Signals for Foreign Direct Investment in Post-Conflict Economies

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Using a panel dataset for 159 countries from 1994 to 2014, I examine the economic and political "signals" that attract foreign direct investment (FDI) in countries that have just come out of an armed conflict. Signals for investors are especially important in post-conflict countries because publically available information on the health of the economy can be both scarce and unreliable. The econometric analysis used to estimate what signals may have an impact on FDI in post-conflict settings has multiple parts: first, a factor analysis constructs four multidimensional indices of various signals, reducing the number of explanatory variables from 17 to nine. Due to limitations in data, the number of relevant explanatory variables is further reduced to five, and a two sample sizes (large and small) are constructed. Signals are related to two measures of FDI, including specifications such as country-level time trends and lagged explanatory variables in a dynamic model. Within the smaller sample, minimum wage, unemployment, economic inequality and political institutions have a fairly consistent relationship with FDI inflows. However, these results cannot be extrapolated beyond this smaller sample. When considering the larger, more representative sample, econometric models yield inconclusive results, which are not robust to changes in model specifications. This paper contributes to the literature by examining the impact of multiple signals on FDI, specifically in a post-conflict setting.

1. Introduction

Foreign Direct Investment (FDI) is one of the more widely researched topics in international and development economics. Commonly defined as investment inflows to acquire a management interest abroad, FDI has the potential to boost the economies of both the investor and the host country. For host countries, FDI can provide a source of financing for capital expenditure, it can facilitate technology transfer, and it can help expand international trade. Numerous studies (Busse and Carsten (2005); Delgado, McCloud and Kumbhaker (2014); Garriga and Phillips (2014); Goswami and Haider (2014); Hayakawa, Kimura and Lee (2013), among others) have examined the many diverse factors that influence FDI inflows for the host country, which is often under-developed or developing.

This paper estimates what affects FDI inflows for host countries that have recently experienced an armed conflict, paying special attention to economic factors that are likely to be significantly impacted by a conflict, such as institutional quality. The United Nations Conference on Trade and Development (UNCTAD) published a report in 2009 stating: "Burdened by the remnants of conflict, continuing threats of security lapses, significant market failures and weak institutions, post-conflict countries can hardly be described as normal economies" (UNCTAD 2009: 118). It is this notion that makes studying FDI in a post-conflict setting particularly compelling, as they exhibit characteristics that are not found in other developing or developed economies.

The motivation for this paper comes from the case of Rwanda following the genocide of spring 1994. The Rwandan Genocide was one of the most deadly civil conflicts in history, resulting in nearly one million casualties. Yet, despite the loss of life, capital and infrastructure, Rwanda is often viewed as a success story and a development model in the ways that it has recovered from the genocide that devastated its entire economy and political system. According to the World Bank, since the genocide, Rwanda's GDP per capita has increased almost fourfold – it started out at $251 in 1990, then fell to $152 in 1994 and jumped to $465 in 2008 – and poverty rates have fallen from 78% in 1994 and 56.5% in 2005. In terms of FDI, Rwanda has built up its inflows from almost nothing in 1994 to approximately 3.6 million USD in 2004 (World Bank 2009: 1). In just 10 years, following so much destruction and the loss of so much life, how was Rwanda able to signal to the world that their economy was a safe and worthwhile investment? Was it something, like a statistic or an index, that was able to communicate that Rwanda had recovered from its genocide, making it smart place to invest?

Rwanda is not the only case in which FDI inflows increased dramatically following devastating armed conflicts. UNCTAD (2009) examined the cases of Mozambique – a post-colonial developing country in Sub-Saharan Africa – and Croatia – a relatively industrialized Southeastern European country. Both countries experienced armed conflict in the early 1990s, which left them in social, economic and political turmoil. Croatian GDP fell 21% in 1991, 9.7% in 1992 and 3.2% in 1993, while Mozambican GDP fell so sharply in the late 1980s and early 1990s that at one point it was ranked as one of the poorest countries in the world (UNCTAD 2009: 11-13). Yet in the years following both conflicts, FDI inflows jumped in Croatia and Mozambique: Croatian FDI inflows amounted to $907 million per year during 1996 to 2000, $1.5 billion during 2001 to 2005 and $4.2 billion during 2006 to 2007 (in 2007 FDI made up 40% of GDP) and Mozambican FDI rose from an average of $9 million a year in years immediately following the conflict to an average of $215 a year within a decade after the conflict

ended (UNCTAD 2009: 14-15). Based on FDI and economic growth data from the Croatian and Mozambican cases, UNCTAD concluded that under conditions such as "credible peace," "strong governmental commitment to economic reform" and a "restoration of macroeconomic stability," post-conflict countries can attract substantial amounts of FDI (UNCTAD 2009: 14-15). Yet, the report acted more as a prescription for best practices regarding attracting FDI, rather than an empirical analysis of the specific factors that draw FDI inflows in a post-conflict situation.

The purpose of this study is to bridge this gap by asking the question: in post-conflict economies, where public financial and economic information is both scare and unreliable, what appeals to foreign investors looking to expand abroad? More specifically, what signals – defined as statistics or indices that reflect the health of an economy – are most influential for attracting FDI after a country comes out of an armed conflict? Using a panel dataset of country-specific, conflict-related statistics, as well as political and economic indicators spanning from 1994 to 2014, I estimate the relative importance of signals in predicting FDI, hypothesizing that labor market conditions and institutional quality will have a significant positive relationship with FDI inflows in post-conflict economies.

Using factor analysis to construct four indices for 13 separate variables, I examine how nine signals influence FDI as a share of GDP and growth in FDI inflows in a post-conflict economy. Regressions specifications include interactions between a post-conflict dummy and each signal, one-year lags of each signal, country-specific time trends, as well as fixed effects and standard errors clustered at the country-level. Due to limitations in data, the number of relevant explanatory variables is further reduced to five, and two samples (large and small) are constructed. Within the smaller sample, minimum wage, unemployment, economic inequality and political institutions have a fairly consistent relationship with FDI inflows. However, these results cannot be extrapolated beyond this smaller sample. When considering the larger sample, more representative sample, econometric models yield inconclusive results, which are not robust to changes in model specifications. This study contributes to the literature by examining the impact of multiple signals on FDI, specifically in a post-conflict setting.

This paper is organized as follows: Section 2 will establish a theoretical framework for analysis, drawing upon literature on FDI, economic growth and post-conflict development, Section 3 will define key terms and discuss my data and data sources, Section 4 explains the empirical model employed in this paper, Section 5 outlines results, and Section 6 discusses implications of key findings.

2. Related Literature and Theoretical Framework

2.1 FDI and post-conflict economic growth

A large literature examines the relationship between FDI and growth (e.g., Seyoum, Wu and Lin (2013), Aurangzeb and Stegnos (2014), and Delgado, McCloud and Kumbhakar (2014), among others). Aurangzeb and Stegnos (2014) confirm the notion that FDI has a positive impact on GDP using data the UN Cooperation Trade and Development dataset and a semiparametric approach in a dualistic growth model. With their dualistic model, Aurangzeb and Stegnos (2014) are able to recognize that export and import sectors attract different types and levels of FDI; they assume investments in the export sector are more appealing to investors. Like others such as

Delgado, McCloud and Kumbhakar (2014), Aurangzeb and Stegnos (2014) find that FDI plays an important role in economic development and growth by fostering connections between developing countries and Multinational Corporations (MNC), generating spillover effects in local businesses and institutions and improving access to technologies.

Both Gorodnichenko, Svejnar and Terrell (2015) and Both Fillat and Woerz (2011) examine specific effects of FDI on the host country, paying special attention to what may be a "good" vs. "bad" investment. Gorodnichenko, Svejnar and Terrell (2015) use both firm-level and national-level data to examine the effect of FDI on host country firms – in other words, does FDI have positive spillovers? Gorodnichenko, Svejnar and Terrell (2015) contribute to the literature by conducting a cross-sector analysis and breaking impacts into "horizontal" and "vertical," which are spillovers that affect local competitors and spillover that affect upstream and downstream domestic firms, respectively. They find significant evidence of "backward" vertical spillover effects – i.e. selling to foreign-owned firms – in terms of productivity, but little evidence to say that there are any horizontal or "forward" vertical spillovers.

Delgado, McCloud and Kumbhakar (2014) take a semiparametric approach with a generalized growth model to examine the ability of FDI to boost economic growth, as well as the relationship between corruption and FDI. They regress an index of corruption and other factors of an economy on the growth rate of GDP per capita at a specific time using a panel of 60 non-OECD countries from the period 1985-2002. Consistent with the body of literature on FDI and growth, they find that there is a positive and significant relationship between the two for 57% of non-OECD countries. However, they do find that heterogeneity between FDI and growth, largely due to corruption and other country- and time-specific factors. This study is especially relevant to this paper because it takes corruption, which is often prevalent in post-conflict settings, into account.

Turner, Agiman and Popvski (2008) posit that post-conflict countries are often among the poorest in the world, and are vulnerable to falling back into armed conflict due to corruption, weak institutions, slow economic growth, etc. As such, they face unique challenges in terms of economic growth and attracting FDI. Both Ezeoha and Ugwu (2015) and Bussmann (2010) found that incidences and the onset of armed conflicts reduce FDI inflows, and this paper will contribute to this specific body of literature examining the relationship between conflict and FDI, and how countries can attract more FDI post-conflict to boost economic growth and development.

2.2 Political Risk and FDI

One possible deterrent for FDI is political risk. Political risk is frequently measured by the International Country Risk Guide (ICRG) index, which comprises various risk components that include weighted variables encompassing political and social attributes like government instability, socioeconomic conditions, investment profile, internal conflict, corruption, military in politics, religious and ethnic tensions, etc. Various studies have used the ICRG dataset to observe how and what risk factors can have a negative effect on FDI. Similar to the approach used in this paper, studies such as Goswami and Haider (2014) and Busse and Hefeker (2005) analyze different components of political risk as signals to investors.

Both Busse and Hefeker (2005) and Hayakawa, Kimura and Lee (2013) find that political risk has a negative relationship with FDI. Busse and Hefeker (2005) are more specific in their model, and find that while holding the Gini coefficient, trade, inflation, growth and region as constant, five indicators within political risk are significant: government stability, lack of internal conflict and ethnic tension, democratic rights and law and order are significant predictors of FDI. Using three-year average FDI inflows for 89 countries, 56 of which are developing, Hayakawa, Kimura and Lee (2013) took political risk analysis one step further by including "financial risk" – risk that a country may not be able to pay back its foreign liabilities – to account for overall country risk. They find that political risk, but not financial risk, is negatively associated with FDI. However, Hayakawa, Kimura and Lee's (2013) analysis also specifies that changes in the political risk components have significant effects on FDI, not just the actual risk indicators themselves. In other words, a country may have a very high level of political risk, which could discourage FDI, but if that country reduces their political risk, it may still be very high but that reduction acts a positive signal for FDI.

Goswami and Haider's (2014) findings contradict those of Busse and Hefeker (2005) and Hayakawa, Kimura and Lee (2013). Goswami and Haider (2014) perform a factor analysis to identify what specific indicators within political risk affect FDI. They keep market size, growth of GDP, trade openness and infrastructure as controls and determine that, contrary to the literature, political risk does not have a negative effect on FDI, but instead cultural conflict and attitudes of investor country are better predictors. While the notion of political risk and various factors that can affect FDI is similar to this study's research approach, I will contribute to this body of literature by first, examining results specifically in a post-conflict context and second, developing an original set of signals and factors rather than the IRCG, which has been widely used and yielded inconsistent results.

3. Description of Data

3.1 Key variables: Conflict and FDI

Data for this paper were collected from numerous publicly available sources. The first variables of interest were the incidence of conflict and conflict-related deaths, which have been compiled in a dataset by the Uppsala Conflict Data Program/Peace Research Institute of Oslo (UCDP/PRIO). This dataset has been widely used in empirical studies of conflict, such as Blattman and Miguel (2010) and Janus and Riera-Crichton (2015). In UCDP/PRIO Armed Conflict Dataset codebook, armed conflict is defined as "a contested incompatibility that concerns government or territory or both where the use of armed force between two parties results in at least 25 battle-related deaths. Of these two parties, at least one if the government of the state." The location variable, as defined by the UCDP/PRIO Armed Conflict Dataset codebook, is the primary state or government involved in the conflict; in a few cases two countries are listed, but these were dropped from the dataset for consistency. The UCDP/PRIO Battle Deaths Dataset codebook defines battle deaths as "deaths caused by the warring parties that can be directly related to combat over the contested incompatibility." This is a commonly used definition. For example, Nunn and Qian (2014) used a different conflict dataset but defined conflict and battle deaths roughly the same way. The location of the battle deaths is reported as the country in which the deaths were recorded. This data form the core of this study's empirical strategy. From this data, I determine whether a country ever experiences a conflict during the

sample period ("ever conflict") and whether a country is currently experiencing a conflict ("current conflict"). Similarly, the main dummy variable of interest, "post conflict," indicates countries that have just emerged from an armed conflict. The battle deaths variable is used to signal the intensity of the armed conflict.

The second main variable of interest, FDI inflows, came from the World Bank's World Development Indicators (WDI) databank. The World Bank defined FDI as "net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating an in economy other than that of the investor." Again, this definition is consistent among the body of literature on FDI. From this data, I construct the two key dependent variables: FDI as a share of GDP and growth in FDI inflows.

3.2 Controls

Largely following the model of Bussmann (2010), GDP and the natural log of population are included in the dataset to control for market size of the host country for FDI. The degree to which the host country is open to trade is also controlled for with trade as a percentage of GDP. Data for these variables were also collected from the World Bank's WDI databank.

3.3 Signals

The bulk of the data used in this study are centered on the idea of "signals" for investors in post-conflict setting, which is introduced by Garriga and Phillips (2014). According to Garriga and Phillips (2014), the notion of a signal is premised on the assumption that in developing economies, and particularly in post-conflict economies, there is a lack of reliable information coming from the state. For the purposes of their study, Garriga and Phillips (2014) posit that foreign aid indicates a level of trust in the governments and institutions to properly handle funds and donations. A major contribution of this paper, therefore, is expanding upon Garriga and Phillips' (2014) study by creating an original dataset of multiple signals that have the potential to influence investment decisions in post-conflict economies.

The literature on how specific indicators and aspects of an economy can influence FDI is vast, and as such, it was difficult determining which signals, in the form of macroeconomic statistics and other political and institutional indicator, to include in the dataset. Signals were chosen based on both empirical evidence and assumptions on what might be the most affected by conflict. Table 1 provides detailed descriptions of signals included in the dataset, excluding battle deaths signaling conflict intensity, as well as sources and empirical evidence connecting the signal to FDI.

TABLE 1: DESCRIPTIONS OF SIGNALS AND EMPIRICAL EVIDENCE

Signal	Variables	Source	Unit of Measurement	Years Available	Previous Studies and Empirical Evidence
Institutional Quality	Government Effectiveness, Control of Corruption, Political Stability, Rule of Law, Regulatory Quality, Voice and Accountability	World Bank's Worldwide Governance Indicators	Scale of -2.5 to 2.5, where a higher value indicates better institutions	1996-2014	Higher quality institutions attract more FDI: *Haar, Wernick and Singh (2009), Ali, Fiess and MacDonald (2008)* Specifically, property rights protections, obedience to rule of law and effective courts attract FDI from US investors: *Biglaiser and Staats (2010)*
	Economic World Institutional Quality Ranking (WIQR), Legal WIQR, Political WIQR	Aljaz Kuncic's (University of Ljubljana) Institutional Quality Dataset	A ranking system, where a lower rank indicates better institutions	1994-2011	
Corruption	Corruption Perception Index (CPI)	Transparency International	Scale of 1 to 10, where a higher value indicates less corruption perceived	1994-2014	Corruption negatively affects economic activity: *Olken and Pande (2011)* Corruption significantly decreases the ability of FDI to boost economic growth for about 70% of non-OECD countries: *Delgado, McCloud and Kumbhaker (2014)*
Labor Market	Minimum Wage	International Labor Organization's ILOSTAT	Converted from LCU into USD	1997-2014	Lower labor costs in the host country attract FDI: *Cushman (1987), Bevan and Estrin (2004)*
	Unemployment Rate	World Bank's World Development Indicators	ILO estimate	1994-2014	Unemployment has a positive influence on FDI by proxying overall labor market conditions: *Billington (1999)*
Foreign Aid	Total Aid Inflows	AidData	Aggregate inflows in USD (in billions)	1994-2014	Aid in post-conflict economies is a significant signal for FDI: *Garriga and Phillips (2014)*
Trade Barriers	International Trade Taxes	World Bank's World Development Indicators	As a percentage of total government revenue	1994-2014	Liberalized trade and a lack of trade barriers positively influence FDI inflows: *Seyoum, Wu and Lin (2013), Dutta and Roy (2009)*
Economic Inequality	Gini index	World Bank's World Development Indicators	Scale of 0 to 100, where 0 indicates perfect equality	1994-2014	FDI reduces income inequality, but higher inequality also has a negative impact on FDI: *Herzer and Nunnenkamp (2011)*

3.4 Data Interpolation

One of the weaknesses of the dataset is inconsistent reporting of economic data, which leads to a lack of completeness across all variables, countries and years. Some signals, like GDP and population, are reportedly consistently but others, such as the Gini index, are reported much less frequently. This is problematic in the context of this study because due to a limited number of observations for variables such as the Gini index, international trade taxes and minimum wage, there is a lack of variation over time being captured in the regressions. In attempt to increase the number of observations for Gini index, minimum wage, international trade taxes and WIQR rankings, data are interpolated using the averages of observations up to three years before and after the missing value. This is successful in accounting for some missing observations: 30% of Gini index observations, 0.7% of minimum wage observations, 2.5% of international trade taxes observations, 1.7% of economic WIQR observations, 1.3% of political WIQR observations and 4.5% of legal WIQR observations were interpolated. However, the data are still not complete enough for these variables and therefore, due to limited observations, the Gini index, minimum wage, international trade taxes and WIQR ranking were excluded from the main sample used in the empirical model. This new sample, used for key empirical estimations, includes approximately 1,270 observations and 144 countries. Of these 1,270 observations, 489 observations and 62 countries are in a post-conflict state. This larger sample size is therefore more representative of a global dataset and captures more variation over time. Appendix B lists all countries included in this sample, indicating which countries experienced a conflict.

3.5 Full Dataset and Descriptive Statistics

The dataset spans 20 years from 1994 to 2014 and includes 159 countries. Countries with populations less than one million were excluded from the final dataset. Table 2 in Appendix A reports descriptive statistics for all variables, broken up by countries that don't experience conflict in the dataset vs. countries that do. As shown by these statistics, experiencing a conflict typically has a negative effect on an economy and economic development in this dataset. For example, while GDP is higher when a conflict has occurred, population is also higher, indicating that countries in the dataset that experience a conflict are typically larger, on average. Looking at GDP per capita, however, indicates that countries that experience a conflict in the dataset are less developed on average than countries that do not, as GDP per capita is much lower when countries do experience conflict.

Perhaps one of the most apparent differences, as reported by descriptive statistics, between countries that experience conflict vs. countries that do not in the dataset is in terms of institutional quality. When countries have experienced a conflict in the dataset, all Worldwide Governance Indicators (Control of Corruption, Government Effectiveness, Rule of Law, Regulatory Quality, Political Stability, Voice and Accountability) have means considerably lower than when countries do not have conflict, indicating worse institutions for countries that experience conflict in the dataset. This holds true for World Institutional Quality Rankings (WIQR): countries that experience conflict in the dataset on average have a higher WIQR ranking, also indicating worse institutions. In terms of corruption, the mean for the Corruption Perception Index (CPI) is lower when countries do have conflict, implying that more corruption is perceived if a country has experience conflict in the dataset. Descriptive statistics also indicate that countries that experience a conflict in the dataset have worse labor market conditions: on

average, when countries have conflict in the dataset, the means for unemployment rate and minimum wage are higher and lower, respectively, than when countries do not have conflict.

Countries that experience conflict in the dataset are also, on average, less open to trade: on average, countries that experience conflict have higher trade taxes and less trade as a percentage of total revenue than countries that do not experience conflict in the dataset. For total aid inflows, countries that experience conflict in the dataset get, on average, more aid than countries that do not. In terms of economic inequality, the means for the Gini index when countries experience conflict vs. when they do not are roughly the same, implying that countries that experience a conflict in the dataset are not characterized by more or less economic inequality, on average. Interestingly, this also holds true for FDI and FDI as a percentage of GDP: the means for these two variables are roughly the same when countries experience conflict vs. when they do not, implying that, on average, countries that experience conflict in the dataset are not getting considerably more or less FDI than countries that do not. Growth in FDI inflows, however, is much higher on average for countries that do experience conflict.

3.6 Signals pre- and post-conflict

Another main concern with the dataset is that countries that experience a conflict are fundamentally different than peaceful countries, even before the conflict occurs, which would impact the ability to make causal claims. To account for this, a dummy representing a pre-conflict state, where a pre-conflict dummy equals one and an ever conflict dummy equals 0 is regressed on each signal in the datatset, with robust standard errors and controlling for Population and GDP. This established whether economies that never experience a conflict are similar to pre-conflict economies. The coefficient on the pre-conflict dummy is insignificant when regressed on total FDI inflows, GDP, GDP growth, GDP per capita growth, the Gini index, population, trade taxes, trade, the unemployment rate, total aid and minimum wage. This indicates that in the context of this study, being in a pre-conflict state does not predict any of these aspects of an economy. However, for GDP per capita and every measure of institutional quality, the coefficient on the pre-conflict dummy is significantly negative (for the WIQR scores, the coefficients are significantly positive as a higher score indicates worse institutions). This is consistent with the notion that poor governing institutions put a country at risk of experiencing a conflict. To address this potential endogeneity issue, I included country-specific time trends in an empirical specification, and all other models include country fixed effects.

The dummy representing a current conflict was also regressed on each signal – with robust standard errors and controlling for population and GDP – in order to gain a better understanding of how conflict impacts all signals in the dataset. Results indicate that currently being in a conflict has a significantly negative relationship with each signal except the unemployment rate and minimum wage. This regression analysis established the incidence of conflict as a type of "treatment" that may significantly alter an economy.

4. Econometric Methodology

4.1 Factor Analysis

Following the methodology of Goswami and Haider (2014), I employ a factor analysis approach to construct multidimensional indices of the number of explanatory variables and minimize any redundancies in the econometric model by utilizing correlations and underlying patterns among signals. I use a confirmatory factor analysis, in which signals are divided into groups, and one or two factors are extracted from each group. Signals were divided into four groups with the intent of extracting four strong factors: a battle deaths group including all three measures of battle deaths (low, best and high), a WIQR rankings including all three institutional quality rankings (legal, political and economic), a governance and institutions group including all WGIs (government effectiveness, political stability, control of corruption, rule of law, regulatory quality and voice and accountability) and the CPI and a socioeconomic group (including the Gini index, minimum wage and the unemployment rate). Total aid or trade taxes in a group were not included in any groups. I use an iterated principle factor analysis (IPF) on each of these four groups of signals. I also employ an orthogonal rotation, which does not allow multiple factors in the same group to be correlated with each other. After the rotation, signals that had a loading of less than 0.5 on the factor were dropped, in order to increase the strength of the factors. In a final step, according to Cronbach's test, which finds the scale reliability coefficient that summarizes the strength and reliability of the factor, the factors are considered acceptable with a reliability coefficient of at least 0.7.

The battle deaths and WIQR factors are successfully extracted with scale reliability coefficients of 0.9659 and 0.9308, respectively. The factor analysis of the governance and institutions group yields two factors: one is called the political institutions factor (including government effectiveness, control of corruption rule of law, political stability and the CPI), and another called institutions factor (including regulatory quality and voice and accountability). The political institutions factor and the regulatory institutions factor have scale reliability coefficients of 0.9218 and 0.9147, respectively. The socioeconomic group, however, does not produce a good factor, as the scale reliability coefficient is well below the threshold of 0.7. A further examination of the correlations between the Gini index, minimum wage and unemployment rate indicated that the three signals are weakly and, in some cases, negatively correlated. Therefore, multicollinearity for this set of variables is not an issue within the model. As such, Gini index, minimum wage and unemployment rate, along with total aid and trade taxes are considered as stand-alone signals, and the factors extracted represent indices of conflict intensity, political institutions, regulatory institutions and institutional quality ranking. Table 2 in Appendix A reports the results from the factor analysis.

4.2 Model Specifications

In baseline estimations, FDI as a share of GDP and growth in FDI inflows are regressed on relevant signals and a post-conflict dummy. GDP and the natural log population are included to control for market size and size of the host economy, and trade as a percentage of total revenue is a control for general trade openness in the host economy. A dummy variable for currently being in a conflict is also included to control for countries that may be experiencing a conflict in a given year, and thus are not in a post-conflict, pre-conflict or peaceful state. Each regression also

included a time trend, a country fixed effects specification and robust standard errors clustered at the country level.

(1a) $FDI_{it} = \alpha PostConflict_{it} + \sum_{k=1}^{5} \beta_k Signal_{it}^k + \gamma Controls_{it} + t_t + a_i + u_{it}$

Where the subscripts i and t denote country and year, respectively, t denotes a time trend, u denotes an error term and a denotes a country-level fixed effect. PostConflict is a dummy, which takes a one when a country is in a post-conflict state. The signals matrix includes a battle deaths factor, a political institutions factor, a regulatory institutions factor, unemployment rate and total aid. Controls include GDP, the natural log of population and trade as a percentage of GDP for country i in year t, in addition to a current conflict dummy, which takes a zero when a country is currently experiencing a conflict.

After estimating this baseline regression, interaction terms of the post-conflict dummy and each signal are included in the estimation model. In the case of the battle deaths factor, the post-conflict dummy was interacted with a one-year lag of battle, since battle deaths are only recorded when there is a conflict, and therefore the interaction would be a constant equal to zero. This interaction term indicates how large of a decline in conflict intensity has occurred.

(1b) $FDI_{it} = \alpha PostConflict_{it} + \sum_{k=1}^{5} \beta_k Signal_{it}^k + \sum_{k=1}^{5} \beta_k Signal_{it}^k * PostConflict + \gamma Controls_{it} + t_t + a_i + u_{it}$

Following Janus and Riera-Crichton's (2015) model, an additional specification is to include country-specific time-trends to account for potential country-specific variations over time and control for endogeneity. Time trends and country fixed effects are not included in this specification.

(2a) $FDI_{it} = \alpha PostConflict_{it} + \sum_{k=i}^{5} \beta_k Signal_{it}^k + \gamma Controls_{it} + \sum_{i=1}^{n}(a_i + \delta_i t) + u_{it}$

(2b) $FDI_{it} = \alpha PostConflict_{it} + \sum_{k=i}^{5} \beta_k Signal_{it}^k + \sum_{k=i}^{5} \beta_k Signal_{it}^k * PostConflict + \gamma Controls_{it} + \sum_{i=1}^{n}(a_i + \delta_i t) + u_{it}$

Where the summation containing a, δ and t denotes a country-specific time trend.

The next empirical specification is a dynamic model that includes one-year lags of all signals. This accounts for the notion that "the process of choosing and implementing investments abroad is time-consuming," and thus, signals from the previous period may be more powerful predictors of FDI in the current period (Bevan and Estrin 2004: 778).

(3a) $FDI_{it} = \alpha PostConflict_{it} + \sum_{k=i}^{5} \beta_k Signal_{it-1}^k + \gamma Controls_{it} + t_t + a_i + u_{it}$

(3b) $FDI_{it} = \alpha PostConflict_{it} + \sum_{k=i}^{5} \beta_k Signal_{it-1}^k + \sum_{k=i}^{5} \beta_k Signal_{it-1}^k * PostConflict + \gamma Controls_{it} + t_t + a_i + u_{it}$

I then slightly alter this model to include country-specific time trends.

(4a) $FDI_{it} = \alpha PostConflict_{it} + \sum_{k=i}^{5} \beta_k Signal_{it-1}^k + \gamma Controls_{it} + \sum_{i=1}^{n}(a_i + \delta_i t) + u_{it}$

(4b) $FDI_{it} = \alpha PostConflict_{it} + \sum_{k=i}^{5} \beta_k Signal_{it-1}^k + \sum_{k=i}^{5} \beta_k Signal_{it-1}^k * PostConflict + \gamma Controls_{it} + \sum_{i=1}^{n}(a_i + \delta_i t) + u_{it}$

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4.3 Robustness Checks

As discussed in Section 3.3, baseline regressions are estimated using a larger sample of countries that excludes signals – Gini index, minimum wage, trade taxes and WIQR rankings – that have too few observations. Therefore, as a robustness check, all models are estimated with the inclusion of these signals, which drastically reduces the sample size. The new, smaller sample includes 389 observations and 62 countries. Of these 389 observations, 150 observations and 23 countries are in a post-conflict state. Appendix C lists all countries included in this sample, indicating which countries are in a post-conflict state. As a second robustness check, the original models, only including the battle deaths factor, the political and regulatory institutions factors, unemployment and total aid inflows are estimated using this smaller sample size.

5. Empirical results

Tables 4-9 containing estimates for all the models discussed in this section can be found in Appendix A.

5.1 Baseline Estimations

Baseline estimations in Table 4 relate two measures of FDI – as a share of GDP and growth in inflows – to signals in the larger sample. In these estimations, the effect of signals on both measures of FDI is mostly insignificant. In estimations with FDI as a share of GDP as the dependent variable, political institutions have a significantly negative influence in model 1a. However, when post-conflict interaction terms are included in model 1b, political institutions lose significance; none of the signals in this model are significant. When country-specific time trends are added in model 2a, regulatory institutions become significantly negative and political institutions remain insignificant. This implies that the country-level time trend captured most of the impact that political institutions have on FDI, due to the notion that trending behavior in the variables may have been what was affecting FDI in the estimation. However, like in model 1, including post-conflict interaction terms in model 2b causes regulatory institutions to lose significance; nothing else in this model is significant.

In models of FDI growth, political institutions have a significant positive influence in model 1a, which is consistent with the previous findings in the literature reported in Table 1, like Haar, Wernick and Singh (2009). This result holds when country-specific time trends are included in model 2a. However, when post-conflict interaction terms are include in models 1b and 2b, no signals are significant. Unlike Garriga and Phillips (2014), who found that foreign aid is a positive signal for FDI in post-conflict economies, results from this study's baseline estimation indicate that aid has a negative, yet insignificant effect on both FDI as a share of GDP and growth in FDI inflows. Findings from these estimations also contradict those of Billington (1999), who found that unemployment is a positive signal for FDI as it can proxy overall labor market conditions in the host economy; results from this study do not indicate that unemployment has a positive or significant impact on either measure of FDI. It is also notable that estimated coefficients on the post-conflict dummy, as well as post-conflict interaction terms are never significant in the baseline models. This implies that FDI does not necessarily respond differently to signals in a post-conflict vs. non-post conflict state.

5.2 Dynamic Models

In models 3 and 4, which replace explanatory variables with their one-year lags to account for the dynamic effect of signals of FDI, results are also fairly inconsistent as reported in Table 5. In baseline estimations (model 3a and 3b), no signals have a significant relationship with FDI as a share of GDP. However, when accounting for country-specific time trends in models 4a and 4b, the lagged regulatory institutions factor has a significant negative relationship with FDI as a share of GDP.

Results change when the dependent variable is FDI growth: the one-year lag of total aid inflows interacted with the PostConflict dummy has a significantly positive, albeit very small, influence. This holds true for both model 3b and model 4b, which includes country-specific time trends. The lack of significant results in these dynamic models suggest that investors do not necessarily react differently to information from the previous period in relation to contemporaneous information when making decisions for FDI in post-conflict, as well as non-post-conflict economies; this contradicts the notion posited by Bevan and Estrin (2004).

5.3 Robustness Checks

As discussed in Section 3, a limited number of observations for some signals (Gini index, WIQR rankings, minimum wage and international trade taxes) caused them to be excluded from the empirical model, in order to gain a larger, more representative sample from the dataset. To assess the robustness of findings from the baseline and dynamic estimation models that include only relevant signals, I estimate models that include all signals using a smaller sample of 388 observations from 61 or 62 countries, as opposed to 1,270 observations and 144 countries in the larger sample. These regressions, reported in Tables 6 and 7 yield different results from the original model. In model 1a with FDI as a share of GDP as the dependent variable, minimum wage has a significantly negative effect and political institutions, which is significantly negative in model 1a using the larger sample, is insignificant.

In model 1b, which yields no significant results when using the larger sample, the post-conflict dummy, the Gini index and the interaction term of post-conflict and battle deaths have a significant positive relationship with FDI as a share of GDP. Battle deaths, which is a measure of conflict intensity, minimum wage and the interactions of post-conflict with unemployment and Gini have a significant negative relationship with FDI as a share of GDP. These findings, while not robust to variations in the sample, are fairly consistent with the literature. For example, Cushman (1987) and Bevan and Estrin (2004) found that lower labor costs (minimum wage) in the host economy are associated with increasing FDI. Results also indicate that in this smaller sample, investors may react differently to signals in post-conflict economies vs. non-post-conflict economies, as several estimated coefficients on interaction terms, such as the interaction of unemployment in models 1b and 2b for FDI as a share of GDP, are significant.

Still, as Table 6 indicates, the only result that holds up to the robustness check is in models 1a and 2a, in which political institutions is significantly positively associated with growth in FDI inflows. Similarly, Table 7 reports that the dynamic model is also not robust, as no results hold when using this smaller sample.

As a second robustness check, the initial models using relevant signals are estimated using the smaller sample. As reported in Tables 8 and 9, results remain largely unchanged compared to models discussed in the previous paragraphs that included all signals. This indicates that the Gini index, WIQR rankings, minimum wage and international trade taxes don't necessarily impact the significance of battle deaths, political institutions, regulatory institutions, unemployment and total aid inflows in relation to FDI as a share of GDP or growth in FDI inflows in this small sample. Findings from these models also imply that FDI reacts differently to the same signals in the large vs. small sample. For example battle deaths, a measure of conflict intensity, is never significant in the larger sample. However as Table 9 reports, the one-year lag of battle deaths has a consistently positive effect on FDI as a share of GDP in both models 3 and 4. This implies that in this smaller sample, a more intense conflict has a positive relationship with FDI the year after it ends.

5.4 Large vs. Small Sample

Robustness checks indicate that FDI responds differently to signals in the large vs. the small samples. Table 10 reports descriptive statistics for key signals in both the small and large samples in three different settings: post-conflict, current conflict and no conflict. Analysis of Table 10 indicates that the means for unemployment, total aid inflows and battle deaths are only slightly different in the large vs. small samples, while the difference in means is more drastic for political and regulatory institutions. In order to assess if there is a significant difference between the two datasets, t-tests are conducted for the means of relevant signals – battle deaths, political institutions, regulatory institutions, unemployment and total aid inflows – as well as three measures of FDI – total inflows, as a share of GDP and growth. I am unable to reject that null hypothesis that the means for unemployment, total aid inflows, battle deaths, FDI inflows and FDI growth in the large sample equal the means for unemployment, total aid inflows, battle deaths, FDI inflows and FDI growth in the small sample. Thus, there is no statistical evidence that the two samples are significantly different, in terms of these three signals and two measures of FDI. However, I reject the null hypothesis that the means of political institutions, regulatory institutions and FDI as a share of GDP in the large sample equal those of the small sample, suggesting that there is a significant difference in terms of institutional quality between the two samples. This indicates that difference in estimated results in the large and small samples can be due some sort of systematic difference in the data in these two samples.

One possible explanation is that in the smaller sample there is a selection bias at play, meaning that results from the robustness checks cannot be extrapolated, as the small sample of countries is not representative of a larger group. There could also be heterogeneous effects at work, explaining why the signals behave differently in different contexts and samples. This could mean that signals in the small sample are governed by a different set of parameters than in the larger sample, and thus signals have a different effect on the smaller sample of countries. The estimated effects generally appear to be stronger in the smaller sample, possibly because this set of data coming from this specific set of countries is better and more reliable.

6. Discussion and Concluding Remarks

The purpose of this study is to determine what signals, if any, in the form of political and economic statistics and indicators are important in attracting FDI in post-conflict economies.

Post-conflict economies represent complex economic environments, in which both capital and human capital are lost, infrastructure is destroyed, and forces like corruption weaken governments and other key institutions. Empirical estimations, however, do not produce consistent or robust results, and therefore it is difficult to estimate how FDI inflows react to signals in a post-conflict vs. non-post-conflict economy.

The predictive power of signals on FDI in post-conflict economies is even more difficult to estimate in the context of this study due to data limitations – two sets of signals were estimated in two distinct samples of countries (one smaller, less representative sample and one larger sample). Analysis of these two samples indicated that they are fundamentally different, likely due to a degree of heterogeneity in the effect of signals or selection bias in the reporting of economic data, and thus findings from the smaller sample cannot be considered conclusive. The larger sample, however, is more representative, containing data on 144 countries as opposed to 61 in the smaller sample. Results using this sample were inconsistent and not robust to changes in empirical specifications. Therefore I was not able to confidently confirm or deny my hypothesis that institutional quality and labor market conditions are significantly related to FDI in post-conflict economies. This could, in part, be due to a degree of omitted variable bias when leaving out important signals such as Gini or minimum wage. Controlling for these variables, despite the limited data available, could have influenced how other signals, such as political intuitions or unemployment, behave in the model in relation to FDI.

Yet, results from the smaller sample should not be overlooked, especially in the context of previous studies in the literature. Results from empirical models using this small sample indicate that a lower minimum wage and higher income inequality are fairly robust predictors of FDI as a share of GDP, as are better political institutions and a lower unemployment rate for growth in FDI inflows. While analysis of the small sample in relation to the large sample suggests that results from the small sample would not hold in a larger, more representative dataset, in the context of the literature, it is not uncommon for studies examining the relationship between a certain signal and FDI to use smaller datasets. For example in studies of institutions and FDI, Haar, Wernick and Singh (2009) use a sample of 64 emerging economies and Bénassay-Quére, Coupet and Mayer (2007) use a sample of 52 counties. Other studies focus on regions, like Herzer and Nunnenkamp (2011) who study the relationship between economic inequality in Europe and Bevan and Estrin (2004) who focus only on western countries when examining determinants of FDI. Therefore, this study further contributes to the literature by compiling a global dataset, and using large and small samples of 144 and 61 countries, respectively, to examine the impact of signals on FDI in a post-conflict setting. As such, the results of this study imply that previous findings of the impact of institutional quality, economic inequality, labor market conditions, etc. may not hold when applied to a global dataset. Furthermore, previous studies rarely examine the impact of more than one or two variables on FDI. This study looks at as many as nine variables, suggesting that previous studies may be overestimating the impact of one signal on FDI by omitting certain variables.

The policy implications of this study are difficult to determine, considering econometric models yielded inconclusive results. As such I cannot confidently make a recommendation for how countries can attract FDI to help boost growth and potentially rebuild their economies after an armed conflict. The inconsistencies in results are potentially due to a lack of complete reporting of key economic and political statistics, such as the Gini index or minimum wage. Therefore, a

more robust study of FDI in post-conflict economies would likely rely on thorough publishing of economic data. This is complicated in the context of post-conflict settings, as political and economic turmoil can make collecting this information problematic. It is also common for post-conflict regimes to withhold information. As such, a policy implication is to place emphasis on accurate and comprehensive collection and reporting of economic data when countries come out of an armed conflict.

In a broader sense, the complex nature of conflict must be considered in the context of this study. An IMF study of post-conflict recovery by David, Bastos and Mills (2001) pointed to various factors, from improving trade relations to pure luck, which can improve economic performance. A study of Rwanda post-genocide by Serneels and Verpoorten (2015) found that it is important to distinguish between types of conflict and forms of violence in order to fully understand post-conflict economic recovery. Therefore, further research should take into account how different types of conflict may influence FDI and the signals that are important for investors. This could shed light on how post-conflict economies can attract FDI as a step toward rebuilding their economies, keeping in mind that all conflicts are unique.

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Appendix A

TABLE 2: DESCRPTIVE STATISICS OF ALL VARIABLES FOR CONFLICT AND NO CONFLICT

VARIABLES	No Conflict Observations	Conflict Observations	No Conflict Mean	Conflict Mean	No Conflict St. Dev.	Conflict St. Dev
GDP (in billions)	1,884	1,324	262.7	379.0	679.9	1,696
GDP Growth	1,864	1,329	3.665	4.639	4.263	7.891
GDP per Capita	1,883	1,324	13,341	3,469	16,840	7,469
Gini index	909	539	39.88	40.17	10.23	7.613
Population (in millions)	1,931	1,407	16.64	72.68	27.06	207.2
International Trade Taxes	916	620	6.411	13.50	8.099	12.02
Trade (as a % of revenue)	1,846	1,292	91.78	68.86	53.76	35.36
Unemployment	1,800	1,300	8.794	9.131	5.670	7.211
Control of Corruption	1,467	1,061	0.241	-0.656	1.053	0.660
Government Effectiveness	1,464	1,060	0.270	-0.621	0.998	0.770
Rule of Law	1,468	1,060	0.228	-0.739	0.975	0.728
Regulatory Quality	1,463	1,060	0.302	-0.599	0.977	0.804
Political Stability	1,459	1,060	0.279	-0.986	0.700	0.829
Voice and Accountability	1,472	1,044	0.156	-0.683	0.998	0.754
Corruption Perception Index	1,469	926	5.000	3.091	2.273	1.460
Legal WIQR	1,267	652	50.21	81.58	31.09	27.18
Political WIQR	1,322	760	49.99	84.43	33.15	29.61
Economic WIQR	1,189	584	45.74	75.77	28.60	26.85
Battle Deaths (best estimate)	1,952	1,407	0	362.8	0	986.7
Battle Deaths (high estimate)	1,952	1,407	0	477.3	0	1,204
Battle Deaths (low estimate)	1,952	1,407	0	338.3	0	923.7
Minimum Wage	860	716	1,143	171.3	8,660	288.6
Total Aid Inflows (in billions)	1,247	1,156	1.010	1.664	3.303	3.037
FDI (in trillions)	1,784	1,256	3,400	3,073	2,906	2,715
FDI (as a % of GDP)	1,784	1,256	84.38	84.66	717.6	287.5
FDI growth	1,683	1,181	1.584	7,153	11.293	245,640

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TABLE 3: RESULTS OF CONFIRMATORY FACTOR ANALYSIS

VARIABLES	Post-Rotation Loadings				
	Battle Deaths Factor	Political Institutions Factor	Regulatory Institutions Factor	WIQR Factor	Socioeconomic Factor
Control of Corruption	-	**0.8283**	0.4764	-	-
Government Effectiveness	-	**0.6969**	0.6496	-	-
Rule of Law	-	**0.6972**	0.5962	-	-
Regulatory Quality	-	0.5539	**0.7946**	-	-
Political Stability	-	**0.5253**	0.4141	-	-
Voice and Accountability	-	0.4403	**0.6854**	-	-
Corruption Perception Index	-	**0.8418**	0.1873	-	-
Legal WIQR	-	-	-	**0.8802**	-
Political WIQR	-	-	-	**0.8740**	-
Economic WIQR	-	-	-	**0.7782**	-
Battle Deaths (best estimate)	**0.8793**	-	-	-	-
Battle Deaths (high estimate)	**0.7715**	-	-	-	-
Battle Deaths (low estimate)	**0.8974**	-	-	-	-
Minimum Wage	-	-	-	-	0.3478
Unemployment	-	-	-	-	-0.0071
Gini index	-	-	-	-	0.3832
FACTOR	Scale Reliability Coefficient				
Battle Deaths	0.9659				
Political Institutions	0.9218				
Regulatory Institutions	0.9147				
WIQR	0.9308				
Socioeconomic	0.0006				

Note: - indicates variable was not used in constructing factor, loadings in bold indicate variable was used in constructing factor

TABLE 4: BASELINE ESTIMATION WITH RELEVANT SIGNALS, LARGE SAMPLE

VARIABLES	FDI as a share of GDP				Growth in FDI inflows			
	(1a)	(1b)	(2a)	(2b)	(1a)	(1b)	(2a)	(2b)
PostConflict (PC)	-18.85	-4.866	-17.88	2.466	-4.228	-3.279	-3.335	3.127
	(22.87)	(18.15)	(19.47)	(20.40)	(12.18)	(16.85)	(10.58)	(18.42)
Battle Deaths Factor	0.209	-0.905	0.881	0.0824	-0.255	-0.301	-0.158	-0.451
	(1.438)	(1.212)	(1.340)	(1.195)	(0.468)	(0.378)	(0.698)	(0.628)
Political Inst. Factor	-26.18*	-28.70	-16.52	-21.29	11.89*	16.12	18.22*	18.25
	(14.43)	(19.17)	(13.33)	(16.30)	(6.525)	(15.47)	(10.99)	(13.58)
Regulatory Inst. Factor	5.590	5.666	-25.87*	-28.92	-9.623	-15.75	-14.02	-17.76
	(13.32)	(15.46)	(15.16)	(18.28)	(12.02)	(12.74)	(10.95)	(17.04)
Unemployment	0.0234	0.330	-0.899	-0.599	0.102	0.128	-0.0351	0.0667
	(0.702)	(0.705)	(1.011)	(1.069)	(0.191)	(0.244)	(0.182)	(0.195)
Total Aid Inflows	-0.0458	-0.131	0.113	-0.0911	-0.186	-0.419	-0.125	-0.331
	(0.192)	(0.282)	(0.223)	(0.364)	(0.224)	(0.411)	(0.230)	(0.386)
PC*lag of Battle Deaths		2.102		1.745		0.0155		0.326
		(1.302)		(1.144)		(0.349)		(0.359)
PC* Political Inst.		10.34		19.71		-12.33		2.088
		(30.31)		(22.96)		(36.87)		(37.89)
PC* Regulatory Inst.		-1.513		6.670		18.61		10.83
		(14.42)		(16.98)		(44.92)		(44.72)
PC*Unemployment		-0.915		-0.950		-0.141		-0.311
		(1.016)		(1.035)		(0.382)		(0.554)
PC*Total Aid Inflows		0.180		0.454		0.493		0.482
		(0.735)		(0.785)		(0.481)		(0.454)
Observations	1,273	1,267	1,273	1,267	1,263	1,263	1,263	1,263
Country FE, Time Trend	Y	Y	N	N	Y	Y	N	N
Country Time Trend	N	N	Y	Y	N	N	Y	Y
Countries	144	144	144	144	144	144	144	144

Note: Robust standard errors in parentheses. Controlled for natural log of population, GDP, trade (as a percentage of GDP) and a current conflict state
*** p<0.01, ** p<0.05, * p<0.1

TABLE 5: DYNAMIC ESTIMATION WITH RELEVANT SIGNALS, LARGE SAMPLE

VARIABLES	FDI as a share of GDP				Growth in FDI inflows			
	(3a)	(3b)	(4a)	(4b)	(3a)	(3b)	(4a)	(4b)
PostConflict (PC)	-27.60	-27.80	-11.71	-13.68	-13.13	-13.81	-12.36	-13.12
	(20.59)	(20.60)	(18.25)	(18.67)	(14.46)	(14.19)	(12.21)	(12.28)
Battle Death Factor$_{t-1}$	1.079	1.507	1.307	1.853	0.0196	0.456	0.0883	0.336
	(1.249)	(1.270)	(1.343)	(1.426)	(0.164)	(0.495)	(0.265)	(0.418)
Political Inst. Factor $_{t-1}$	4.373	10.45	1.422	6.503	9.354	15.12	8.216	14.27
	(25.27)	(26.78)	(19.68)	(22.48)	(6.964)	(11.63)	(7.194)	(13.65)
Regulatory Inst. Factor $_{t-1}$	2.883	-4.095	-40.53**	-51.46**	-2.752	-14.30	-8.797	-20.26
	(19.36)	(21.52)	(18.49)	(23.56)	(4.997)	(13.76)	(9.501)	(20.15)
Unemployment $_{t-1}$	0.396	0.564	-0.736	-0.776	0.246	0.361	0.229	0.373
	(0.599)	(0.537)	(0.971)	(0.955)	(0.209)	(0.300)	(0.151)	(0.263)
Total Aid Inflows $_{t-1}$	0.148	0.0140	0.259	0.112	0.267	-0.0946	0.210	-0.0531
	(0.200)	(0.166)	(0.231)	(0.212)	(0.274)	(0.0863)	(0.223)	(0.0761)
PC*lag of Battle Deaths $_{t-1}$		-0.764		-1.248		-0.405		-0.380
		(1.461)		(1.371)		(0.433)		(0.381)
PC*Political Inst. $_{t-1}$		-17.89		-14.54		-18.96		-16.74
		(21.51)		(21.08)		(19.48)		(20.47)
PC*Regulatory Inst. $_{t-1}$		20.58		33.54		36.11		32.54
		(17.84)		(21.01)		(32.21)		(32.70)
PC*Unemployment $_{t-1}$		-0.569		0.462		-0.383		-0.303
		(0.632)		(0.709)		(0.473)		(0.371)
PC*Total Aid Inflows $_{t-1}$		0.237		0.275		0.744*		0.580*
		(0.413)		(0.464)		(0.394)		(0.341)
Observations	1,270	1,264	1,270	1,264	1,260	1,258	1,260	1,258
Country FE, Time Trend	Y	Y	N	N	Y	Y	N	N
Country Time Trend	N	N	Y	Y	N	N	Y	Y
Countries	144	144	144	144	144	144	144	144

Note: Robust standard errors in parentheses. Controlled for natural log of population, GDP, trade (as a percentage of GDP) and a current conflict state
*** p<0.01, ** p<0.05, * p<0.1

TABLE 6: BASELINE ESTIMATION WITH ALL SIGNALS, SMALL SAMPLE

VARIABLES	FDI as a share of GDP				Growth in FDI inflows			
	(1a)	(1b)	(2a)	(2b)	(1a)	(1b)	(2a)	(2b)
PostConflict (PC)	-0.398	75.85*	-6.773	71.45**	4.713	12.61	3.004	16.41
	(2.302)	(39.58)	(4.912)	(33.31)	(5.152)	(13.37)	(3.970)	(12.95)
Battle Deaths Factor	0.423	-0.561**	0.0763	-0.834	-0.0604	-0.103	0.0518	0.0724
	(0.462)	(0.215)	(0.513)	(0.623)	(0.126)	(0.0955)	(0.147)	(0.152)
Political Inst. Factor	-18.36	-21.58	-20.28	-20.07	12.82*	18.46*	6.155*	8.628**
	(11.12)	(14.93)	(13.34)	(17.92)	(7.024)	(9.518)	(3.418)	(3.816)
Regulatory Inst. Factor	-4.623	-10.11	-6.997	-14.05	-6.411	-6.403	-8.470	-15.76
	(15.99)	(19.79)	(16.89)	(24.60)	(7.647)	(10.70)	(10.70)	(16.82)
Unemployment	1.155	1.518	0.863	1.219	-0.257***	-0.238**	-0.183**	-0.110
	(1.320)	(1.436)	(1.331)	(1.424)	(0.0913)	(0.0984)	(0.0829)	(0.103)
Total Aid Inflows	0.0405	-0.0344	0.0382	-0.0339	-0.0417	-0.0328	0.000222	0.0163
	(0.120)	(0.100)	(0.127)	(0.144)	(0.0424)	(0.0274)	(0.0561)	(0.0406)
WIQR Factor	-8.633	-17.35	-3.229	-4.102	-0.869	-1.144	-4.088	-10.38
	(8.441)	(16.29)	(11.21)	(19.23)	(3.217)	(5.222)	(5.794)	(11.10)
Minimum Wage	-0.000886***	-0.000929***	-0.000913***	-0.000872***	0.00001.1	-0.0000189	-0.00000596	-0.0000263
	(0.0000944)	(0.000117)	(0.0000828)	(0.951)	(0.0000179)	(0.0000263)	(0.0000187)	(0.0000247)
Gini	1.410**	1.812**	0.678	0.973**	-0.227**	-0.129	-0.157**	-0.00794
	(0.645)	(0.751)	(0.449)	(0.485)	(0.112)	(0.149)	(0.0696)	(0.117)
Intl. Trade Taxes	-0.0499	-0.103	-0.476	-1.038	-0.0602	-0.388*	0.00828	-0.296
	(0.295)	(0.875)	(0.338)	(0.838)	(0.0883)	(0.210)	(0.113)	(0.277)
PC*lag of Battle Deaths		1.901***		2.010***		-0.228		-0.0602
		(0.657)		(0.718)		(0.197)		(0.158)
PC* Political Inst.		22.84		11.24		-16.93		-4.467
		(24.91)		(20.05)		(10.64)		(5.823)
PC* Regulatory Inst.		8.415		-0.763		1.530		12.11
		(15.60)		(21.20)		(9.408)		(12.71)
PC*Unemployment		-2.489*		-3.380**		-0.153		-0.258
		(1.344)		(1.574)		(0.248)		(0.334)
PC*Total Aid Inflows		-0.170		-0.104		-0.173		-0.188
		(0.516)		(0.587)		(0.225)		(0.276)
PC*WIQR		18.38		-6.898		-2.679		9.488
		(22.02)		(22.22)		(6.447)		(9.368)
PC*Minimum Wage		0.00875		-0.00603		0.00325		-0.0144
		(0.0215)		(0.0213)		(0.00548)		(0.00953)
PC*Gini		-1.678*		-1.227**		-0.368		-0.400*
		(0.969)		(0.570)		(0.261)		(0.225)
PC*Intl. Trade Taxes		-0.200		0.640		0.443*		0.392
		(0.758)		(0.737)		(0.254)		(0.301)
Observations	389	388	389	388	388	388	388	388
Country FE, Time Trend	Y	Y	N	N	Y	Y	N	N
Country Time Trend	N	N	Y	Y	N	N	Y	Y
Countries	62	61	62	61	61	61	61	61

Note: Robust standard errors in parentheses. Controlled for natural log of population, GDP, trade (as a percentage of GDP) and a current conflict state
*** p<0.01, ** p<0.05, * p<0.

TABLE 7: DYNAMIC ESTIMATION WITH ALL SIGNALS, SMALL SAMPLE

VARIABLES	FDI as a share of GDP				Growth in FDI inflows			
	(3a)	(3b)	(4a)	(4b)	(3a)	(3b)	(4a)	(4b)
PostConflict (PC)	-27.60	-0.355	-12.22**	-5.444	-0.536	-0.474	-0.793	-1.388
	(20.59)	(2.077)	(5.203)	(4.883)	(0.555)	(0.514)	(0.941)	(1.146)
Battle Death Factor $_{t-1}$	1.079	1.269**	1.591	1.455*	-0.0834	-0.132	-0.0310	0.0438
	(1.249)	(0.566)	(1.017)	(0.859)	(0.122)	(0.146)	(0.177)	(0.188)
Political Inst. Factor $_{t-1}$	4.373	-35.06	-26.53*	-34.62	5.246	9.051**	3.570**	5.391**
	(25.27)	(23.45)	(16.02)	(22.49)	(3.335)	(3.505)	(1.817)	(2.681)
Regulatory Inst. Factor $_{t-1}$	2.883	-3.484	2.951	1.066	0.328	-2.405	-0.136	-7.177
	(19.36)	(12.43)	(13.31)	(21.33)	(3.152)	(4.278)	(4.536)	(5.268)
Unemployment $_{t-1}$	0.396	0.117	-0.319	-0.270	-0.0413	0.0191	-0.00353	0.0681
	(0.599)	(0.464)	(0.498)	(0.537)	(0.0806)	(0.0843)	(0.0696)	(0.0759)
Total Aid Inflows $_{t-1}$	0.148	0.0602	0.149	0.0753	-0.0572	-0.0653	-0.0588	-0.0567
(x .00000000001)	(0.200)	(0.0848)	(0.107)	(0.0974)	(0.0607)	(0.0685)	(0.0745)	(0.0825)
WIQR Factor $_{t-1}$		-25.05	-0.811	-3.984	4.955	3.595	4.318	-1.032
		(17.59)	(13.21)	(22.37)	(4.162)	(2.696)	(5.214)	(4.266)
Minimum Wage $_{t-1}$		-0.000628***	-0.000668***	-0.000613***	-0.00000433	-0.0000205	0.0000326*	0.0000193
(x .0001)		(0.000217)	(0.000124)	(0.000163)	(0.0000229)	(0.0000249)	(0.0000189)	(0.000022)
Gini $_{t-1}$		-0.0631	0.0903	0.0457	0.108	0.148	-0.0331	0.0477
		(1.181)	(0.526)	(0.625)	(0.132)	(0.156)	(0.0886)	(0.0918)
Intl. Trade Taxes $_{t-1}$		0.143	-0.169	-0.269	-0.0729	-0.384*	0.00277	-0.374*
		(0.652)	(0.297)	(0.678)	(0.0608)	(0.224)	(0.112)	(0.224)
PC*lag of Battle Deaths $_{t-1}$		1.173**		1.075		-0.171		-0.260
		(0.527)		(0.904)		(0.145)		(0.213)
PC*Political Inst. $_{t-1}$		30.43		25.72		-14.03**		-5.166
		(22.65)		(21.65)		(6.302)		(3.496)
PC*Regulatory Inst. $_{t-1}$		20.40**		3.225		6.503		10.75
		(9.771)		(17.38)		(6.708)		(9.920)
PC*Unemployment $_{t-1}$		-0.873		-1.111		-0.251		-0.190
		(0.832)		(0.816)		(0.201)		(0.173)
PC*Total Aid Inflows $_{t-1}$		-0.503		-0.0825		0.171		0.121
		(0.490)		(0.572)		(0.236)		(0.225)
PC*WIQR Factor $_{t-1}$		39.14**		13.98		-0.751		6.981
		(19.06)		(19.79)		(5.076)		(10.01)
PC*Minimum Wage $_{t-1}$		0.0202*		0.0205		-0.000169		0.00344
		(0.0116)		(0.0171)		(0.00546)		(0.00618)
PC*Gini $_{t-1}$		-0.161		-0.127		-0.0293		-0.133
		(0.449)		(0.270)		(0.0839)		(0.105)
PC*Intl. Trade Taxes $_{t-1}$		-0.393		0.199		0.445*		0.503
		(0.578)		(0.579)		(0.259)		(0.350)
Observations	390	389	390	389	389	388	389	388
Country FE, Time Trend	Y	Y	N	N	Y	Y	N	N
Country Time Trend	N	N	Y	Y	N	N	Y	Y
Countries	63	62	63	62	62	61	62	61

Note: Robust standard errors in parentheses. Controlled for natural log of population, GDP, trade (as a percentage of GDP) and a current conflict state
*** p<0.01, ** p<0.05, * p<0.1

TABLE 8: BASELINE ESTIMATION WITH RELEVANT SIGNALS, SMALL SAMPLE

VARIABLES	FDI as a share of GDP				Growth in FDI Inflows			
	(1a)	(1b)	(2a)	(2b)	(1a)	(1b)	(2a)	(2b)
PostConflict (PC)	-0.962	25.05*	-7.863	21.89	4.577	0.103	2.582	1.905
	(2.045)	(13.65)	(5.070)	(16.30)	(4.976)	(4.451)	(3.806)	(5.316)
Battle Deaths Factor	0.637	-0.321	0.475	-0.418	-0.0369	-0.0702	0.0640	-0.00949
	(0.531)	(0.261)	(0.485)	(0.507)	(0.122)	(0.0783)	(0.154)	(0.128)
Political Inst. Factor	-14.77	-14.54	-22.60*	-24.96	12.89	20.30*	7.314*	10.26**
	(11.62)	(15.12)	(13.05)	(17.35)	(7.784)	(11.30)	(4.012)	(4.809)
Regulatory Inst. Factor	0.708	-4.260	-1.950	-4.693	-5.734	-7.275	-5.473	-5.709
	(16.56)	(21.29)	(14.94)	(19.18)	(5.799)	(7.863)	(5.451)	(6.673)
Unemployment	1.221	1.638	0.855	1.239	-0.268***	-0.266***	-0.173**	-0.124
	(1.406)	(1.576)	(1.350)	(1.486)	(0.0896)	(0.0957)	(0.0837)	(0.109)
Total Aid Inflows	0.0278	-0.00270	0.0944	0.0759	-0.0435	-0.0344	-0.0223	0.00295
	(0.0930)	(0.0917)	(0.127)	(0.135)	(0.0356)	(0.0220)	(0.0516)	(0.0397)
PC*lag of Battle Deaths		2.026***		2.174***		-0.135		-0.0647
		(0.559)		(0.617)		(0.160)		(0.164)
PC* Political Inst.		4.376		16.19		-21.53*		-9.735
		(16.13)		(16.10)		(12.36)		(6.951)
PC* Regulatory Inst.		11.07		2.426		6.911		2.301
		(13.18)		(13.43)		(6.757)		(4.858)
PC*Unemployment		-2.716*		-2.944*		-0.0243		-0.0887
		(1.472)		(1.611)		(0.259)		(0.329)
PC*Total Aid Inflows		-0.239		-0.179		-0.139		-0.136
		(0.564)		(0.552)		(0.250)		(0.278)
Observations	388	388	388	388	388	388	388	388
Country FE, Time Trend	Y	Y	N	N	Y	Y	N	N
Country Time Trend	N	N	Y	Y	N	N	Y	Y
Countries	61	61	61	61	61	61	61	61

Note: Robust standard errors in parentheses. Controlled for natural log of population, GDP, trade (as a percentage of GDP) and a current conflict state
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

TABLE 9: DYNAMIC ESTIMATION WITH RELEVANT SIGNALS, SMALL SAMPLE

VARIABLES	FDI as a share of GDP				Growth in FDI inflows			
	(3a)	(3b)	(4a)	(4b)	(3a)	(3b)	(4a)	(4b)
PostConflict (PC)	-2.907	-1.247	-12.85**	-7.749	-0.167	-0.0648	-0.759	-1.131
	(2.709)	(1.921)	(5.751)	(5.301)	(0.469)	(0.479)	(0.869)	(1.029)
Battle Death Factor$_{t-1}$	1.747***	1.356**	1.696*	1.511*	-0.173**	-0.230	-0.0944	-0.113
	(0.495)	(0.605)	(0.901)	(0.828)	(0.0789)	(0.147)	(0.120)	(0.101)
Political Inst. Factor$_{t-1}$	-23.83*	-23.76	-26.96*	-33.00	2.158	8.657	2.868*	6.567*
	(13.89)	(17.60)	(14.78)	(20.67)	(2.249)	(5.307)	(1.525)	(3.911)
Regulatory Inst. Factor$_{t-1}$	8.413	6.653	2.965	2.157	-2.561	-5.005	-3.730	-4.974
	(11.22)	(14.74)	(14.87)	(19.82)	(2.670)	(3.866)	(2.702)	(3.242)
Unemployment$_{t-1}$	-0.0521	0.0310	-0.312	-0.314	-0.0395	0.00228	0.00205	0.0703
	(0.432)	(0.454)	(0.493)	(0.535)	(0.0831)	(0.0849)	(0.0729)	(0.0663)
Total Aid Inflows$_{t-1}$	0.0439	0.0122	0.163	0.0712	-0.0492	-0.0621	-0.0534	-0.0492
	(0.0984)	(0.0848)	(0.108)	(0.0893)	(0.0613)	(0.0658)	(0.0696)	(0.0760)
PC*lag of Battle Deaths$_{t-1}$		1.061**		0.927		-0.239*		-0.286
		(0.502)		(0.895)		(0.134)		(0.209)
PC*Political Inst.$_{t-1}$		0.553		19.56		-17.46		-11.08
		(15.13)		(19.51)		(12.64)		(9.000)
PC*Regulatory Inst.$_{t-1}$		4.506		-3.348		6.673		5.137
		(11.24)		(15.53)		(4.459)		(3.474)
PC*Unemployment$_{t-1}$		-0.638*		-0.863		-0.171		-0.142
		(0.379)		(0.529)		(0.125)		(0.141)
PC*Total Aid Inflows$_{t-1}$		0.115		0.251		0.157		0.160
		(0.471)		(0.453)		(0.144)		(0.147)
Observations	389	389	389	389	388	388	388	388
Country FE, Time Trend	Y	Y	N	N	Y	Y	N	N
Country Time Trend	N	N	Y	Y	N	N	Y	Y
Countries	62	62	62	62	61	61	61	61

Note: Robust standard errors in parentheses. Controlled for natural log of population, GDP, trade (as a percentage of GDP) and a current conflict state
*** p<0.01, ** p<0.05, * p<0.1

TABLE 10: DESCRPTIVE STATISICS OF RELEVANT VARIABLES FOR POST-CONFLICT, CURRENT CONFLICT AND NO CONFLICT, LARGE AND SMALL SAMPLES

VARIABLES	Sample	Post Conflict			Current Conflict			No Conflict		
		Obs.	Mean	St.dev.	Obs.	Mean	St.dev.	Obs.	Mean	St.dev.
Unemployment	Large	489	8.459	5.935	230	8.135	4.784	695	9.162	5.788
	Small	156	6.812	3.219	102	6.691	3.245	232	10.28	5.633
Total aid inflows (in billions)	Large	489	2.41	3.91	230	3.10	4.22	695	1.23	3.61
	Small	156	2.91	2.78	102	3.07	2.96	232	1.66	4.57
Battle Deaths (factor)	Large	489	0.316	1.362	230	0.889	1.825	695	-0.194	0
	Small	156	0.396	1.406	102	0.708	1.658	232	-0.199	0
Political Institutors (factor)*	Large	489	-0.542	0.645	230	-0.493	0.724	695	-0.0415	0.788
	Small	156	-0.292	0.623	102	-0.181	0.707	232	0.0779	
Regulatory Institutions (factor)*	Large	489	-0.373	0.69	230	-0.316	0.707	695	0.14	0.708
	Small	156	0.00277	0.555	102	0.0535	0.619	232	0.422	0.626
FDI/GDP*	Large	489	33.018	99.903	230	13.676	29.891	695	41.854	118.51
	Small	150	7.623	13.707	101	8.251	16.109	232	24.355	33.467
FDI growth	Large	489	3.962	47.021	226	0.908	5.619	695	1.016	7.322
	Small	150	1.319	7.117	101	1.072	4.857	231	0.649	8.922
FDI (in trillions)	Large	489	3,110	2,620	230	3,060	2,620	695	3,730	2,750
	Small	150	3,280	2,390	101	3,130	2,400	232	3,880	2,720

Note: * indicates the mean for the entire small sample is significantly different (at the 1% level) from the mean for the entire large sample

Appendix B

Large Sample (excluding World Institutional Quality Rankings, Gini index, minimum wage and international trade taxes)

AFGHANISTAN*
ALBANIA
ALGERIA*
ARGENTINA
ARMENIA
AUSTRALIA
AUSTRIA
AZERBAIJAN*
BAHRAIN
BANGLADESH*
BELARUS
BENIN
BOLIVIA
BOSNIA AND HERZEGOVINA*
BOTSWANA
BRAZIL
BULGARIA
BURKINA FASO
BURUNDI*
CAMBODIA*
CAMEROON
CANADA
CENTRAL AFRICAN REP.*
CHAD*
CHILE
CHINA*
COLOMBIA*
COMOROS*
COSTA RICA
COTE D'IVOIRE*
CROATIA*
CYPRUS
CZECH REPUBLIC
DENMARK
DOMINICAN REPUBLIC
DEM. REP. CONGO*
ECUADOR
EGYPT*
EL SALVADOR
ERITREA*
ESTONIA
ETHIOPIA*
FINLAND
FRANCE
GABON
GAMBIA, THE
GEORGIA*
GERMANY
GHANA

GREECE
GUATEMALA
GUINEA*
GUINEA-BISSAU*
HAITI*
HONDURAS
HUNGARY
INDIA*
INDONESIA*
IRAQ*
IRELAND
ISRAEL*
ITALY
JAMAICA
JAPAN
JORDAN
KAZAKHSTAN
KENYA
KUWAIT
KYRGYZSTAN
LAOS
LATVIA
LEBANON*
LESOTHO*
LIBERIA*
LIBYA*
LITHUANIA
MACEDONIA, FYR*
MADAGASCAR
MALAWI
MALAYSIA*
MALI*
MAURITANIA*
MAURITIUS
MEXICO*
MOLDOVA
MONGOLIA
MOROCCO
MOZAMBIQUE*
NAMIBIA
NEPAL*
NEW ZEALAND
NICARAGUA
NIGER*
NIGERIA*
NORWAY
OMAN
PAKISTAN*
PANAMA
PAPUA NEW GUINEA*

PARAGUAY
PERU*
PHILIPPINES*
POLAND
PORTUGAL
QATAR
ROMANIA
RUSSIA*
RWANDA *
SAUDI ARABIA
SENEGAL*
SERBIA*
SIERRA LEONE*
SINGAPORE
SLOVAKIA
SLOVENIA
SOUTH AFRICA
SOUTH KOREA
SRI LANKA*
SUDAN*
SWAZILAND
SWITZERLAND
SYRIA*
TAJIKISTAN*
TANZANIA
THAILAND*
TOGO
TRINIDAD AND TOBAGO
TUNISIA
TURKEY*
TURKMENISTAN
UGANDA*
UKRAINE*
UNITED ARAB EMIRATES
UNITED KINGDOM*
UNITED STATES OF AMERICA*
URUGUAY
UZBEKISTAN*
VENEZUELA
VIETNAM
WEST BANK AND GAZA
YEMEN*
ZAMBIA
ZIMBABWE

* indicates a country that experience a conflict from 1994-2014

Appendix C

Small Sample (including World Institutional Quality Rankings, Gini index, minimum wage and international trade taxes)

ALBANIA

ARGENTINA

ARMENIA

AUSTRALIA

BANGLADESH*

BOLIVIA

BOTSWANA

BRAZIL

BULGARIA

BURKINA FASO

CANADA

CHILE

CHINA*

COLOMBIA*

COSTA RICA

CROATIA*

CZECH REPUBLIC

DOMINICAN REPUBLIC

EGYPT*

EL SALVADOR

ESTONIA

ETHIOPIA*

GUATEMALA*

HONDURAS

HUNGARY

INDIA*

INDONESIA*

ISRAEL*

JAMAICA

JORDAN

KENYA

LATVIA

MADAGASCAR

MALI*

MEXICO*

MOLDOVA

MONGOLIA

MOROCCO

NICARAGUA

PAKISTAN*

PARAGUAY

PERU*

PHILIPPINES*

POLAND

ROMANIA

RUSSIA*

SENEGAL*

SLOVAKIA

SLOVENIA

SOUTH AFRICA

SRI LANKA*

TANZANIA

THAILAND*

TUNISIA

TURKEY*

UGANDA*

UKRAINE*

UNITED STATES OF AMERICA*

URUGUAY

VENEZUELA

ZAMBIA

* indicates a country that experience a conflict from 1994-2014