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Economic consequences of war: Evidence from Sri Lanka

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ABSTRACT

We propose a theoretical and econometric framework to evaluate the impact of war on economic growth of a developing country with an open economy. The theoretical framework encompasses both the neoclassical and endogenous growth models. We test this framework using Sri Lankan data. The war had significant and negative effects both in the short and long-run (annual average of 9% of GDP). High returns from investment in physical capital did not translate in sizable positive externalities. Only short-run significant effects of openness on growth are found. Inconsistent politically driven policies towards openness are the likely reason.

1. Introduction

During the past few decades many developing countries have faced conflict within their own boarders. These have taken the form of civil wars often related to ethnic conflicts or boarder disputes. In this paper a theoretical model and a derived econometric framework are proposed for the case of a developing country with an open economy at war. The framework is general and can be applied to a number of developing economies suffering from conflict. The model is a modified version of Lau and Sin (1997a) common framework for the neoclassical and Romer's growth models. This framework was generalised by Lau and Sin (1997b) to analyse public infrastructure and by Ganegodage and Rambaldi (2011) to study investment in public tertiary education. In this study, we extend this framework to an open economy in war.

The literature on the effects of wars on economic growth, both theoretical and empirical, shows mixed results (Blattman & Miguel, 2010; Gyimah-Brempong & Corley, 2005). The evidence from annual growth rates is similarly mixed. For instance Sri Lanka enjoyed a 5% annual growth rate on average over the 30 year period of its civil conflict (1983–2008), while many other developing countries with similar civil unrest such as Afghanistan, Burundi and Somalia have failed to achieve such an outcome (Snodgrass, 2004; Wijeweera & Webb, 2009). It is the contention of this paper that even when measures of economic performance show a net positive effect, a war is unlikely to have a positive contribution to economic growth in the case of a developing country that does not produce military hardware for the market.

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1.1. War and economic growth: theory and empirical evidence

The theoretical literature on the effects of a civil conflict on economic growth provides two contrasting views. The first view is backed by Benoit's popular hypothesis (Benoit, 1973, 1978) which states wars affect positively economic growth and development. This hypothesis, which is in line with Keynesian economic theory, argues that military expenditure can be treated as expansionary fiscal policy. Thus, it can stimulate the economy by increasing aggregate demand and creating positive externalities. According to this view, military expenditures not only increase and improve infrastructure, employment and production but also increase the skills of the workforce and the technological development through military specific training and competencies. Using the European history experience, some scholars claim that wars play a critical role in developing strong institutions (Blattman & Miguel, 2010; Tilly, 1975). Therefore, a war would result in positive growth and development in the long run. By contrast a second school of thought argues that a war damages the economy through the destruction of resources and by reducing investment (World Bank, 2003). More importantly, expenditures in war activities have a high opportunity cost (Galvin, 2003) as they crowd-out investment in other areas such as education, health and infrastructure. Further, ongoing war activities not only crowd out investment in other areas but also hamper foreign direct investment by which many developing countries, can find an easy path to improve economic performance.

The empirical literature on the effect of a war has been in three main directions. The first group tries to estimate the cost of a war using an accounting framework on which the budgetary costs of military expenditure, in the form of decreased taxation revenues, and the cost of the destroyed infrastructure are taken into account (Collier et al., 2003; Fitzgerald, Stewart, & Wang, 2001). The second group compares the performance of countries affected by conflict against a benchmark. The benchmark country can be a non-conflict country (Stewart, Huang, & Wang, 2001) or an artificially created benchmark (Abadie & Gardeazabal, 2003). The third group employs regression based approaches (Blomberg, Hess, & Orphanides, 2004; Cerra & Sexena, 2008; Collier, 1999). These regression based approaches can be divided into two main groups, namely, demand and supply based approaches. The demand based approaches are mainly empirical models of the Benoit hypothesis of a war (Wijeweera & Webb, 2009, 2010). There are several supply side approaches; among them, the Feder and Ram models are prominent (Biswas & Ram, 1986). These are similar to a Lucas dual economy model; one sector is for military production and the other represents the civilian production. These models do not suit developing economies well as they assume there is a sector that produces military hardware for the market. There are other supply side approaches based on unified growth models which aim at overcoming some of the shortcomings of the demand based approach and the Fed and Ram model (Blattman & Miguel, 2010; Collier, 1999; Murdoch & Sandler, 2002).

The most dominant group of empirical studies on the effect of a war on growth are cross-country studies while a few country-specific studies are available (Blattman & Miguel, 2010). While some of these studies found positive significant effects of a war on growth (Stewart, 1991; Yildirim, Sezgin, & Ocal, 2005) others found significant and negative effects on growth (Collier, 1999; Gyimah-Brempong & Corley, 2005). In some cases the effects are found to be short term (Murdoch & Sandler, 2002).

Measuring the effect of a war is a non-trivial problem. A number of measures have been used as proxies for a war. Among them, dummy variables (Chen, Loayza, & Reynal-Querol, 2008), death or casualties (militant) of wars per year (Gyimah-Brempong & Corley, 2005; Murdoch & Sandler, 2002) and military expenditure as a percentage of GDP (Wijeweera & Webb, 2009, 2010). These measures suffer from some limitations. For instance, dummy variables can be used in intervention analysis to assess the long-run effect of a war; however, the approach makes the strong assumption of no feedback amongst the variables in the system (in this case between the effect of a war and GDP growth). When the assumption does not hold, the estimates of the long-run impact are biased (see Enders, 2010, Ch. 5 for a full treatment). The estimation method used in this study, ARDL, is an extension of intervention analysis which does not impose these type of restrictions on the relationship between the variables. The number of military casualties during a war is not suitable as this is a poor measure of the number of civilian casualties in within-boarders conflicts. In addition, measures of war casualties are sensitive to manipulation by parties who have engaged in the conflict and thus they are in general prone to manipulation and not systematically available. In the case of many countries, including Sri Lanka, there are no annual figures. In an effort to improve reliability, this study constructs an index to capture the "war effort". The index measures war effort as a share of the labor force. The measure is an "adjusted" share of the population in the armed forces to that in the labor force. It is adjusted by the share of military expenditures to GDP (details provided in Section 3.1).

The rest of the paper is organised as follows. The next section presents the theoretical framework and derived econometric model. Section 3 presents the empirical implementation of the model to the case of Sri Lanka. The final section provides a summary and conclusions of the study.

2. The framework

2.1. Theoretical model

We consider an open economy with N (large) number of identical agents, the government, and an inelastically supplied labor input. The consumption of an agent (household/firm) of this economy (to choose $\{c_t\}_{t=0}^{\infty}$ to maximise utility) is given by: