# The effect of the Troubles on GDP in Northern Ireland

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## ARTICLE INFO

## ABSTRACT

This paper explores the effect of conflict on GDP in Northern Ireland. A synthetic control region constructed as a weighted average of other UK regions provides an estimate of counterfactual 'no-conflict' GDP. Comparing this with actual per capita GDP suggests a negative impact of up to 10%. Excluding the increased grants provided in response to the conflict, a 15–20% reduction is evident. Most forms of terrorist activity had negative effects over the period 1969–1997. Deaths attributable to Republican paramilitary groups or to the State appear to have a greater and more lasting impact on GDP than deaths attributable to Loyalist paramilitaries.

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## 1. Introduction

The Troubles in Northern Ireland began in 1969, intensifying a conflict that had been ongoing since the partition of Ireland in 1920, and which has its roots even further back. The level of violence grew rapidly in the 1970s, peaking in 1972 when there were close to 500 deaths. In total, roughly 3500 lives have been lost.

In addition to the human cost, such political and civil unrest is likely to affect economic growth. In the case of Northern Ireland, this is compounded by the fact that one aim of the terrorist activity was to cause economic destabilisation by bombing commercial targets. The use of bombs and incendiary devices continued throughout the conflict.

There have been surprisingly few quantitative studies examining the impact of political violence on economic activity in Northern Ireland. Some studies have simply reported survey findings, while others have used shift-share analysis (Rowthorn, 1981; Canning et al., 1987) and so similarly lack a robust framework for causal interpretation. It is not until Fielding (2003) that a rigorous econometric study was carried out. While Fielding (2003) stops short of providing an estimate of the total cost of the Troubles to the Northern Ireland economy, his results show that all factors of production were affected.

This paper presents estimates of the cost of the Troubles using an approach introduced by Abadie and Gardeazabal (2003), hereafter 'AG', for their examination of the cost of terrorism in the Basque Country. In the Northern Ireland case, the essence of the AG approach is to construct a synthetic control region (SCR) from the other regions of the UK that can be used to provide an estimate of how per capita GDP would have evolved in Northern Ireland in the absence of the Troubles. AG show that differences between actual GDP and the counterfactual estimate of GDP provided by the SCR can be interpreted as causal effects of the conflict.

The paper has the following structure. Section 2 provides a short survey of related empirical studies. In doing this, the relative merits of alternative estimation approaches are considered. Section 3 sets out the approach taken to identify the SCR. This

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involves an extension to the AG approach. Estimation results are given in Section 4 and the extent to which the estimated impacts on GDP vary according to various measures of conflict-related activity is examined in Section 5. Section 6 concludes.

## 2. Existing studies of the effect of terrorism on GDP

### 2.1. Empirical estimates of the impact of terrorism on GDP

The analysis in this paper contributes to a growing literature on the economic consequences of terrorism. In their survey, Frey et al. (2007) discuss numerous papers that estimate how particular aspects of different countries' economies have been affected by terrorist activity. The studies they consider focus variously on the effects on tourism, foreign direct investment, investment, stock markets, foreign trade, life satisfaction and the urban economy. While such evidence is related to the focus of this paper, it is the effect on national income and growth that is of direct relevance. Here, Frey et al. (2007) cite only two studies in addition to AG. The first, Blomberg et al. (2004), estimates the impact of terrorism across a large number of countries. The second, Eckstein and Tsiddon (2004), considers the case of a single country. Below, we consider these two studies in turn.

Blomberg et al. (2004) base their analyses on a panel of 177 countries observed between 1968 and 2000. They distinguish between the effects of terrorism, internal conflict and external wars. Their results appear somewhat sensitive to precise specification and definitions (Sandler and Enders, 2008). Using cross-country growth regressions, they find a significant negative impact of terrorism. This is rather small, suggesting if a country were to experience a terrorist event each year, per capita growth would fall by 1.5% as a result.[1] Furthermore, regional results suggest that it is only in Africa that this negative impact is significant. Controlling for country fixed effects, the estimated impact of terrorism increases substantially and applies to regions other than Africa. Changing the measure of terrorist activity to the number of incidents per capita provides different findings again, this time showing a significant impact in OECD countries. Lastly, using a structural VAR, they provide further evidence of the negative impact of terrorism on growth and show that this tends to be short-lived. Its impact is less than that of other types of conflict. Interestingly, their results suggest a feedback between terrorism and internal conflict.

A handful of other studies provide further cross-country evidence. Gupta et al. (2004) explicitly focus on developing countries. Using an index that conflates terrorism and internal conflict, they find no evidence of a direct impact on growth but instead show that the increased defence spending brought about by conflict has a significant negative indirect effect on growth. Tavares (2004) finds small negative impacts of terrorism. Although the list of countries included in his analysis is not stated, the results suggest that the impact of terrorism on growth is less in those countries where measured political freedom is higher. Crain and Crain (2006) use panel data for 147 countries over the period 1968–2002 to explore the effect of international/transnational terrorism. They find a substantial negative effect on per capita GDP. They argue that the impact is not linear and so the economic gains that would accrue from deterring terrorism depend on the level of terrorist activity prevailing within each country. Gries et al. (2011) explore the relationship between domestic terrorism and economic growth using Hsiao–Granger causality tests. For the seven Western European countries they consider, they find evidence of a negative impact on growth only in the case of Portugal. The other economies, they suggest, prove to be resilient to such attacks. Gaibulloev and Sandler (2008) to some extent complement these results. They use panel data for 18 Western European countries over the period 1971–2004 and find significant negative impacts of transnational terrorism but that the impact of domestic terrorism is not significant. However, this masks the fact that domestic terrorism crowds out investment spending and crowds in government spending. Estimating their growth regression without controlling for investment they find a significant negative impact of domestic terrorism.

The second study cited in Frey et al. (2007) is a case study of Israel. Case studies of the effects of terrorism on GDP are rare; Sandler and Enders (2008) cite Abadie and Gardeazabal (2003) and Eckstein and Tsiddon (2004) as the only two examples. Eckstein and Tsiddon (2004) estimate a four-equation VAR model, using quarterly data from 1980 to 2003, with per capita GDP, investment, exports and non-durable consumption as dependent variables. The terrorism measure was constructed as a weighted average of deaths, injuries and events. The results point to a significant negative impact on per capita GDP (and also on investment and exports). Considering only the period 1980 (quarter 1) to 2000 (quarter 3), the model is re-estimated for the pre-Intifada period and then used to simulate the counterfactual 'no terrorism' per capita GDP levels for subsequent years. This suggests that, in the absence of terrorism, Israel's per capita GDP would have been 10% higher three years later than it actually was.

### 2.2. Methodological approaches to estimating the effect of terrorism

Most of the cross-country studies mentioned above have involved estimating growth equations where the effect of terrorism is captured by a regressor quantifying the extent of terrorist activity. The main drawback to such analyses is that the available conflict measures often capture terrorist activity in too crude and summary a fashion to be fully informative. For instance, information on the number of terrorist events provides no detail on the severity of individual attacks and consequently attaches the same weight to a major headline-dominating terrorist attack as to a much smaller event that might reasonably be expected to have little in the way of economic consequences. The use of such a summary measure is forced (for example, in Blomberg et al., 2004) by the need to have a measure that is available across numerous countries. While the available data on terrorist activity may be richer for some countries, it is only the subset of data that is available for all countries that can be used.

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[1] The impact of one conflict for a given year is estimated by dividing this by 33 (the number of years covered by their estimation sample).