Civil War and Foreign Direct Investment: Evidence from Sri Lanka

ABSTRACT

Civil war is a major source of political instability of a country and, is likely to discourage FDI. Due to a war that prevailed for three decades, Sri Lanka has gone through a considerable degree of variation in conflict intensity, periods with war, without war, and with ceasefire arrangements. It as a case study provides an excellent opportunity to analyze the implications of war on FDI inflows. With the use of time series econometrics, we show different levels of impact of war on FDI in manufacturing and services. Its negative effects are much higher in manufacturing than in services. We further investigate the impact by market-orientation of manufacturing FDI using panel data, and find that war has a significant negative impact across almost all manufacturing industries, but there is a higher negative impact on FDI in export intensive manufacturing than in market seeking manufacturing. We attempt to provide plausible explanations to these different impacts of war.

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1. INTRODUCTION

Foreign direct investment (FDI) by multinational enterprises (MNEs) is subject to host country political risk in addition to economic factors, e.g. market size, trade and trade-related factors, labor costs, tax and exchange rates, commonly identified in the literature (Chakrabarti, 2001; Moosa, 2002). Political risk stems from various political dynamics in the host country, including violence such as wars, riots, disorders, labor unrests; stability of the host government; attitude of the host government; and changes in the rules and regulations governing FDI. Civil war is a high degree of political instability of a country and is likely to discourage inflows of FDI. We therefore expect a negative relationship between civil war and FDI inflows. However, there is little work that seeks to empirical examine to what extent civil war affects FDI inflows and whether such negative impact differ by sector and by MNEs' market orientation.

Sri Lanka as a case study provides an excellent opportunity to analyze this topic because political conflict in Sri Lanka has varied significantly during different timeframes, consisting of periods with war, without war, and with ceasefire arrangements. As guided by the literature and past empirical studies, we employ time series and panel data econometric analysis, and investigate the degrees of impact of war on FDI, as a whole, FDI in manufacturing and FDI in services and manufacturing FDI by market-orientation.

2. EFFECT OF WAR ON FDI

Civil war can degrade the investment climate of the host country and increase the risk to

foreign investors. It can affect FDI both directly and indirectly. Direct effects capture the possibility of destruction and damage to physical and human assets of FDI due to violence. In addition to the loss of value to the assets, these damages can lead to time delays, revenue losses due to stock outs, missed opportunities, reputation damage and even complete close down of production lines, plants or firms (Jain and Grosse, 2009).

Indirect effects can take many forms and be more widely spread than direct effects (Czinkota et al., 2010). From the perspective of business, profitability of MNEs can be adversely affected by war due to potential damages, uncertainty and extra costs, such as costly insurance covers, extra security measures, and business continuity plans. Complicating this further, MNEs may be hesitant or find it difficult to post their staff to conflict prone areas. They have to duly compensate employees when they are posted in conflict prone areas, which can increase labor costs considerably. War can negatively affect the efficiency of operations and efficiency of resource use and allocation in businesses; for example, logistic issues due to extra security measures and travel restrictions and interruptions to operations due to curfew and emergency situations. Moreover, host government can bring in new regulations, policies and procedures to counter potential threats, e.g. increased scrutiny of shipping containers and new security programs to safeguard ports and airports. These could obstruct business operations and increase transaction costs as MNEs have to comply with enhanced compliance and reporting requirements. Disruptions in host country operations can cause shortages or delays of critical inputs and lead to interruptions in international supply chains.

From the perspective of demand, civil war can cause decline in buyer demand which can have an adverse effect on market seeking FDI that cater to host country market. Conflict related acts can create fear, panic and uncertainties which can negatively affect demand for both consumer and industrial goods/services.

War can also have a significant negative effect on the business environment in which MNEs operate. There is a general consensus in the literature that war is the reason why some countries fail to sustain adequate economic growth (Abadie and Gardeazabal, 2003; Arunatilake et al., 2001; Barro, 1991; Blomberg et al., 2004). For example, in their attempt to assess the economic costs of civil war in Sri Lanka for the period 1984-1996, Arunatilake et al. (2001) shows that war significantly contracted GDP growth rates in Sri Lanka. Extra military expenditure during civil war can crowd out expenditure in infrastructure (Arunatilake et al., 2001), which would have a negative impact on FDI inflows. Quality of labor force can be affected due to displacements, disability, death and emigration caused by internal conflicts (Arunatilake et al., 2001). Furthermore, host government may carry out extra scrutiny on people entering the country and even tight immigration policies for security reasons (Enderwick, 2001; Jain and Grosse, 2009). This can lead to delays in issuing visas to foreigners and sometimes intimidate visiting foreign business people. These HR-related issues are likely to have an effect on FDI. War may also weaken other institutional dimensions. Presence of internal conflict can indirectly contribute to higher levels of corruption (Arunatilake et al., 2001), deterioration of rule of law, fall in transparency and governance, and curtailment of civil liberties (Pradhan, 2001), all of which could have a negative impact on FDI inflows (Busse and Hefeker, 2007).

Empirical studies that give explicit attention to the effect of war/conflict on FDI flows are in short supply (Czinkota et al., 2010), possibly due to researchers taking the negative effect of war/conflict as granted. On the other hand, there exist a handful of studies exploring the effects of broad political instability which normally encapsulates war/conflict as a sub-component. These empirical studies, both surveys and cross-country studies, have produced mix results (Agarwal, 1980; Walsh and Yu, 2010). Some find a negative relationship between political instability and FDI inflows (e.g. Brada et al., 2006;

Root and Ahmed, 1979; Schneider and Frey, 1985; Suliman and Mollick, 2009), but some find that there is little or no relationship between these two variables (e.g. Asiedu, 2002; Bennett and Green, 1972; Kobrin, 1976; Wheeler and Mody, 1992; World Investment Report, 1998). Inconsistencies in these research outputs can be due to various reasons, different kinds of data and methodologies and different measures for political instability.

Many studies rely on composite measures of political instability published by various risk reporting agencies. For example, political risk insurance industry categorizes political risk into three broad categories: (1) war and political violence (includes civil war, uprisings and terrorist attacks), (2) expropriation and breach of contracts, and (3) transfer risk encompassing government restrictions on capital flows (Jensen, 2008). A broad political instability variable encapsulates many dimensions of political instability. However, different dimension of political instability could have different effect on FDI. For example, risk of changing policy environment and risk of potential damages from a civil war are likely to have different implications on incoming FDI. Most of the policy environmental factors usually change slowly, and therefore, may have a limited explanatory power to explain inter-temporal variations of FDI flows; in contrast, civil war can vary fast, and therefore, are likely to be more important in explaining inter-temporal variations of FDI flows (Fielding, 2004). To understand the effect of civil war on FDI, we need to conduct time series and panel data studies on a country that have gone through a considerable degree of variation in conflict intensity. To this end Sri Lanka becomes a valuable case study.

Impact of Civil War on FDI by Sector

War can increase the risks to investments and undermine the host country location advantages. Therefore, MNEs might opt for alternative forms of serving the host market such as exporting or licensing over FDI or completely avoid serving the host country. However, are

manufacturing and services FDI affected differently by civil war? Do both export-oriented FDI and market-seeking FDI react to civil war in the same way? Studies investigating the relationship of civil war to different sorts of FDI or FDI in different sectors is almost non-existent (Czinkota et al., 2010; Driffield et al., 2013). But there are reasons to believe that the determinants of services FDI might different from those of manufacturing FDI and determinants may also vary by the market-orientation of manufacturing FDI.

As is established in the literature when marginal costs of exporting are high compared to fixed costs of FDI, firms may prefer undertaking FDI over exporting (Greenaway and Kneller, 2007); but the threshold required to shift from exports to FDI may vary by sector in the presence of war. Due to distinctive characteristics of services, mainly simultaneity, inseparability and perishability[1], most services are usually non-tradable or very costly to trade and are location bound (Brouthers and Brouthers, 2003; Dunning, 1989). These characteristics and shorter life cycle of services therefore imply that service FDI is not easily substituted by other forms. If service firms intend to service countries in conflicts, they have to undertake FDI. Because service FDI also tend to require substantially lower levels of financial resource commitments than manufacturing (Brouthers and Brouthers, 2003), we posit that service FDI is less sensitivity to conflict than manufacturing.

Conflict may also affect manufacturing FDI differently by market-orientation. For market-seeking FDI, i.e. when FDI is undertaken to cater to local market, both the FDI operation and target market are prone to conflict; however, the potential damage is completely localized. In contrast, when export-oriented FDI is undertaken in a conflict zone, the FDI operation and the target market are in different locations. Disruption in the conflict zone can have a wider impact on other markets. With shortening of lead times particularly due to practices such as just-in-time manufacturing, lean manufacturing, and made to order strategies, locating part of global supply chain in a conflict zone increase vulnerability to the

potential disruptions to the entire global operations, something which manufacturing MNEs can not afford (Czinkota et al., 2010; Enderwick, 2001; Jain and Grosse, 2009). Conflict can increase uncertainty and amplify inherent risk that entrepreneurs face, and therefore, can divert economic resources from productive use, and thus, can decrease factor demands (Colino, 2013). These demand uncertainties can have a major impact on export-oriented manufacturing FDI while having a limited impact on market-seeking manufacturing FDI. Furthermore, a firm undertaking offshore export-oriented manufacturing may have several location options that provide similar locational benefits, and therefore, may be relatively convenient in locating the manufacturing operations in a conflict free alternative location. In contrast, when market-seeking manufacturing FDI is substituted by exports, a firm may have to incur additional marginal costs (tariff/transportation costs). Therefore, export-oriented FDI may be more sensitive to war than market-seeking FDI.

Following from the above discussion, we state the following hypotheses which we attempt to test using Sri Lanka's experience:

1) Civil war has higher level of impact on service FDI than manufacturing FDI
2) Civil war has higher level of impact on export-oriented manufacturing FDI than market-seeking FDI.

Civil War in Sri Lanka

Sri Lanka is home to two distinct ethnic communities - the Tamils and Sinhalese and these two ethnic groups find difficult to forge unity in promoting the interests of one and all. Sri Lanka has recently emerged from a long drawn out internecine conflict between these two main ethnic communities. This conflict, which commonly referred as civil war in Sri Lanka, was waged between the government of Sri Lanka, which largely represent the Sinhalese, and a separatist guerrilla group representing Tamil minority (LTTE) who sought to break off the

north and east regions of the country as a separate sovereign state (Abeysekara, 2011). The civil war took place in four phases with cease fire arrangements in between these phases; phase one during 1983-1988, phase two during 1990-1994, phase three during 1995-2002, and phase four during 2004-2009 (Arunatilake et al., 2001). The civil war was largely confined to north and east (Asian Development Bank 2008). However, LTTE occasionally attacked other regions, particularly Colombo, the capital of Sri Lanka. They targeted some of the key places, for example, Colombo international airport and Central Bank, and bombed Colombo's financial and business districts causing extensive damage in terms of both causalities and property damage (Bureau of Economic, 2011). In May 2009, Sri Lanka's government declared victory over LTTE, bringing to an end to the 26 years of brutal war which was the bloodiest conflict in Asia (Devotta, 2010).

In addition to this, Sri Lanka has also witnessed a second type of internal conflict; an armed revolution led by the radical Sinhalese youth-based movement, the JVP, against the Sri Lankan government (Arunatilake et al., 2001). The JVP based armed uprising took place in two occasions, in 1971 and in 1989-1990, and in both occasions the uprisings were violently crushed by the incumbent government with the use of armed forces. The on and off nature of these conflicts is represented in the timeline shown in Figure 1 and the degree of variation in conflict intensity is depicted in Figure 2.

Many writers and international institutions attribute the reason for Sri Lanka not been able to perform well in both FDI and economic growth to the political instability prevailed in the country, i.e. the three-decades of civil war (Pradhan, 2001). However, the impact of war on FDI in Sri Lanka has not been studied in any empirical study.

3. TIME SERIES STUDY BASED ON AGGREGATE FDI INFLOWS AND FDI IN MANUFACTURING AND SERVICES

This econometric study employs three sets of time series analysis based on annual gross FDI inflows to Sri Lanka during 1980-2012, and annual net FDI inflows to manufacturing sector and service sector during 1984-2012[2]. Each FDI series will be regressed against civil war variables and an appropriate set of control variables. Three different proxies are used to represent civil war: WAR, CONFLICT and NKILL. WAR is a binary variable identifying whether an internal conflict was present in Sri Lanka. Suliman and Mollick (2009) and Kravis & Lipsey (1982) have also used such dummy variable to capture the presence and absence of war. CONFLICT includes two sets of dummy variables, C1 and C2, which are constructed from the conflict intensity variable published by Uppsala Conflict Data Program (UCDP) and Centre for the Study of Civil Wars, International Peace Research Institute, Oslo (PRIO). C1 indicates the presence of minor war and C2 the presence of major war. NKILL is also a measure of conflict intensity and is the number of conflict related deaths reported by National Consortium for the Study of Terrorism and Responses to Terrorism (START). In the extant empirical literature, 'deaths per year' is widely used and is considered as an appropriate measure to gauge the civil war severity (Murdoch & Sandler, 2002; Drakos, 2011 and Hicks & Jeff, 2009).

Guided by the existing literature on FDI determinants and on the availability of time series data for Sri Lanka, four measures of control variables are selected: market size, interest rate, trade openness and infrastructure. Market size is expected to positively affect FDI. Many studies use real GDP growth rate to control for market demand of the host country (Chakrabarti, 2001; Suliman and Mollick, 2009). Three different growth rates are used in this study in order to relate to different types of FDI: GDP growth rate (GR), growth rate in value

added in manufacturing (GRM) and growth rate in value added in services (GRS) are used for total FDI, FDI in manufacturing and FDI in services, respectively.

Lower real interest rates (RIR) can augment investment and increase the profitability, therefore, could augment FDI. Real interest rates can also be used as an ancillary variable to measure overall macroeconomic stability (Erdal & Tatoglu, 2002). Macroeconomic stability can lead to higher sustainable growth rates, smaller fiscal and trade deficits, all of which again can have a positive effect on incoming FDI (Busse and Hefeker, 2007). Therefore, real interest rate is included as a control variable. We expect a negative relationship between real interest rate and FDI (Erdal & Tatoglu, 2002).

Trade openness (TO) is another widely used control variable (Chakrabarti, 2001; Suliman and Mollick, 2009) and is expected to have a positive or negative relationship with FDI depending on whether FDI and trade substitute or complement each other. It is often measured by trade intensity.

Finally, telephone density (TP) measured by telephone lines per 100 people is included as a measure of the level of infrastructure. Previous studies on FDI determinants have highlighted the importance of level of infrastructure for incoming FDI, and majority of studies have used telephone density as a proxy for the level of infrastructure in the host country (Suliman and Mollick, 2009). Description and sources of variables used in this time series study is given in Table 1. Table 2 presents descriptive statistics.

In order to avoid spurious regression, it is important to identify the order of integration of each variable prior to estimating the models. Except the civil war variables, which are dummy variables, all other variables are of time series nature, therefore, can be potentially nonstationary. All variables are tested for unit roots. The results of Augmented Dickey-Fuller (ADF) tests are reported in Table 3. All three dependent variables, i.e. FDI, FDIM, and FDIS are I(1). Explanatory variable are either stationary, I(0), or I(1). We can therefore proceed by

examining whether there is co-integration among these variables by employing Johansen co-integration tests. We can carry out the co-integration test for non-stationary time series to detect co-integration relationship, and then safely plug in other I(0) variables but not dummy variables into the model and still expect the identified co-integration relationship to persist (Charemza and Deadman, 1997). Therefore, the co-integration test is conducted for all time-series variables. Results are presented in Table 4. For all three specifications, the Trace tests indicate that there is one co-integration relationship in each set of variables. Therefore, error correction models (ECMs) are used and the following models are formulated:

$$\Delta FDI_t = \alpha_0 + \alpha_1 \Delta FDI_{t-1} + \alpha_2 \Delta GR_{t-1} + \alpha_3 \Delta RIR_{t-1} + \alpha_4 \Delta TO_{t-1} + \alpha_5 \Delta TP_{t-1} + \alpha_6 EC1_{t-1} + \alpha_7 X_t + \varepsilon_{1t} \quad (1)$$

$$\Delta FDIM_t = \beta_0 + \beta_1 \Delta FDIM_{t-1} + \beta_1 \Delta GRM_{t-1} + \beta_2 \Delta RIR_{t-1} + \beta_3 \Delta TO_{t-1} + \beta_4 \Delta TP_{t-1} + \beta_5 EC2_{t-1} + \beta_6 X_t + \varepsilon_{2t} \quad (2)$$

$$\Delta FDIS_t = \theta_0 + \theta_1 \Delta FDIS_{t-1} + \theta_1 \Delta GRS_{t-1} + \theta_2 \Delta RIR_{t-1} + \theta_3 \Delta TO_{t-1} + \theta_4 \Delta TP_{t-1} + \theta_5 EC3_{t-1} + \theta_6 X_t + \varepsilon_{4t} \quad (3)$$

Where Δ represents the first difference and EC1/EC2/EC3 represent the error correction terms. X is civial war variable, which is either WAR, CONFLICT or NKILL.

X is considered as an exogenous variable. Since civil war in Sri Lanka has no direct economic root but mainly emerged as a result of ethnic differences, temporal variation in economic variables and FDI flows is unlikely to have a substantial effect on X.

Results and Discussions

The results are summarized in Table 5[3]. Residuals were tested for autocorrelation and heteroskedasticity. Durbin-Watson d-statistic indicate that there no serial correlation among residuals and Breusch-Godfrey LM test statistics indicate that there is no autocorrelation except in specification (5.6). White test results indicate that there is no heteroskedasticity among residuals.

In all estimations except one, error correction term (EC) is negative and statically significant indicating the existence of a long run relationship between FDI and its

determinants[4]. Lagged FDI (ΔFDI_{t-1}) is statistically insignificant, indicating current FDI flows is not influenced by past FDI flows. Different from established consensus of the importance of market size to FDI inflows (Chakrabarti, 2001), GDP growth is found to have no effect on FDI inflows in Sri Lanka, either for aggregate FDI or for FDI in manufacturing and FDI in services. Real interest rate (RIR) has the expected sign of being negative and is statistically significant in most of the estimations. Trade openness (TO) are highly insignificant. Finally telephone density (TP) are positive as expected and significant in some estimations. Although coefficients of some of the explanatory variables are individually not significant, as suggested by a significant F statistics, explanatory variables are jointly significant.

Now we turn to the variables of our interest – WAR, CONFLICT and NKILL. All variables have the expected negative sign. The negative coefficient of WAR is statistically insignificant for total FDI and services FDI but is highly significant for manufacturing FDI, clearly demonstrating that WAR has a significant negative impact on FDI in manufacturing compared to services. The estimated coefficient in specification (5.4) signifies that average value of FDI in manufacturing is US$ 92 million less during war than that in absence of war. Given the average FDI flows to manufacturing was only around US$ 59 million (Table 2), the magnitude appears to be considerably large. This differential impact of WAR explains why the relationship between WAR and aggregate gross FDI flows is insignificant. WAR could instigate FDI, and the impact can be much larger for net FDI (increase in realized FDI) inflows than gross FDI inflows. This divestment phenomenon might have also caused the impact to be larger for net FDI inflows compared to that of gross FDI inflows.

Coefficients of C1 are statistically insignificant for all three FDI variables but those of C2 are significant for manufacturing and services FDI in their respective regressions, indicating that FDI is more responsive to major wars than minor wars. Coefficient of NKILL is statistically insignificant for all FDI variables. Comparing R-squares, we can see that out of

all civil war variables, WAR has a much higher explanatory power compared to CONFLICT (C1 and C2) and NKILL. These results indicate that FDI is largely dependent on whether or not there is a war and it is the major wars which have the most detrimental effects on FDI. This is plausible due to two reasons. First, presence of war carries a reputational damage which will scare off foreign investors. However, major wars can cause serious damage to MNEs in terms of physical and human assets. Second, due to relatively long term nature of FDI compared to other forms of financial flows, FDI flows may not be able to react to swift changes in conflict intensity. Having observed this, it would be informative to compare the effect of presence/absence of conflict vs effect of conflict intensity on short term and long term financial flows, a potential project for future research.

Until 1977's liberalization initiatives, FDI remained very low in Sri Lanka. As a result of trade and investment liberalization and introduction of export-oriented policies in late 1970s, FDI started flowing to manufacturing and by 1983 more than 90% of FDI stocks were concentrated in manufacturing. However, with the emergent of war in 1983, the momentum of FDI inflows to manufacturing subsided, instead services FDI started to dominate FDI flows to Sri Lanka. Currently FDI in services accounts for more than 70% of total FDI stocks while FDI in manufacturing has shrunk to less than 30% of total FDI stocks. Consistent with this observation, time series econometric study showed that war has had a significant negative effect on manufacturing FDI while having a negative but insignificant effect on service FDI. So the important question is why service FDI is less sensitive to war than manufacturing FDI.

Even though Sri Lanka has received a significant proportion of its FDI in services, they largely consist of domestic market-oriented FDI. Majority of services FDI has ended up in domestic service industries. Inactivity of foreign firms in export-oriented service industries is also evident from very low level of service exports (figure 4). In contrast, FDI in manufacturing has taken place both in market-seeking and export-oriented categories.

Therefore, Sri Lanka's experience shows that FDI inflows to domestic market oriented service FDI is less sensitive to conflict than FDI inflows to manufacturing.

A manufacturing MNE has couple of options available to serve a host country market, e.g. exporting, licensing and FDI, depending on the ownership, location and internalization advantages relevant to the specific context. Presence of conflicts can increase the risks to investments and undermine the host country location advantages, therefore, MNEs might opt out of FDI. Moreover, literature on choice of market entry mode suggests that under environmental uncertainty, manufacturing firms prefer lower control governance modes (Brouthers and Brouthers, 2003). MNEs may delay undertaking any FDI until the hostilities in the host country improve. In a similar vein, Saggi (1998) advocates that the firm's choice between exporting and FDI can be tilted towards the former in the face of uncertainty and theoretically proves that exporting is more favorable over FDI under demand uncertainty. Since serving the host market by exporting allows the operations to be located outside the host country, MNEs can minimize/avoid operational disruptions caused by conflict.

In contrast, options for serving foreign markets are generally limited for service MNEs. Due to distinctive characteristics of services, the option of exporting may not be available for firms involved in majority of service categories and they need to be present in the host country in order to serve the host market (Dunning, 1989). It is well recognized in the literature that in order to establish physical facilities abroad, service firms are more likely to internalize via FDI compared to manufacturing counterparts (Czinkota et al., 2010). Therefore, if a service firm wants to serve a conflict zone, FDI is likely to be the only option available, hence these MNEs are less responsive to the presence of war than manufacturing MNEs.

In summary, it is likely that the amount of FDI that can take place in a conflict zone is dependent on how easily FDI can be substitutable by an alternative means. A host country

associated with conflict is likely to lose market-seeking manufacturing FDI that are easily substitutable by imports. In contrast, since substitutability of service FDI by an alternative form is very low compared to substitutability of manufacturing FDI by an alternative form, it is conceivable that market-seeking service FDI is less sensitive to conflict.

The above discussion is also in line with casual observations of FDI flows and imports in tandem. We can distinguish two different trends in manufacturing and services (Figures 3 and 4). In manufacturing, while FDI stock has almost been stagnant, merchandise imports have grown impeccably, suggesting MNEs being more inclined to export to Sri Lanka than undertaking FDI. In contrast, service FDI has outperformed service imports both by volume and growth rates, indicating MNEs might find it difficult to substitute market oriented service FDI with service exports due to idiosyncratic characteristics of services as discussed before.

4. PANEL STUDY BASED ON ANNUAL INDUSTRY-WISE MANUFACTURING FDI INFLOWS

This econometric study employs a panel dataset based on annual industry-wise FDI inflows to Sri Lankan manufacturing industries during 1984-2011. The purpose of the study is to ascertain whether the effects of war differ between different industries. FDI into Sri Lanka is classified into 8 manufacturing industries (Table 6). Similar to above, the FDI figure considered is the net FDI. These FDI data were denominated in domestic currency and they were converted into US dollars using the end-of-year exchange rates published in the World Development Indicators. The control variables used are the same as those included in the time series study with one difference. Instead of the aggregate market growth variables used in the time series study, a sectoral growth rate (GRI) which is represented by growth of value added (in constant prices) in each manufacturing sector is included as a control variable. Prior to

regression analysis, panel unit-root tests are conducted in order to identify the order of integration of each variable (Table 7). Results indicate that FDI, GROWTH and RIR are stationary but TO and TP are I(1). Therefore, the following model is formulated.

$$FDI = \gamma_0 + \gamma_1 X + \gamma_2 GRI + \gamma_2 RIR + \gamma_2 \Delta TO + \gamma_2 \Delta TP + \varepsilon_3 \quad (4)$$

Estimations are carried out by Pooled Ordinary Least Squares (POLS), fixed effects (FE) and random effects (RE) estimation methods. F, Hausman and Breusch-Pagan LM test results suggest the use of RE over POLS and FE. Heteroskedasticity is examined by using Modified Wald test for groupwise heteroskedasticity. Results indicate heteroskedasticity. Wooldridge test for autocorrelation is also performed, but no serial correlation is detected in all specifications. Cross sectional dependence is finally tested using Pasaran's test of cross sectional independence and result indicates that there is no cross sectional correlation. Therefore, all specifications are estimated using RE with cluster robust standard errors.

Potential endogeneity between industry-wise growth rates and industry-wise FDI is a major concern. Therefore, lagged growth rates are employed instead of contemporaneous growth rates. Moreover, generalised methods of moments (GMM) are also used in order to tackle the potential endogeneity. However, since GMM estimators can lack efficiency, RE estimations are reported alongside GMM estimators.

Results of all the estimations are reported in Table 8. Coefficients of all civil war variables are negative as expected and statistically significant. These results indicate that war/conflict significantly impede FDI in manufacturing. As it was the case in time series study, WAR remains to have a higher explanatory power compared to CONFLICT (C1 and C2) and NKILL. Coefficients of C2 are slightly higher than those of C1. This reiterates that what matters for FDI in manufacturing is whether there is a war or not, but also the severity of war.

The coefficients of sectoral growth rate are negative but only significant (marginally)

in some of the estimations. However, the estimated coefficient of lagged sectoral growth rate is positive. Coefficients of all other control variables have the expected sign. RIR and ΔTP are statistically significant in most of the estimations but ΔTO is insignificant in most of the specifications. In GMM estimations, coefficients of lagged FDI are negative and statistically insignificant in all estimations. In the presence of agglomeration benefits, FDI in current year is positively correlated with FDI in previous period (Busse and Hefeker, 2007). Therefore, results of these estimations may indicate an absence of agglomeration effect on FDI in the context of Sri Lanka, a result which is also found in time-series study above.

Effect of Civil War on FDI by Industry

In order to understand the effects of civil war on FDI by industry, we include dummy variables for industries (while "Chemicals, Petroleum, Coal, Rubber & Plastics" sector is used as the base group) and use POLS and GMM. Given the strong explanatory power of WAR in previous estimations, results with the interaction terms of WAR and industry dummies are presented in Table 9. However, estimation results are qualitatively similar when CONFLICT (C1 and C2) and NKILL are used.

Table 9 shows that the impact of WAR is significantly different for each manufacturing industry. Estimated marginal effects of WAR on FDI in each manufacturing industry (based on GMM) are presented in Table 10. Results indicate that WAR has impeded FDI in all industries, ranging as high as US$ 17 million in Textiles, Wearing apparel and Leather products to as low as US$ 570,000 in Paper, Paper Prod. Printing & Publishing, an industry that has not been able to attract much FDI in the past. Compared to total FDI stock at the end of year 2012, the magnitudes of these coefficients are considerably large. Therefore, the amount of FDI foregone due to civil war is very large for most of the manufacturing sectors. Another interesting casual observation is that industries with high export volumes

seem to be those that also have high marginal effects of WAR on FDI. This propels a question, whether the impact of civil war on FDI also varies by market-orientation of MNEs.

Effect of Civil War on FDI in Export-Oriented/Local-Market-Oriented Manufacturing Industries

In order to understand the effect of War on export-oriented/loca-market-oriented FDI, we include an interaction term between WAR and Export intensity of the industry (EX_INT). Export intensity is measured by the ratio of gross export earnings of BOI firms in year 2011 to the total realized FDI in BOI firms in year 2011[5].Following from the discussion in section 2, we expect the negative effect of WAR is higher for the sectors associated with higher export intensity in FDI, therefore, a negative estimate for the interaction term. Estimated results are reported in Table 11.

Coefficients of WAR are negative and statistically significant, indicating the negative impact of WAR on FDI. Coefficients of EXP_INT are positive and statistically significant indicating the industries with higher export intensity are associated with higher FDI. The coefficients of the interaction term between EXP_INT and WAR are negative and highly significant in all three specifications, indicating that the negative impact of WAR increase with export intensiveness of the FDI in the sector, a result in line with theoretical expectation.

5. CONCLUSION

Civil war/conflict in a country is likely to discourage inflows of FDI. However, few studies explicitly investigate how civil war affects FDI (Czinkota et al., 2010). As highlighted in this paper, most of the existing studies that look at the impact of broad political instability variable which encapsulates civil war as one dimension show mixed findings. These studies contribute

limited understanding of war-FDI relationship. Use of broad measures of political instability is unlikely to identify the true effect of war on FDI. This study attempts to address these limitations by investigating the effects of Sri Lanka's three decade of civil war, which has gone through considerable variation in conflict intensity, on FDI in Sri Lanka.

Time series study clearly demonstrate that civil war has a significant negative impact on FDI in manufacturing sectors compared to FDI in services sectors. This differential impact explains why the relationship between civil war and gross FDI flows is insignificant. Civil war could also instigate foreign direct divestments, and therefore, the impact can be much larger for net FDI inflows than gross FDI inflows.

The panel study based on annual industry-wise net FDI inflows to Sri Lanka reconfirms the strong negative relationship between civil war and FDI inflows to manufacturing sectors. Results also points out that the magnitude of this negative impact varies by industry. Finally, panel study also provide strong evidence for a higher negative impact of WAR on FDI in export-intensive industries than in local-market-oriented industries.

The above results highlight the importance of using disaggregated FDI data when investigating determinants of FDI. FDI data aggregated over sectors can suppress the variation, and therefore, make it difficult to identify the precise relationship of explanatory variables to FDI flows.

Our findings contribute to the literature on political instability and FDI by providing empirical evidence. Our economic estimations are useful not only to assess the harmful effects of civil war on FDI, but also to assess the peace dividend, or the economic benefits (of the increase in potential international investment) of avoiding or concluding conflict or at least achieving a reduction in political instability. Moreover, this study also contributes to the literature on FDI in Sri Lanka and can also influence future policymaking with regard to handling conflicts and attracting FDI.

Our results indicate that high real interest rate can affect FDI flows negatively, and trade openness and level of infrastructure (telephone density) can affect FDI flows positively. The relationship between market growth and FDI is a bit controversial; some of the negative coefficients are statistically significant. This could be due to several reasons. First, in Sri Lanka, services FDI are largely market-oriented while manufacturing FDI take both market-seeking and export-oriented forms. Second, MNEs have a notorious reputation for having a larger import content in their inputs, and therefore, this fact is likely to affect the growth of value added negatively. Moreover, it is well documented that Sri Lanka's failure to develop backward linkages to foreign firms which could have also contributed to this negative relationship (Kelegama & Foley, 1999). Furthermore, more than 50% of manufacturing FDI flows has taken place in Textiles, Wearing Apparel & Leather Products category, a sector which is reputed to have a very low value addition due to higher import content of the inputs to this sector.

These finding extends IB theory by helping to answer an enquiry that remains largely unaddressed: "what sort of investment is particularly sensitive to conflict?" (Driffield et al., 2013). In Sri Lanka, manufacturing FDI has taken place in export-oriented forms as well as market-oriented forms. Contrastingly majority of services FDI is directed towards servicing the domestic market. Therefore, Sri Lanka's experience shows that political instability can have a much larger negative impact on manufacturing FDI over market oriented services FDI. However, this study does not suggest that effect of war on non-market oriented services FDI is also low because services FDI in Sri Lanka has been primarily market-seeking. In fact non market-seeking (vertical) service FDI is likely to be more sensitive to conflict even more than export-oriented manufacturing FDI. Due to simultaneity of production/delivery and consumption in services, potential damage of local disruptions to the global operations will be significantly higher for services than for manufacturing. For example, if manufacturing

operation of a garment exporter in a conflict zone is disrupted, then the global operation will not come to standstill if the damaged product line is re-established in the same plant or somewhere else before stocks are exhausted. In contrast, if an offshore call centre operation is disrupted then the entire operation will come to standstill instantaneously. Therefore, the potential damage of disruptions should be higher for non-market-seeking service FDI than for export-oriented manufacturing FDI. This might be the reason for Sri Lanka to perform very poorly in attracting export-oriented service FDI as well as generating very low volumes of service exports.

NOTES

[1] Simultaneity means that services tend to be produced and delivered simultaneously. Inseparability refers to service production and consumption being normally geographically linked, i.e. the service firm needs to be present at the time of production and consumption. Perishability entails that service cannot be inventoried.
[2] Annual gross FDI inflows are realized FDI reported at the end of each year. Since sector-wise FDI inflows are not reported, sector-wise FDI for each year were taken as the difference between cumulative realized FDI figure for that year and previous year. Therefore the FDI figure for manufacturing and services considered here is the net FDI (net of any divestments or any capital erosions due to negative profits) rather than gross FDI.
[3] Only the equation of interest, in which FDI is the dependent variable, is presented here and other simultaneous equations of the ECMs are not included here for brevity.
[4] The coefficients associated with EC are less than -1 in five specifications, implying some short run over-adjustment to deviations from long-run equilibrium. However they are not statistically different from -1.
[5] BOI firms also include non FDI projects but majority of BOI investments are foreign investments, and therefore, this ratio is used as an approximation for export intensity.

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Figure 1: Timeline of the conflicts in Sri Lanka

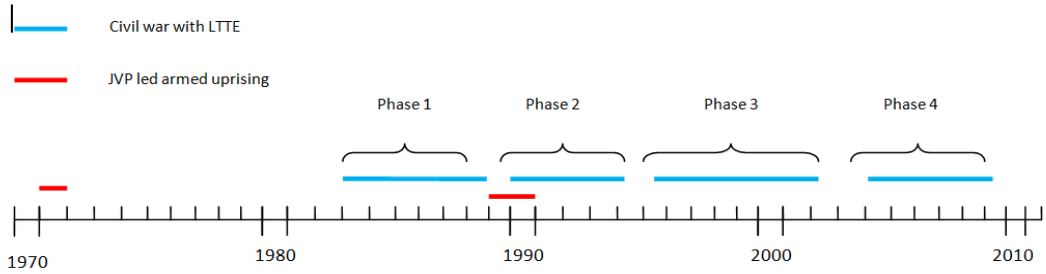
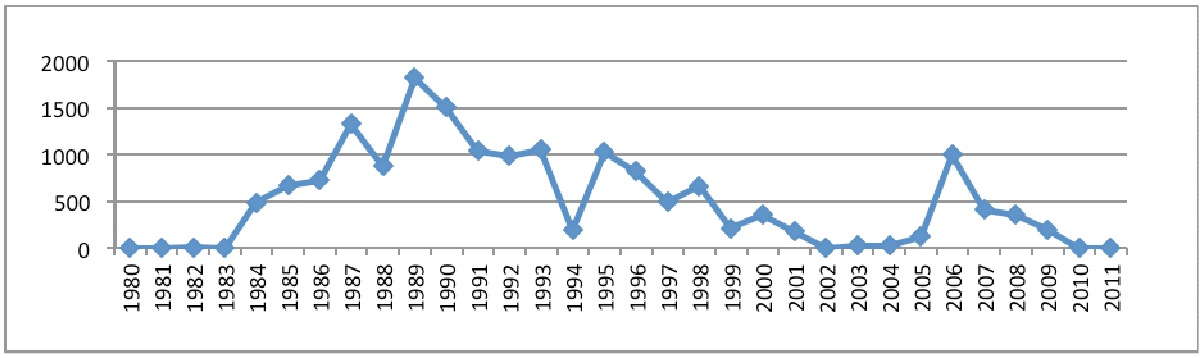


Figure 2: Number of total confirmed fatalities (killed) in conflict related incidents in Sri Lanka



Source: National Consortium for the Study of Terrorism and Responses to Terrorism (START), 2011. Global Terrorism Database

Figure 3: FDI, exports and imports in manufacturing

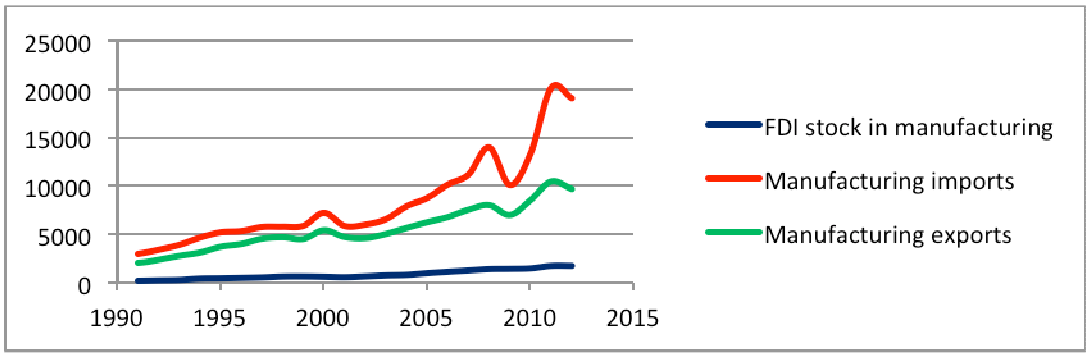


Figure 4: FDI, exports and imports in services

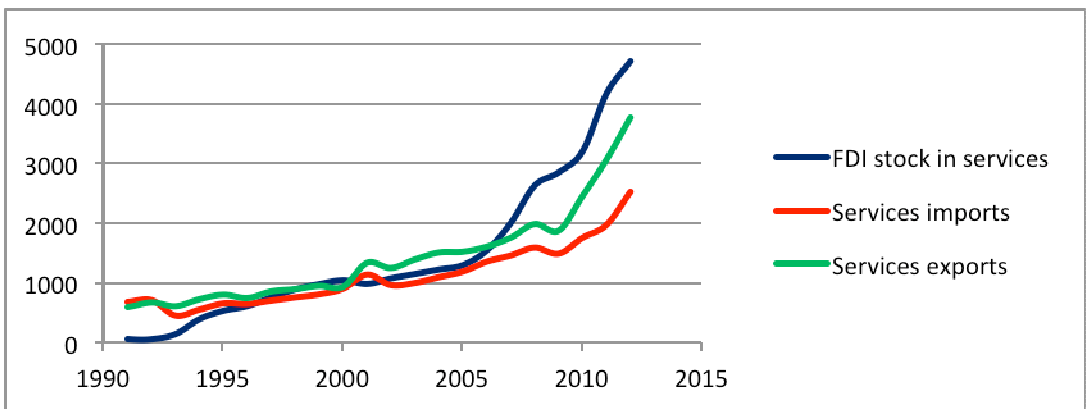


Table 1: Variable description, measurements and data sources

Variable	Description	Source
FDI	FDI Inflows to Sri Lanka	Gross FDI inflows: UNCTAD; sectoral FDI inflows: Board of Investment (BoI) of Sri Lanka
FDIM	Net FDI inflows (increase in realized FDI stock) to manufacturing sector	BoI of Sri Lanka, Central bank annual reports
FDIS	Net FDI inflows (increase in realized FDI stock) to service sector	
GR	Growth rate of GDP (in constant prices)	UNCTAD
GRM	Growth rate of value added (in constant prices) for manufacturing sectors	World Development Indicators (WDI), Central bank annual report 2012
GRS	Growth rate of value added (in constant prices) for service sector	
GRI	Growth rate of value added (in constant prices) in each manufacturing sector	Central bank annual reports
RIR	Real interest rate (lending interest rate adjusted for inflation as measured by the GDP deflator)	WDI, IMF (Retrieved from http://elibrary-data.imf.org/DataReport.aspx?c=1449311&d=33061&e=169393)
TO	Trade openness represented by trade intensity, i.e. total trade (import plus the export of goods and services) as a percentage of GDP	UNCTAD
TP	Infrastructure measured as telephone density measured by telephone lines per 100 people	WDI, central bank annual report 2012
War	A binary variable representing whether an internal conflict was present in Sri Lanka. 0 No war 1 War	Various sources including central bank annual reports, and journals and newspapers including Arunatilake et al. (2001)
CONFLICT	A variable representing whether an internal conflict was present in Sri Lanka and the intensity of the conflict C1=1 if minor war (between 25 and 999 deaths) and zero otherwise C2=1 if major war (at least 1,000 deaths) and zero otherwise	Uppsala Conflict Data Program (UCDP)/Centre for the Study of Civil Wars, International Peace Research Institute, Oslo (PRIO) Armed Conflict Dataset
NKILL	Number of total confirmed fatalities (killed) in conflict related incidents (in thousands)	National Consortium for the Study of Terrorism and Responses to Terrorism (START). (2011). Global Terrorism Database [Data file]. Retrieved from http://www.start.umd.edu/gtd

Table 2: Descriptive statistics for variables used in time series study

Variable	**Mean**	**s.d.**	**Min**	**Max**	**Correlation Matrix**									
					WAR	C1	C2	NKILL	GR	GRM	GRS	RIR	TO	TP
FDI	236.986	254.599	17.9	956	-0.25	-0.30	0.05	-0.36	0.49			0.01	-0.34	0.90
FDIS	162.952	234.363	-77.732	965.669	-0.38	-0.30	-0.11	-0.45			0.43	-0.08	-0.35	0.81
FDIM	58.860	68.153	-47.455	265.921	-0.55	-0.13	-0.12	-0.31		0.11		-0.23	-0.09	0.53
WAR	0.667	0.479	0	1		-0.05	0.55	0.64	-0.37	0.09	-0.38	0.22	-0.03	-0.31
C1	0.212	0.415	0	1			-0.72	0.10	-0.17	0.00	-0.22	-0.17	-0.28	-0.30
C2	0.515	0.508	0	1				0.26	-0.12	0.07	-0.04	0.34	0.35	-0.05
NKILL	0.501	0.504	0	1.822					-0.26	0.27	-0.24	-0.06	-0.10	-0.53
GR	5.092	1.926	-1.37	8.3								-0.12	-0.01	0.38
GRM	6.198	3.208	-4.162	12.254								-0.11	-0.01	-0.21
GRS	5.470	2.104	-0.517	8.601								-0.20	0.16	0.27
RIR	3.838	4.487	-5.944	12.742									0.23	-0.12
TO	70.921	9.647	49.149	88.637										-0.44
TP	4.754	5.970	0.359	17.155										

Table 3: Results of Augmented Dickey-Fuller (ADF) unit root tests

	p-value (with two lags)		p-value (with one lags)	
	Level	First Difference	Level	First Difference
FDI	0.9953	0.0002	0.9621	0.0000
FDIM	0.3734	0.0082	0.0777	0.0000
FDIS	0.9849	0.0029	0.6957	0.0000
GR	0.2364	0.0011	0.2364	0.0011
GRM	0.3139	0.0049	0.1016	0.0000
GRS	0.2402	0.0012	0.0198	0.0000
RIR	0.1627	0.0004	0.0002	0.0000
TO	0.6721	0.0618	0.6935	0.0016
TP	0.9778	0.0734	0.8139	0.0525
WAR	0.0111	0.0163	0.2197	0.0018
C1	0.1535	0.0004	0.1361	0.0000
C2	0.2314	0.0526	0.1029	0.0001
NKILL	0.5189	0.1074	0.6735	0.0001

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

Table 4: Results of Johansen co-integration tests

	Null Hypothesis: hypothesized number of co-integrating equations (r)	Trace test
Specification 1 (Gross FDI inflows): FDI, GR, RIR, TO and TP	r=0	87.822** (69.819)
	r≤1	44.785 (47.856)
Specification 2 (FDI inflows in Manufacturing): FDIM, GRM, RIR, TO and TP	r=0	73.656** (69.819)
	r≤1	38.915 (47.856)
Specification 3 (FDI inflows in Services): FDIS, GRS, RIR, TO and TP	r=0	77.059** (69.819)
	r≤1	42.604** (47.856)

Notes: 5% critical values are reported within parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 5: Results of the time series estimations

Dependent variable: ΔFDI_t	Total FDI			Manufacturing FDI			Services FDI		
	(5.1)	(5.2)	(5.3)	(5.4)	(5.5)	(5.6)	(5.7)	(5.8)	(5.9)
WAR	-29.738			-92.009***			-120.219		
	(54.945)			(31.559)			(81.840)		
C1		-89.899			-4.868			-136.258	
		(78.949)			(48.551)			(125.106)	
C2		-104.818			-86.733*			-226.753*	
		(74.516)			(49.437)			(108.148)	
NKILL			-22.653			-9.490			-50.240
			(48.689)			(30.996)			63.479
ΔFDI_{t-1}	0.445	0.087	0.428	0.096	-0.064	-0.441	-0.077	-0.222	0.284
	(0.292)	(0.3007)	(0.288)	(0.322)	(0.368)	(0.306)	(0.305)	(0.303)	(0.298)
ΔGR_{t-1}	-3.467	9.158	0.234						
	(11.129)	(11.9502)	(11.178)						
ΔGRM_{t-1}				-1.926	-1.215	1.926			
				(3.809)	(4.541)	(4.776)			
ΔGRS_{t-1}							0.944	10.961	-12.7185
							(14.927)	(15.792)	(14.961)
ΔRIR_{t-1}	-10.807**	-10.685*	-11.083**	-1.729	-2.235	-6.291*	-9.324	-8.569	-14.802*
	(4.888)	(5.8442)	(4.962)	(2.558)	(3.063)	(3.263)	(8.847)	(9.519)	(7.955)
ΔTO_{t-1}	-1.486	1.437	-1.339	-3.693	-6.969*	-1.382	9.387825	8.50582	6.372
	(5.585)	(6.570)	(5.560)	(2.92)	(3.941)	(3.532)	(8.236)	(8.918)	(7.408)
ΔTP_{t-1}	19.766	44.763	20.481	22.219	11.280	-6.544	82.651**	110.107**	58.158
	(24.985)	(32.223)	(24.760)	(16.177)	(17.921)	(18.297)	(38.701)	(47.289)	(33.929)
EC_{t-1}	-1.204***	-0.627**	-1.127***	-1.258***	-1.028**	-0.274	-0.747**	-0.478**	-1.210***
	(0.346)	(0.281)	(0.333)	(0.412)	(0.488)	(0.245)	(0.280)	(0.220)	(0.320)
Constant	24.399	79.706	15.384	49.853*	48.784	15.436	60.186	130.920	8.452
	(46.921)	(60.144)	(40.263)	(23.08)	(35.472)	(28.381)	(65.974)	(87.376)	(54.471)
R-squared	0.417	0.302	0.386	0.464	0.413	0.531	0.629	0.534	0.425
Durbin-Watson stat	2.047931	2.017258	2.014548	1.788231	2.118268	2.182388	1.919603	1.885781	1.9024
Breusch-Godfrey LM test (p-value)	0.701	0.843	0.840	0.845	0.236	0.070	0.856	0.646	0.671
White test (p-value)	0.445	0.494	0.709	0.165	0.590	0.147	0.345	0.301	0.297

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

Table 6: Descriptive statistics for variables used in panel-data study

	N	Mean	s.d.	Min	Max
FDI	232	7.358	18.255	-54.5	113.61
GRI	232	8.411	43.607	-43.4	605.35
WAR	232	0.724	0.448	0	1
C1	232	0.241	0.429	0	1
C2	232	0.586	0.494	0	1
NKILL	232	0.570	0.492	0	1.822
RIR	232	4.384	4.304	-5.944	12.742
TO	232	70.173	9.578	49.149	88.636
ΔTO	232	-0.368	4.898	-14.220	9.885
TP	232	5.350	6.045	0.505	17.155
ΔTP	232	0.569	1.062	-0.210	4.135
industry-wise FDI					
FDI in Chemicals, Petroleum, Coal, Rubber & Plastics	29	13.208	22.328	-17.41	64.970
FDI in Fabricated Metal, Machinery & Transport Equipment (F_METAL)	29	5.394	16.529	-28.08	53.29
FDI in Food, Beverages & Tobacco (FOOD)	29	9.642	16.915	-14.51	61.52
FDI in Non-Metallic Mineral Products (N_METALLIC)	29	4.292	14.164	-34.53	41.83
FDI in Other Manufactured Products (OTHER)	29	5.687	12.322	-25.7	29.62
FDI in Paper, Paper Prod. Printing & Publishing (PAPER)	29	1.301	3.610	-1.2	18.32
FDI in Textiles, Wearing Apparel & Leather Products (TEXTILE)	29	16.792	32.907	-54.5	113.61
FDI in Wood & Wood Products (WOOD)	29	2.546	5.610	-4.56	18.81

Table 7: Results of panel data unit-root tests (with one lag)

	Levin-Lin-Chu test	Im-Pesaran-Shin test	Fisher-type test
FDI	0.0000	0.0000	0.0000
GRI	0.0000	0.0000	0.0000
RIR	0.0754	0.0000	0.0000
TO	0.9228	0.8902	0.9922
ΔTO	0.0000	0.0000	0.0000
TP	0.5261	0.9830	0.9996
ΔTP	0.0000	0.0000	0.0000

Table 8: Results of panel data estimations

Dependent variable: FDI	RE	RE	GMM	RE	RE	GMM	RE	RE	GMM
WAR	-9.995***	-9.979***	-10.030***						
	(2.506)	(2.595)	(2.505)						
C1				-5.135**	-4.225*	-4.331**			
				(2.212)	(2.375)	(1.865)			
C2				-6.473**	-6.031**	-6.027**			
				(2.889)	(2.906)	(2.409)			
NKILL							-4.748***	-5.071***	-4.963***
							(1.065)	(1.088)	(0.975)
L.FDI			-0.034			-0.018			-0.014
			(0.045)			(0.046)			(0.045)
GRI	-0.008		-0.008	-0.011*		-0.010*	-0.010		-0.007
	(0.005)		(0.005)	(0.006)		(0.006)	(0.007)		(0.006)
L.GRI		0.012*			0.008			0.011	
		(0.007)			(0.010)			(0.009)	
RIR	-0.0567	-0.102	-0.0696	-0.119**	-0.270**	-0.248**	-0.347**	-0.571***	-0.545***
	(0.119)	(0.180)	(0.179)	(0.061)	(0.122)	(0.110)	(0.135)	(0.186)	(0.178)
ΔTO	0.203	0.186	0.189	0.213	0.178	0.181	0.368*	0.303	0.307
	(0.194)	(0.208)	(0.190)	(0.211)	(0.214)	(0.189)	(0.207)	(0.212)	(0.193)
ΔTP	4.312**	4.281**	4.382**	4.108**	3.905**	3.943**	3.397*	3.049	3.087
	(2.136)	(2.149)	(2.114)	(1.970)	(1.878)	(1.835)	(1.997)	(1.961)	(1.917)
Constant	12.54***	12.62***	12.86***	10.75***	11.10***	11.28***	9.868***	11.37***	11.43***
	(2.601)	(2.527)	(2.475)	(2.168)	(2.178)	(1.882)	(1.761)	(2.009)	(1.905)
N	232	224	216	232	224	216	232	224	216
R-squared	0.107	0.105		0.066	0.066		0.068	0.072	
Hausman test for fixed vs random effects (RE) model (p-value)	0.9996			0.9999			0.9995		
F-test for the joint significance of industry specific effects (p-value)	0.0055			0.0080			0.0076		
Modified Wald test for groupwise heteroskedasticity (p-value)	0.0000			0.0000			0.0000		
Wooldridge test for autocorrelation (p-value)	0.3176			0.5470			0.4713		
Breusch-Pagan LM test of independence (p-value)	0.0000			0.0020			0.0005		
Pesaran's test of cross sectional independence (p-value)	0.9339			0.1335			0.1129		

Notes: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 9: Results of panel data estimations with dummy variables for each industry

Dependent variable: FDI	POLS	POLS	GMM
WAR	-12.31***	-11.83***	-11.48***
	(0.813)	(0.978)	(0.798)
WAR* F_METAL	5.063***	4.562***	4.316***
	(0.00870)	(0.0117)	(0.520)
WAR * FOOD	-0.979***	-1.257***	-1.500**
	(0.0208)	(0.00115)	(0.649)
WAR * N_METALLIC	-3.529***	-4.346***	-5.393***
	(0.037)	(0.0553)	(0.901)
WAR * OTHER	9.392***	8.403***	8.455***
	(0.176)	(0.226)	(0.708)
WAR * PAPER	11.60***	11.15***	10.91***
	(0.013)	(0.0200)	(0.531)
WAR * TEXTILE	-5.110***	-5.351***	-5.575***
	(0.083)	(0.0724)	(0.150)
WAR * WOOD	2.229***	1.766***	0.291
	(0.009)	(0.0221)	(0.861)
L.FDI			-0.037
			(0.043)
GRI	-0.011*		-0.009***
	(0.006)		(0.003)
L.GROWTH		0.010	
		(0.008)	
RIR	-0.057	-0.100	-0.089
	(0.124)	(0.187)	(0.162)
ΔTO	0.204	0.187	
	(0.201)	(0.216)	
ΔTP	4.308*	4.279*	4.188**
	(2.206)	(2.220)	(2.036)
Constant	20.06***	20.08***	13.06***
	(0.871)	(0.988)	(2.586)
F_METAL	-11.49***	-11.44***	
	(0.0137)	(0.0187)	
FOOD	-2.865***	-2.821***	
	(0.0193)	(0.00491)	
N_METALLIC	-6.321***	-6.294***	
	(0.00628)	(0.0113)	
OTHER	-14.10***	-14.07***	
	(0.0156)	(0.00318)	
PAPER	-20.34***	-20.27***	
	(0.0285)	(0.0124)	
TEXTILE	7.345***	7.411***	
	(0.0292)	(0.00756)	
WOOD	-12.32***	-12.27***	
	(0.0172)	(0.0175)	
N	232	224	216
R-squared	0.203	0.202	
Wald chi2 (Prob > chi2)			0.0000

Notes: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1
Refer Table 6 for representations of sector specific dummy variables

Table 10: Marginal effects of WAR on FDI

	∂FDI/ ∂WAR	Realized FDI stock in 2012 (US$ m)	Exports (US$ m)
Chemicals, Petroleum, Coal, Rubber & Plastics	-11.48	393.72	998.74
Fabricated Metal, Machinery & Transport Equipment	-7.164	159.10	161.63
Food, Beverages & Tobacco	-12.98	279.93	309.63
Non-Metallic Mineral Products	-16.873	126.47	175.27
Other Manufactured Products	-3.025	175.88	410.49
Paper, Paper Prod. Printing & Publishing	-0.57	37.77	52.50
Textiles, Wearing Apparel & Leather Products	-17.055	514.16	3377.76
Wood & Wood Products	-11.189	74.21	54.55
Services		4730.08	370.40

Notes: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 11: Results with interaction term between WAR and Export Intensity

Dependent variable: FDI	RE	RE	GMM
WAR	-7.137**	-7.286**	-7.526***
	(2.967)	(2.964)	(2.681)
WAR*EXP_INT	-2.051**	-1.930*	-1.786**
	(1.022)	(1.034)	(0.884)
EXP_INT	5.258***	5.259***	9.211***
	(0.929)	(0.928)	(2.106)
RIR	-0.0567	-0.101	-0.0718
	(0.120)	(0.181)	(0.178)
ΔTO	0.203	0.187	0.190
	(0.195)	(0.209)	(0.189)
ΔTP	4.312**	4.280**	4.367**
	(2.145)	(2.158)	(2.110)
GROWTH	-0.00877*		-0.00753
	(0.00515)		(0.00469)
L.GROWTH		0.0105	
		(0.00701)	
L.FDI			-0.0291
			(0.0436)
Constant	5.215	5.290	
	(3.452)	(3.481)	
Observations	232	224	216
R-squared	0.1648	0.1632	

Notes: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1