.53***	-69.05	-0.317	-0.214	0.579	2.037
	(4.597)	(5.080)	(63.31)	(0.216)	(0.288)	(3.960)	(3.897)
Log Distance$_{ij}$		-1.091***					
		(0.223)					
Contiguity$_{ij}$		-0.216					
		(0.479)					
Comm. Language$_{ij}$		0.523					
		(0.329)					
Colony$_{ij}$		1.292**					
		(0.516)					
Common Colony$_{ij}$		1.122***					
		(0.427)					
Remoteness$_{it}$						-0.307**	-0.165
						(0.149)	(0.147)
Remoteness$_{jt}$						-1.619***	-1.615***
						(0.250)	(0.246)
Observations	7,928	7,928	378	9,578	9,103	9,578	9,578
Estimation Method	Logit	Logit	Logit	OLS	OLS	OLS	OLS
Dyad fixed effect	no	no	yes	yes	yes	yes	yes
Time dummies	yes	yes	yes	yes	yes	yes	yes
F-Tests on IVs	-	-	-	-	22.36	-	-

*** p<0.01, ** p<0.05, * p<0.1 ; Standard errors in parentheses

on the exports of the target country ($\widehat{\beta}_{intx}$). The effect is positive and significant after the third year following the intervention. Hence the first two years' negative effect of diplomatic intervention on trade is driven by a negative effect on the exports of the target country. When we estimate the effect of the "successful intervention" variable for imports and exports, the negative first two years' effect disappears (see Figure 7 and Figure 8 in appendix). This result is consistent with Regan (1996, 2002) who argues that unsuccessful diplomatic interventions may increase tension between parties involved in civil war and have a negative effect on trade in the first year after the diplomatic intervention. Our estimates control for the persistent effect of civil war on trade. Like Martin et al. (2008a), we find that civil war has a negative long-lasting effect (see Figure 9 to Figure 11 in the appendix). Our results are robust to the inclusion of the additional control variables presented in Section 4.1 (other types of intervention, the intervener's level of economic development and the intensity of conflict).

The positive "trade for all" effect and the lack of evidence of a "trade for one" effect can be explained by the "quality of institutions" channel. Diplomatic intervention may induce an improvement of local institutions. Collier (2006) argues that the intervener plays an important role in the institutional rebuilding of the target country. The intervener can provide institutional alternatives and assistance from skilled personnel. After civil war, the different parties share power and responsibility for rebuilding the country's institutions. In a preliminary version of this paper, Couttenier and Soubeyran (2010) show that diplomatic intervention has a positive effect on the quality of institutions in post-civil war countries. It may seem logical that the improvement in the quality of the institutions of the target country has a positive effect on trade flows between the target and all its partners. This is consistent with the literature on institutions and trade. Anderson and Marcouiller (2002) show that corruption and imperfect contract enforcement reduce imports. The index of bad institutional quality (high degree of corruption, bad investment climate or inefficient judicial system) acts as a hidden tax on imports or increases the fixed costs of entry (Levchenko, 2007).

FIGURE 3 – The impact of diplomatic intervention on trade



6 Conclusion

This paper has considered the effect of diplomatic intervention in civil war on trade. We have estimated a gravity equation using the Baier and Bergstrand methodology in order to estimate the bilateral and the multilateral effects of diplomatic intervention on trade (controlling for the multilateral resistance terms). We have shown that diplomatic intervention promotes "trade for all" and not "trade for one". Indeed, the intervener does not benefit from a privileged trading relationship with target countries, and diplomatic intervention affects the trade flows of the target countries (diplomatic intervention has a positive effect on exports and imports of these countries). We presume that these effects are due the enhancement of trade-promoting capital such as institutions.

Appendix A : Data sources

For the usual gravity variables we use various sources. We use International Monetary Fund (IMF) Direction of Trade Statistics (DOTS) data augmented by Martin et al. (2008b) for the aggregated trade variables. The Regional Trade Agreements data are from Vicard (2009), the Currency Union data from Jose de Sousa [13], gross domestic product (GDP) from the World Bank (World Development Indicator) completed by Barbieri (2002). For the geographic variables we use the CEPII bilateral distance database (`www.cepii.fr/anglaisgraph/bdd/distances.htm`). The "Military capabilities" variable is from Correlates of War (`http://www.correlatesofwar.org/`) and is the mean of six country components : energy consumption, iron and steel production, military expenditure, military personnel, total population and urban population. The "Alliances" variable is also from Correlates Of War and is coded 1 if dyad shares a defensive, neutrality, non-aggression or entente alliance at year t. The UN votes correlation annual database, available for 1946 to 1996, is from Gartzke (`http://dss.ucsd.edu/~egartzke/`). The democracy index is from the Polity IV database ; it ranks each country on a -10 (autocratic) to +10 (democratic) scale.

13. `http://jdesousa.univ.free.fr/data.htm`

Appendix B : Data on diplomatic intervention description : Intervener and target countries

Intervener	Target Country	Year	Year End of Conflict	Intervener	Target Country	Year	Year End of Conflict	Intervener	Target Country	Year	Year End of Conflict
U.k	Cyprus	1963	1964	Spain	Guatemala	1987	1987	Ghana	Liberia	1995	1996
USA	Cyprus	1964	1964	USA	Ethiopia	1989	1991	Nigeria	Liberia	1995	1996
U.k	Cyprus	1964	1964	France	Cambodia	1989	1997	Canada	Sri lanka	1995	2001
Sudan	Ethiopia	1964	1964	Thailand	Myanmar	1989	1995	Norway	Sri lanka	1995	2001
USA	Dominican Rep.	1965	1965	Zimbabwe	Mozambique	1989	1992	Netherlands	Sri lanka	1995	2001
Gabon	Nigeria	1969	1970	Kenya	Mozambique	1989	1992	USA	Sudan	1995	2004
Switzerland	Nigeria	1969	1970	USA	Sudan	1989	1993	USA	Burundi	1996	1998
Libya	Chad	1969	1971	Norway	Guatemala	1990	1990	Russia	Moldova	1996	1996
Egypt	Jordan	1970	1970	USA	Liberia	1990	1991	Gabon	Chad	1996	1996
Somalia	Uganda	1972	1972	Italy	Mozambique	1990	1992	Russia	Tajikistan	1996	1999
U.k	Cyprus	1974	1974	USA	Ethiopia	1991	1991	Gabon	Congo	1997	1999
Zambia	Zimbabwe	1974	1975	USA	Liberia	1991	1991	Zaire	Congo	1997	1999
Sudan	Ethiopia	1975	1991	Italy	Mozambique	1991	1992	USA	U.k	1997	1998
Indonesia	Philippines	1975	1992	Zaire	Rwanda	1991	1994	Russia	Tajikistan	1997	1999
Zambia	Zimbabwe	1975	1979	Nigeria	Sudan	1991	1994	Iran	Tajikistan	1997	1999
USA	Lebanon	1976	1990	Nicaragua	El Salvador	1991	1992	Tanzania	Burundi	1998	1998
Libya	Lebanon	1976	1990	Djibouti	Somalia	1991	1997	USA	U.k	1998	1998
Syria	Lebanon	1976	1990	Zimbabwe	Mozambique	1992	1992	Thailand	Cambodia	1998	1998
USA	Zimbabwe	1976	1979	Italy	Mozambique	1992	1992	Japan	Cambodia	1998	1998
U.k	Zimbabwe	1976	1979	Tanzania	Rwanda	1992	1994	France	Yugoslavia	1998	2001
USA	U.k	1977	1977	Nigeria	Sudan	1992	1994	USA	Yugoslavia	1998	2001
U.k	Zimbabwe	1977	1979	USA	Somalia	1992	1997	Italy	Yugoslavia	1998	2001
USA	Zimbabwe	1977	1979	USA	Georgia	1993	1994	Germany	Yugoslavia	1998	2001
Jordan	Iran	1978	1982	Spain	Guatemala	1993	1993	Uk	Yugoslavia	1998	2001
USA	Lebanon	1978	1990	Norway	Guatemala	1993	1993	South Africa	Zaire	1998	2000
France	Lebanon	1978	1990	Ukraine	Moldova	1993	1993	Egypt	Sudan	1999	2004
USA	Nicaragua	1978	1978	Tanzania	Rwanda	1993	1994	Canada	Sudan	1999	2004
Dominican Rep.	Nicaragua	1978	1978	Belgium	Rwanda	1993	1994	U.k	Yugoslavia	1999	2001
Guatemala	Nicaragua	1978	1978	Nigeria	Sudan	1993	1994	France	Yugoslavia	1999	2001
USA	Zimbabwe	1978	1979	Russia	Bosnia and Herz.	1994	1995	South Africa	Zaire	1999	2000
U.k	Zimbabwe	1978	1979	Russia	Georgia	1994	1994				
U.k	Zimbabwe	1979	1979	Ghana	Liberia	1994	1996				
Canada	El Salvador	1981	1992	USA	Rwanda	1994	1994				
Mexico	El Salvador	1982	1992	Kenya	Sudan	1994	1994				
India	Sri lanka	1983	1986	Iran	Tajikistan	1994	1997				
France	Chad	1983	1988	Egypt	Yemen	1994	1994				
Colombia	El Salvador	1984	1992	U.k	South Africa	1994	1994				
USA	El Salvador	1984	1992	USA	South Africa	1994	1994				
Congo	Chad	1984	1988	France	Bosnia and Herz.	1995	1995				
India	Sri lanka	1984	1986	Germany	Bosnia and Herz.	1995	1995				
Kenya	Uganda	1985	1988	Russia	Bosnia and Herz.	1995	1995				
Spain	Guatemala	1986	1987	USA	Bosnia and Herz.	1995	1995				
India	Sri lanka	1986	1987	U.k	Bosnia and Herz.	1995	1995				
India	Sri lanka	1987	1987	USA	U.k	1995	1995				

Appendix C : An illustration of variable constructions

Table 3 provides an illustration of the procedure we use to build our 6 main variables. We consider bilateral trade (X_{ij}, with $i = A, B, C$, and $i \neq j$). In this case country A intervenes at time t in country B where a civil war is ongoing (target country).

We allow the effect of diplomatic intervention to differ for the intervener country (the "trade for one" effect) and introduce dummy variables to capture the differential effect. $BILM$ captures the differential effect of the intervention on the imports of the target country. It is 1 only if country A intervenes in country B at time t. $BILX$ captures the differential effect of the intervention on the exports of the target country. It is 1 only if country A intervenes in country B at time t. When our interest is not in distinguishing exports and imports, these dyadic variables are aggregated into a single dummy variable BIL. This dummy variable is 1 if one of the two countries A and B intervenes in the other one at time t.

The monadic effects are captured by two dummies. $INTM$ captures the effect of a diplomatic intervention on the imports of the target country. It is 1 only if the importer, B, is the target of an intervention at time t. $INTX$ captures the effect of a diplomatic intervention on the exports of the target country. It is 1 only if the exporter, B, is the target of an intervention at time t. When our interest is not in distinguishing exports and imports, these monadic variables are aggregated into a single dummy variable INT. This dummy variable is 1 if either the exporter A *or* the importer B experienced an intervention at time t. This variable allows us to estimate the "trade for all" effect, the impact of diplomatic interventions on trade between the target country and all its partners (indifferently).

TABLE 3 – An illustration for data coding

i	j	Year	Trade	BIL	BILM	BILX	INT	INTM	INTX
A	B	t	X_{AB}	1	1	0	1	1	0
C	B	t	X_{CB}	0	0	0	1	1	0
D	B	t	X_{DB}	0	0	0	1	1	0
.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.
B	A	t	X_{BA}	1	0	1	1	0	1
B	C	t	X_{BC}	0	0	0	1	0	1
B	D	t	X_{BD}	0	0	0	1	0	1

A intervenes in B.

X_{AB} represent the exports from A to B.

Appendix D : Graphical Results

FIGURE 4 – The impact of diplomatic intervention on trade for "successful" interventions

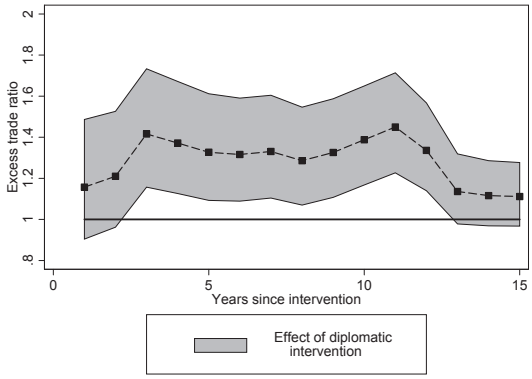


FIGURE 5 – The impact of diplomatic intervention on imports

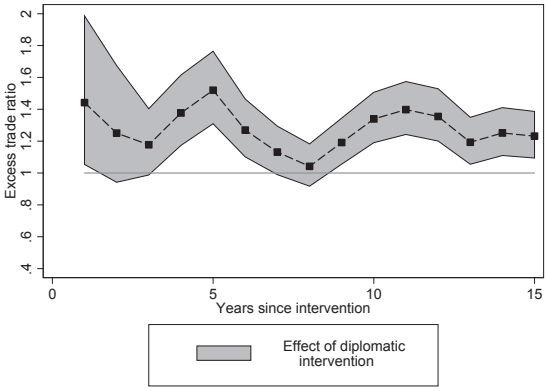


FIGURE 6 – The impact of diplomatic intervention on exports

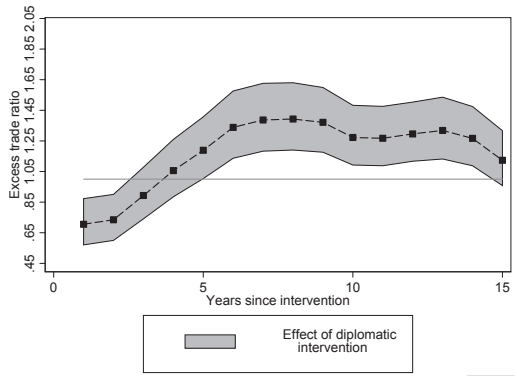


FIGURE 7 – The impact of diplomatic intervention on imports for "successful" interventions

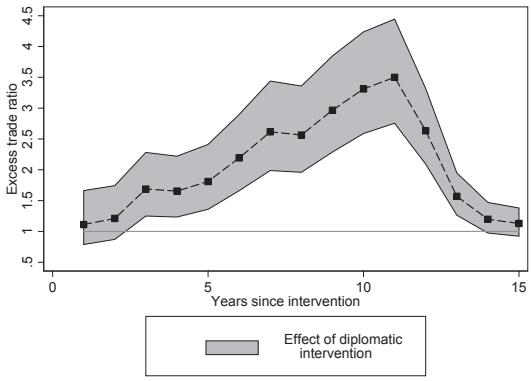


FIGURE 8 – The impact of diplomatic intervention on exports for "successful" interventions

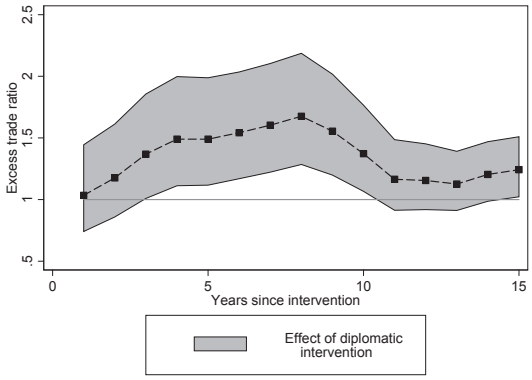


FIGURE 9 – The impact of civil war on trade

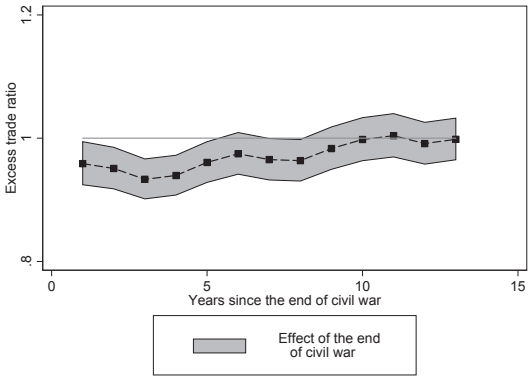


FIGURE 10 – The impact of civil war on imports

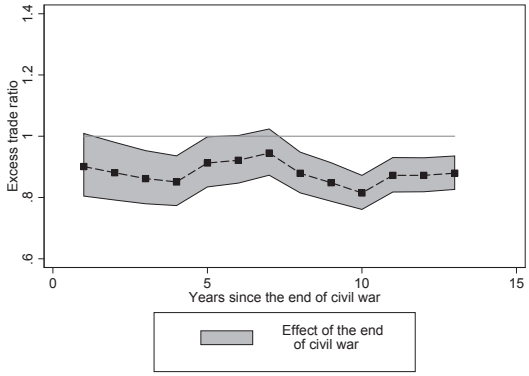
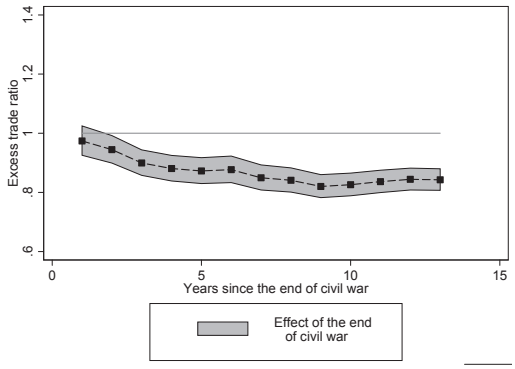


FIGURE 11 – The impact of civil war on exports



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