

## Article

# The Effects of Diminished Tourism Arrivals and Expenditures Caused by Terrorism and Political Unrest on the Kenyan Economy

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**Abstract:** The economic development of many countries globally relies heavily on tourism arrivals and spending. Terrorist attacks, political unrest, and other external shocks create disruptions and imbalances that lead to tourism crises with devastating effects on a country's economy. The paper quantitatively examines the wider economic impacts and welfare effects of a continued decrease in tourism revenues caused by terrorism and political instability on the Kenyan economy. We use a dynamic Computable General Equilibrium model which we calibrate to a 2003 Social Accounting Matrix for Kenya. Our results reveal that a decrease in tourism spending causes a contraction of the economy in the short-term and long-term. Tourism contraction leads to decreased output, prices and wages in urban households, whereas the rural households notice an increase in welfare in the short and medium-term and a decrease in the long-term. Diversification of the tourism product, better branding, crisis management preparations and emphasis on domestic tourism that is less affected by disruption are ways to safeguard tourism in Kenya and beyond.

**Keywords:** tourism; economy; external shocks; terrorism; political unrest



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## 1. Introduction

Tourism is an industry that has significant direct, indirect and induced economic impacts (Tchouamou Njoya and Nikitas 2020; Efthymiou et al. 2016; Stabler et al. 2009; Njoya and Seetaram 2018). Travel and Tourism support one in 10 jobs, which equals to 319 million jobs worldwide and generate 10.4% of the world Gross Domestic Product (GDP) (World Travel and Tourism Council 2019). Travel and Tourism is a force for economic development, encourages investment, stimulates infrastructure expansion that benefits various industries and has significant domestic economic linkages (Oxford Economics 2012). Moreover, tourism can contribute to peace, environmental protection, elimination of poverty and hunger, well-being, equality and global partnerships for sustainable development; areas that have been identified by the United Nations as Sustainable Development Goals (SDGs) that can lead to a more liveable future.

Several studies have been conducted to measure the positive relationship between tourism and economic development (Njoya and Nikitas 2020; Briedenhann and Wickens 2004; Kim and Chen 2006; Oh 2005) as well as the direction of this relationship (e.g., unidirectional causality, bidirectional causality or no causality). Several countries with reliance on tourism for their economic and employment growth have developed a dependent relationship to the industry. The nature of this relationship varies significantly depending both on country characteristics and the considered periods.

This relationship is affected by external shocks like natural disasters, violence, political unrest and terrorist attacks (Hall 2010). The concepts of terrorism and political unrest, in

particular, have been examined in conjunction many times in the literature (Bhattarai et al. 2005; Mushtaq and Zaman 2014; Saha and Yap 2014; Sönmez 1998; Yap and Saha 2013) as the most critical nexus creating disruption and imbalance capable of jeopardising the quality and brand of a tourism product and having adverse impacts on travel demand.

Terrorism could be the most impactful travel risk influencing destination perception and choice (Veréb et al. 2020). Despite a large number of case studies that have examined the relationship between tourism and terrorism, the negative impact of terrorism on tourism demand remains under-researched; there are many questions about quantifying this relationship and gaining an in-depth understanding of its distributional impacts (Veréb et al. 2020; Corbet et al. 2019). There is also a body of literature that deals with various types of political unrest and their influence in the tourism sector suggesting that in general tourists avoid unpleasant political realities (Ivanov et al. 2017) and are demotivated to travel to destinations where political instability is an issue (Farmaki et al. 2019). Geopolitical risk could also affect tourism growth negatively, but nonetheless the understanding of these relationships is still incomplete (Akadiri et al. 2020). Therefore, this paper seeks to revisit the connection of tourism and economic development under the state of external shocks and crisis (mostly represented in the case of Kenya from terrorism and political unrest) and establish the scale of disruption.

More specifically, our research aim is to determine the effects of diminished tourism arrivals and expenditures that are caused by situations such as terrorism and political unrest (i.e., two critical parameters directly responsible for tourism contraction) on the Kenya economy. To achieve that we look into wider economic impacts and sectoral effects. Furthermore, our paper complements previous studies by providing new evidence on the effects of terrorism, political unrest and other external shocks on tourism demand decrease in a geographical context that is severely under-investigated. Given on the one hand the frequency of terrorist and violence attacks and the political unrest underpinning governance in Africa and on the other the emphasis international organisations, like United Nations (UN), World Tourism Organisation (UNWTO) and International Air Transport Association (IATA), put on Africa, this study can advance significantly the theoretical and empirical understanding of touristic development and economic growth in this emerging part of world.

Based on literature we hypothesize that terrorism and political unrest affect tourism arrivals and expenditures, but we cannot prove that this is the only reason for the poor performance of the Kenyan economy. This is the main limitation of our research with other minor limitations presented at the end of the paper. Nevertheless, our research shows different results in the definition of the relationship between tourism and economic development with terrorism and political unrest as important milestones (Aratuo and Etienne 2019). We selected the Computable General Equilibrium (CGE) model as it is a well-tested methodology. The use of CGE model allows, on the one hand, to quantify the impact of a demand shock (i.e., tourism arrivals drop, on GDP and employment) and the other hand permits us to analyse the effects on different sectors and institutions of the economy. Li et al. (2010) used CGE to evaluate the magnitude of the impact of the economic slowdown on China's tourism, whereas Blake and Sinclair (2003) used CGE for the case of 9/11.

To the best of our knowledge there are no other published papers that investigate the effects of tourism crisis to the Kenyan economy using Computable General Equilibrium (CGE). Our approach to employ this methodology that estimates and quantifies the wider economic impacts of terrorism and political unrest to the tourism industry in Kenya is thus unique.

The remainder of the paper is structured as follows. Section two provides a contextual setting. It summarises the relevant literature on tourism and crisis events and provides some context for the country in question, i.e., Kenya. Section three elaborates on the uses of Computable General Equilibrium (CGE) model, its application in this research and the data used. Results are presented and discussed in section four, and the last section concludes the

paper providing explicit recommendations for key stakeholders and researchers looking to conduct similar studies in the future.

## 2. Contextual Setting

### 2.1. *Tourism as a Driver to Economic Growth and Its Vulnerability to Terrorism and Political Unrest*

Tourism has been growing in the last decades rapidly. In 2018, international tourism arrivals reached 1.4 billion, an increase of 6% [World Tourism Organization \(2019\)](#). Increased visa facilitation, enhanced connectivity, strong outbound demand from major source markets, favourable economic environment and consolidation of the recovery in key destinations affected by previous crises were the main drivers of growth ([World Tourism Organization 2019](#)). In 2017, Africa and Europe grew above average; nevertheless, Africa only holds 5% of the global market share ([World Tourism Organization 2018](#)).

The importance of tourism for a country's economic development is well acknowledged and it is a topic of great interest for the policy agenda. Measuring the impact of tourism on the national economy is key, especially when the tourism development depends on demand and supply principles and is vulnerable to external shocks.

Tourism development is supply led and demand-driven ([Efthymiou and Papatheodorou 2015](#)). The prevailing conditions in the transport, accommodation, and tour operation sectors significantly affect the destination choice ([Efthymiou and Papatheodorou 2015](#)). If we use the concept of the 'tourism ratio', i.e., tourism related receipts of a specific sector expressed as a percentage of its total turnover, it may be argued that civil aviation is a tourism industry par excellence as its related figure is often over 90% and the direct employment effect aviation on tourism is estimated at 15.9 million jobs; when multiplier effects are considered, the total effect rises to 36 million ([Papatheodorou et al. 2019](#)). Thus, transport and more specifically aviation and international tourism arrivals play an important parameter in tourism development.

Nevertheless, Perceived safety in the destination also influences the tourists' decisions and therefore the demand for a tourism destination. Stability and safety are fundamental to the tourism industry growth ([Sönmez 1998](#)). Health-related crisis, like the Ebola Virus Disease Epidemic (EVDE—later referred to as 'Ebola') or Severe Acute Respiratory Syndrome (SARS), can have devastating effects on tourism arrivals. Health-related crises can decrease the tourism demand, leading to socio-economic repercussions for tourism-dependent countries ([Novelli et al. 2018](#)). They argue that destinations not directly affected by the epidemic, neighbouring with countries that they have, can still experience severe consequences.

Political unrest and social instability can also harm tourism arrivals. Tourists prefer destinations with a peaceful social environment and political stability ([Reisinger and Mavondo 2005](#); [Neumayer 2004](#)). Political instability is a complex and multidimensional term with various conceptualisations and interpretations spanning from change in government, unsuccessful coup d'état and civil war to strikes, riots, illegal political executions and mass arrests ([Seddighi et al. 2001](#)). It can be defined, when putting together the definitions given by Murad and Alshyab ([Murad and Alshyab 2019](#)) as 'a phenomenon referring on the one hand to the propensity of a government to collapse and on the other to a system's inability to prevent community conflicts and violence occurrence'. Politically unstable countries or countries prone to incidents igniting political unrest frequently suffer from a negative image internationally, poor infrastructure, narrow tourism supply and unstable demand ([Issa and Altinay 2006](#)).

Political unrest examples along the coast of North Africa and the former Yugoslavia ([Clements and Georgiou 1998](#)) provide evidence that shows how foreign tourism can be all but obliterated by political unrest and civil upheaval; even a well-established tourist destination like the island of Cyprus due to its dichotomised political regime, faces serious tourism crisis threats that can, to some degree, affect its neighbouring countries Greece and Turkey who rely upon tourism to contribute to their economies. Political events headlined by the political and social instability derived from the Catalan sovereignty process which hit the headlines on a daily basis in national and international media during September

2017, led to a reduction in the arrivals and spending of tourists in the region of Catalonia in the final quarter of 2017 (Perles-Ribes et al. 2019) showcasing that even relatively ‘soft political disruption incidents’ can affect very successful tourism brands.

Political unrest in Ethiopia resulted in the declaration of state of emergency that in turn generated international travel advisory citing Ethiopia as a high-risk destination (Kebede 2018). The immediate effect was the reduction of travel bookings and the cancellation of already existing ones for the complete time frame that the decree remained effective. Another relevant example is the aftermath of the Arab Spring, which led international tourism arrivals to drop by 10 million tourists resulting to a USD 15 billion loss for the Arab countries (Avraham 2015). In general, the effects of political unrest to tourism receipts creates temporary challenges, provided a destination has a strong perceived image; if this is not the case political unrest can be a serious long-lasting threat (Ingram et al. 2013).

Terrorism is often considered as part of the political unrest framework (Murad and Alshyab 2019) while others consider that political unrest provides the learning environment needed to successfully execute terror attacks (Campos and Gassebner 2013). Lanouar and Goaid (Lanouar and Goaid 2019) studied the effects of terrorism and political violence in Tunisia and found that political violence and terrorist attacks negatively impact tourism with the latter having a bigger long-term impact.

All the different definitions of terrorism agree that its target is beyond the immediate victim(s) or object(s) of attack (Corbet et al. 2019). In the context of tourism, Corbet et al. (2019) defined terrorism as ‘the creation of fear either by an act of violence or by threatening the destination with an act of violence, that disrupts the tourism flows, infrastructure and overall operations. Terrorism spreads fear and intimidation (Jongman 2017) and has tremendous effects on communities and welfare in general. Terrorism takes different forms, such as ethno-nationalist, separatist, international, religious and state-sponsored terrorism (Hoffman 2006). Terrorist attacks may be strategic and serving an ultimate purpose or can be opportunistic when easy targets appear. Nevertheless, the main aim is to spread fear and cultivate a belief that the terrorist organisation is powerful and unstoppable.

Frequently, terrorist groups target tourists or tourist destinations to gain international media coverage as the victims will potentially be from different countries and the tourism environment offers them camouflage (Sönmez et al. 1999). Terrorism affected destinations and economies that rely heavily on international arrivals suffer. Several scholars researched the destination recovery process. A destination needs six to twelve months to recover (Fleischer and Buccola 2002; Pizam and Fleischer 2002). The effect depends on the magnitude of terrorist attacks (Bassil 2014). Moreover, the frequency, type of threat and target selection potentially affect the visibility of the destination.

An interesting point in the tourism and terrorism studies is the role that the uniqueness of the destination has on effecting tourist arrivals. Disruptions to the travel demand of a destinations affects substitute destinations (Warnock-Smith et al. 2021). Terrorism in Turkey will have a positive effect on the Greek tourism industry. Similarly, terrorism can affect complementary destinations. A terrorist attack in Vienna can affect tourist arrivals in Bratislava. For destinations that do not have a substitute, but offer a robust and unique tourism product, the impact can be significantly lower than destinations with complementary destinations and (close) substitutes.

Disruptive events destabilise livelihoods and communities and threaten businesses survival (Calgaro et al. 2014). Terrorism has detrimental effects on international business. Expatriate staff underperform due to stress caused by the extra security measures, and construction workers are unwilling to work at night or on weekends (Tingbani et al. 2019). Thus, the supply chain is interrupted with consequences beyond the targeted businesses and industries (Sheffi 2001). Terrorism impacts not only the affected target but also local industries, foreign investments, geopolitical alliances, growth rate, global supply chains, tourism, consumer behaviours and productivity directly.

Tourism stimulates development in poorer countries (Baker and Coulter 2007). Therefore, the effects of frequent domestic and transnational terrorism for those countries are

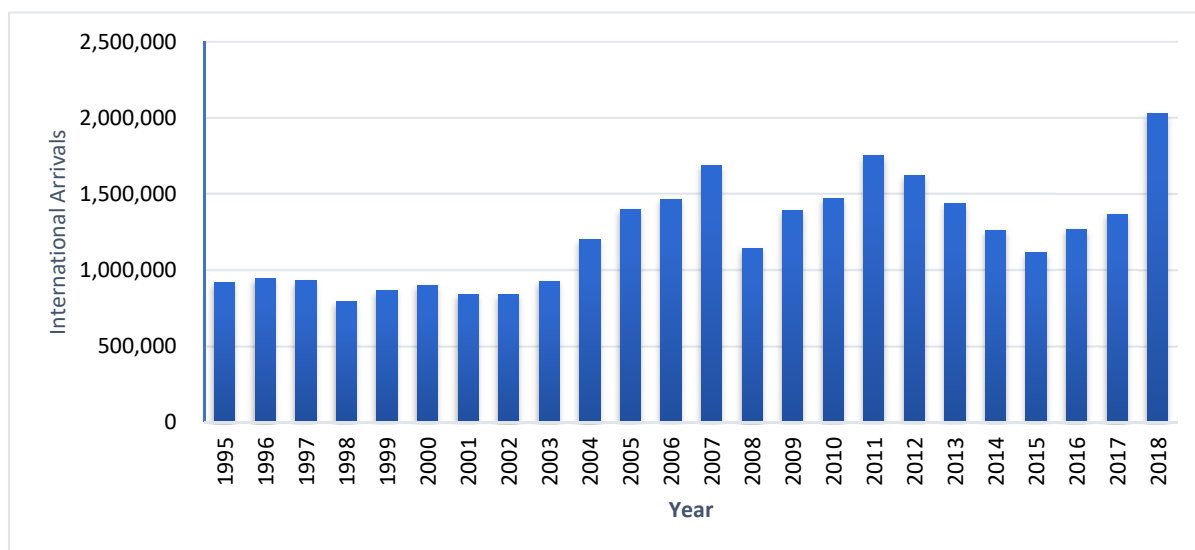
more significant. Some scholars have researched the effects of terrorism on businesses. There is a disagreement on the duration of the effects of terrorism on business failure. A business can recover from terrorism using its reputation (Gao et al. 2017). Similarly, the effects of terrorism on destinations with a strong reputation and elements of uniqueness can be short-lived in comparison to destination with a less reliable brand/image. Tingbani et al. (2019) researched the effects of terrorism on business failure for 174 countries and three country categories (developed, developing and fragile). They found that terrorism is negatively and significantly related to business failure in developing and fragile countries only. They suggest that an increase in terrorist incidents by 100 will increase business failure in Sub-Saharan Africa countries by 0.7%.

Terrorism, political unrest and other exogenous factors influence not only international tourism negatively as they influence and shape travel behaviours but also domestic tourism (Garín-Muñoz 2009). Despite its contribution to the national economy, domestic tourism is one of the most neglected and under-researched forms of tourism in the literature (Stylidis et al. 2017). The literature in the area of terrorism and domestic tourism, in particular, is limited (Adeloye and Brown 2018; Adeloye et al. 2019). Domestic tourism should be prioritised and stimulated in countries suffering from unrest and its aftermath (Akyildirim et al. 2020). The lack of research papers in the area of domestic tourism and external shocks may be explained by the unavailability or unreliability of domestic tourism data.

Nevertheless, domestic tourism remains the key driver of tourism in many major economies. Domestic tourism represents 73% of the total global tourism spending in 2017 (World Travel and Tourism Council 2018). Many developing countries have significant tourism growth as their residents with rising spending power start to visit rural areas, which tend to be overlooked by foreign visitors (World Travel and Tourism Council 2018). High levels of domestic migration fuel domestic tourism in the form of Visiting Friends and Relatives (VFR) (Itani et al. 2013). In certain countries, like Kenya, low levels of passport ownership among the population can contribute to domestic tourism. Adeloye and Brown (2018) suggest that some domestic tourists can learn to cope stoically with the fear of a terrorist attack while Scheyvens (2007) suggests that domestic tourism demand is less likely to be diminished by threats of political unrest. Thus, domestic tourism can act as a safety net to mitigate the adverse effects of international tourism arrival and expenditure reductions.

## 2.2. The Kenyan Tourism Sector under Threat

Kenya's contrasting topography creates a varied climate with tropical storms and desert landscapes. This diversity makes it a unique tourism destination most known for the safaris. Around 74% of the tourists' purpose of visit is holidays, 13% for business and conferences, 7% visiting friends and relatives (VFR) and 6% for other reasons (Tourism Research Institute of Kenya 2019). Tourism has been identified as one of the six key growth sectors of the economy by the Kenya Vision 2030. Despite ranking low in the Travel and Tourism Competitiveness report of World Economic Forum, in the areas of safety and security, international tourist arrivals rose a remarkable 37.7% in 2018. During the last 15 years, Kenya's tourism has been characterised by fluctuations of international arrivals (Figure 1) and expenditure (Figure 2). America (11%), Great Britain (9%), India (6%), China (4%) and Germany (4%) are the leading source markets to Kenya (World Travel & Tourism Council 2019). Tourism supports the Kenyan economic development significantly and contributes significantly to a reduction of the poverty gap and severity in both rural and urban areas (Njoya and Seetaram 2018).



**Figure 1.** International tourism arrivals in Kenya between 1995 and 2017 (Source: World Bank Group 2019).



**Figure 2.** Leisure tourism spending in Kenya between 2006 and 2017 (Source: World Bank Group 2019).

In 2011, there were 1,822,885 international tourism arrivals, the best tourism performance after the 2007 election violence (Tourism Research Institute of Kenya 2019). Arrivals declined with a significant drop in 2015 because of terrorist incidents and political unrest. Performance is recovering with 2,025,206 international arrivals in 2018.

In 2018, travel and tourism in Kenya grew 5.6%, contributed USD 7.9 billion (direct, indirect and induced effects) to GDP and supported 1.1 million jobs, 8.3% of all Kenyan employment (World Travel and Tourism Council 2019). This may be explained by the fact that travel advisories were lifted. Several hotels opened in 2018 and increased the available rooms by 5.2%. In 2017, Kenya's tourism industry attracted capital investment of USD 0.84 billion (World Travel and Tourism Council 2019). International tourists' expenditure was USD 1.5 billion accounting for 15% of total exports (World Travel and Tourism Council 2019).

The fluctuations in Kenya's tourism industry can be explained by the terrorist attacks the country has suffered over the last years and by incidents of political unrest and civil violence. Geographical, historical, political, religious and socio-cultural reasons can explain the continuity and severity of Kenya's disruption troubles. Kenya finds it challenging

to protect its borders while transitioning from one government to the next is not always straightforward. Moreover, Kenya has not been able to preserve an inclusive national identity, which makes it more volatile to social unrest and potentially to terrorist attacks.

After a highly argumentative and excessively fought campaign between the incumbent Mwai Kibaki and the challenger Raila Odinga, there were violent protests that quickly transformed into ethnic clashes and led to a state of emergency that virtually shut down roads and markets killing any tourism-related activity, depriving the Kenyan economy of foreign cashflows and creating negative publicity (Dupas and Robinson 2012; Fletcher and Morakabati 2008). That unrest led to two years (2008 and 2009) of decline in leisure tourism expenditure (as seen in Figure 2).

Terrorism also has a history in Kenya. The most active terrorist group is al-Shabaab (also known as Harakat al-Shabaab al-Mujahidin), an affiliate of al-Qaeda. Kenya suffers from an excessive number of terrorist attacks, especially since the Kenyan Defence Forces (KDF) crossed into Somalia in 2011 to face al-Shabaab and create a security buffer zone (Cannon and Ruto Pkalya 2017). Kenya is targeted due to its international status, media freedom, developed infrastructure and the lucrative and robust tourism industry (Cannon and Ruto Pkalya 2017). Table 1 lists the frequency of terrorist target categories and frequency of terrorist attacks per city in Kenya from March 1975–December 2017.

**Table 1.** Frequency of terrorist target categories and frequency of terrorist attacks per city in Kenya from March 1975–December 2017 (Source: National Consortium for the Study of Terrorism and Responses to Terrorism (START) (2018)).

Target Category	Frequency	City	Frequency
Military	182	Nairobi	84
Private Citizens & Property	168	Mandera	73
Police	164	Garissa	58
Business	83	Unknown	45
Government (General)	68	Mombasa	35
Religious Figures/Institutions	45	Wajir	30
Transportation	25	Dadaab	20
NGO	20	El Wak	20
Educational Institution	16	Liboi	19
Government (Diplomatic)	14	Kismayo	18
Unknown	13	Lamu	15
Airports and Aircraft	8	Ifo	12
Telecommunication	8	Afmadow	10
Utilities	5	Pandanguo	9
Food or Water Supply	4	Likoni	8
Tourists	4	Kulbiyow	7
Journalists & Media	3	Mandera district	7
Maritime	3	Badhadhe	5
Violent Political Party	3	Baure	5
Other	1	Fafahdun	5
Sub-Saharan Africa	1	Gamba	5
Terrorists/Non-state Militia	1	Other cities with less than 5 attacks	350
Total		840	

There is a bi-directional causality between tourism and terrorism, with terrorism negatively affecting tourism demand (Krajčák 2021). These attacks and the political unrest climate that these underpin, caused, among others, booking cancellations and reduction to bank loans for tourism investments (Kabii 2018). The Kenyan government in an effort to recover from this tourism crisis took various actions. Development of air routes, niche products development programmes (e.g., eco-tourism and therapeutic tourism), emphasis on the international marketing (e.g., TMRP II international advertising campaigns and

participation global exhibitions) as well as domestic marketing are some of the tourism recovery strategies followed (Kabii 2018).

Kenya overemphasised the promotion of foreign tourism in the past, but has since recognised the contribution of domestic tourism with the formation of Domestic Tourism Council (DTC) (Sindiga 1996). There are various reasons for promoting domestic tourism (Sindiga 1996). Unlike foreign tourism, domestic tourism is less vulnerable to internal insecurity, bad press and poor tourism infrastructure. Additionally, that domestic tourism can contribute to social coherence and be more resilient to political unrest and disruption. The new Standard Gauge Railway (SGR) train, a rail project that will connect Kenyan cities, is expected to increase the accessibility from Nairobi to Mombasa, Naivasha and Kisumu, and thus, boost the domestic tourism.

Domestic tourism in Kenya offers a paradigm shift from the traditional safari and coast tourism. Several campaigns have been employed to promote domestic tourism in Kenya, like Magical Kenya. Domestic bed nights for the year 2018 were estimated at 3,974,243. There was 9.03% increase compared to 2017 (Tourism Research Institute of Kenya 2019). Measuring domestic tourism has more considerable difficulties than collecting international tourism statistics. The scarcity of sufficient and reliable data on the tourism industry is a significant challenge (Government of Kenya 2012).

The tourism crisis in Kenya has affected a number of industries and sectors of the economy. The insecurity reduced the sales volume, customer growth, companies' operations and revenue, resulting to a reduction in labour and increase of unemployment (Kabii 2018). Terrorism and political unrest damage the infrastructure, physical and human capital, productivity and economic growth (United Nations Development Programme 2017). The United Nations Development Programme (2017) also suggests that terrorist attacks and political violence tend to increase uncertainty in the investment climate, disrupt household spending and livelihood and dissuade foreign direct investment (FDI). Terrorism risk corresponded to a decline in the net Foreign Direct Investment (FDI) of 14% of GDP (Kinyanjui 2014). This has led to a reallocation of resources from growth-enhancing investment to national security spending. Buigut and Amendah (2015) used a dynamic panel model and found that a 1% increase in terrorism fatalities significantly reduces tourist arrivals by 0.13%.

Buigut (2018) extended this research to assess the effect of terrorism on tourism flows to Kenya from developed countries and compare this with the effect on flows from emerging countries. He found that 1% increase in fatalities decreases the arrivals by about 0.082% for developed countries, but he believes that the number is higher. Visitors from emerging countries are not significantly affected by terrorism when compared to developed countries. The studies that consider terrorism and tourism are scanty (Buigut 2018; United Nations Development Programme 2017).

### 3. Methodology

#### 3.1. Computable General Equilibrium (CGE) Application on Tourism Crises

Computable General Equilibrium (CGE) modelling has been widely applied in recent years to examine the net benefit of tourism demand shocks, defined in economic terms as a sudden increase or decrease in demand for tourism goods. These changes may be induced by a positive demand shock (Adams and Parmenter 1995; Blake 2000; Dwyer et al. 2003; Narayan 2004) or by a negative demand shock (Li et al. 2010; Blake and Sinclair 2003; Dwyer et al. 2006; Yang and Chen 2009). The economy-wide impact of the former has been extensively studied using CGE models with a recent emphasis on poverty reduction (Njoya and Seetaram 2018). Moreover, CGE studies of tourism expansion have shown that positive tourism shocks induce an increase in real wage rates leading to an increase in private disposable incomes, which, in turn, lead to an increase in real private consumption and real Gross Domestic Product (GDP). The associated increases in domestic prices relative to foreign prices adversely affect the competitive advantage of traditional export sectors, especially in developing economies (Wattanakuljarus and Coxhead 2008).



The economic costs of tourism contraction have, on the other hand, received comparatively limited attention in CGE applications to tourism. Only a few studies quantitatively examined the economic impact of a crisis (i.e., generated by terrorism and political unrest) on tourism (Li et al. 2010). Prior studies have indicated that a decrease in tourism spending leads to reductions in real GDP, the general level of prices, the balance of trade and output and employment of the industries closely related to tourism (Blake and Sinclair 2003; Dwyer et al. 2006; Yang and Chen 2009).

### 3.2. The Model and Data

We simulate the economic impacts of crises in Kenya using a CGE model of the Kenyan economy. The model is based on PEP-1-t (1 country—t periods) model developed by Decaluwé et al. (2010) and can be described as a single-country multisectoral CGE model with constant returns to scale. The model is purpose-built to capture the interdependence of tourism with the rest of the economy. Versions of this model have been employed, for examples to examine the links between tourism and air connectivity in Kenya (Njoya et al. 2020), tourism expansion and poverty alleviation in Kenya (Njoya and Seetaram 2018). The model is calibrated to a 2003 Kenyan social accounting matrix (Kiringai et al. 2006). Social accounting matrix is an economy-wide database recording all transactions between sectors and institutions in an economy.

We model production to reflect the behaviour of firms that minimise costs and maximise profits, subject to technology constraint. Except for the agricultural sector, which uses the land as an input, the production structure of each sector is characterised by a capital, labour and intermediate consumption nested function. We use a constant elasticity of substitution (CES) nested function of labour and capital and a Leontief function of value-added and total intermediate consumption. There are three types of labour, which are assumed not to be equally substitutable. The combination of labour and capital forms value-added, which in turn is combined with intermediates to form the total output of each sector. Concerning trade, the model follows standard practice in assuming that there is a transformation function between export and domestic markets. Thus, producers make an allocation of domestic goods between domestic demand and exports according to a constant elasticity of transformation (CET) function. Domestically produced commodities and imports are assumed imperfect substitutes for each other.

Similar to production, consumption is modelled to reflect the behaviour of a representative household that maximises utility, subject to its budget constraint. The household is assumed to choose the consumption of different commodities according to a linear expenditure system (LES) demand function, derived from the maximisation of a Stone-Geary utility function. Households earn their income from production factors, government transfers and remittances. They pay direct income tax to the government while their savings are a fixed proportion of the total disposable income. Analogous to household demand, tourism demand is modelled to reflect on the behaviour of tourists. A Cobb-Douglas demand function is used to determine tourist demand for goods and services. The government expenditure is allocated between the consumption of goods and services and transfers. Government demand for goods and services is defined as constant shares of fixed total real government expenditures.

One of the specificities of the Kenyan economy is the coexistence of both formal and informal labour. We introduce informality and unemployment in the PEP-1-t CGE model by altering the labour market conditions. Labour comprises of three categories: skilled, semi-skilled and unskilled labour. The unskilled labour market is assumed to face a flexible nominal wage, while the semi-skilled and skilled labour markets have a rigid nominal wage. In this model, the informal wage is assumed to be flexible enough to guarantee that there is no rural unemployment. There has been, in recent years, a growing interest in the modelling of the informal economy and labour market within the general equilibrium framework (Fields 1990; Annabi 2003; Davies and Thurlow 2010; Batini et al. 2010; Boeters and Savard 2011; Meghir et al. 2015). Batini et al. (2010) review empirical findings and

existing approaches to the modelling of informal labour and conclude that the literature on informality is quite patchy, with several unexplored areas left for research. The impact of tourism expansion on labour markets in developing countries has been studied. Using the model by Harris and Todaro (1970) and Sahli and Nowak (2007) provide a detailed analysis of unemployment and tourism-related labour migration. In the Harris-Todaro model approach, the wage rate in the rural (informal) region is flexible enough to eliminate rural unemployment. In the urban (formal) sector, wage rigidities in the form of minimum wages and institutional considerations lead to unemployment.

In accordance with Pratt (2009), we assume exogenous the supply of labour ( $LS_{l,t}$ ) which is defined in Equation (1) as a function of wage rate ( $W_{l,t}$ ), consumer price index ( $PX_t$ ) and the elasticity of labour supply ( $\alpha_l$ ).

$$LS_{l,t} = (1 - \overline{UN}_l) \overline{LS}_l \left( \frac{W_{l,t}}{PX_t} \right)^{\alpha_l} \quad (1)$$

where  $\overline{LS}_l$  is the labour supply in the base year.

Equation (2) defines the unemployment rate by type of labour ( $UN_{l,t}$ ) as a function of the real wage rate.

$$UN_{l,t} = \overline{UN}_l \left( \frac{PX_t}{W_{l,t}} \right)^{\beta_l} \quad (2)$$

where  $\overline{UN}_l$  is the base year unemployment rate and  $\beta_l$  the elasticity of unemployment with respect to real wages.

According to the above specification, an increase in wages above the market-clearing wage rate would increase the labour supply, all else being equal. Moreover, workers will offer to work more (or less) when the real wage increases (or decreases) relative to the reference period or the previous period, which enables us to take into account the presence of equilibrium unemployment (Decaluwé et al. 2010). In the non-skilled (informal) labour market, total labour supply equals total labour demand (Equation (3)), while in the semi-skilled and skilled labour market total labour supply is equals to total labour demand plus unemployment (Equation (4)).

$$\sum LS_{unskilled,t} = \sum_j LD_{unskilled,t} \quad (3)$$

$$\sum LS_{l,t} = \sum_j LD_{l,t} + UN_{l,t} \sum LS_{l,t} \quad (4)$$

Studies on employment in Kenya (Kaminchia 2014) show that the unemployment rate of skilled labour is higher than of their semi-skilled counterpart. Consequently, we assume a high unemployment rate of skilled labour at 15% and semi-skilled of 10%. Moreover, the impact of shocks on supply will be more significant, the higher the elasticity of labour supply is. Following Blanchflower and Oswald (1995), Baltagi et al. (2013) and Goldberg (2016) we assume low elasticities values of 0.15 for both the elasticity of formal labour supply and the wage elasticity of unemployment.

#### 4. Results and Analysis

The model produced some very enlightening results about the economic impact of tourism crisis in Kenya. Since the first major crisis in 2007 (i.e., the election violence incident), tourism arrivals and spending have been characterised by high fluctuations. Moreover, foreign spending has decreased yearly by 2.6 percent on average (World Bank Group 2019). According to World Bank estimates the country experienced, in terms of international tourism expenditures, a year-on-year growth rate of 2% for the period 2007 and 2018, compared to 5% between 1995 and 2007 where there was political tranquillity. Consequently, in the simulation a permanent 3% decline in tourism spending over 20 years (2003–2022) was considered. The effects of the decrease in tourism spending were analysed in terms of changes in industry effects, household consumption and macroeconomic

impacts. The results can be interpreted as the percentage change in the relevant variable under the decrease in tourism spending.

#### 4.1. Macroeconomic Impacts

The percentage changes in key macroeconomic variables are recorded in Table 2 and Figure 3. The results suggest that the decrease in tourism spending, as generated by violence-centric events, cause a contraction of the Kenyan economy, both in the short-run and long-run. The contraction in GDP is relatively less in the long run (Figure 3). Thus, GDP decreases in the short term, but it gradually increases to its base growth path (baseline) in the long run, when the economy is expected to have adjusted to the shock. For instance, Table 2 indicates that real GDP declines by 0.014% in period one and by 0.002% in period 20. The contraction in GDP can be interpreted in two ways: (a) from the income side and (b) from the expenditure side. From the income side, the macroeconomic results show that aggregate employment declines (0.005% increase in the unemployment rate in the short term and 0.001% in the long run). The magnitude of the changes in output and unemployment are very small (Figure 3) because of the nature of the shock being considered. From the expenditure side, all component of the domestic absorption (i.e., household consumption, investment and government consumption) experience a reduction. The major contributing factor behind GDP decrease is the decrease in total investment, which declines by 0.038%. Decreased income resulting from a decrease in wage rates causes a decline in real consumption.

**Table 2.** Macroeconomic impact of a permanent 3 percent fall in tourism expenditures (% change from baseline).

	Kenya		
	Period 1	Period 10	Period 20
Real GDP	−0.014	−0.005	−0.002
Export volumes	0.104	−0.021	−0.153
Import volumes	−0.092	−0.014	0.031
Total household consumption	−0.005	−0.005	−0.007
Total investment	−0.038	−0.028	−0.027
Household income	−0.015	−0.005	0.000
Unemployment rate	0.005	0.003	0.001
Household welfare (EV)	−0.013	−0.079	−0.029

There is a worsening of the balance of trade, except for the first period in which total export volumes grow by 0.104% and import volumes decrease by −0.092. The immediate effect of the tourism decline is a decrease in export revenue, which drives the trade balance towards the deficit. The increase in total exports can be explained by the depreciation of the exchange rate, which benefits export-oriented sectors such as the agricultural sector, leading to a growth of traditional exports and the relatively low share of tourism export. The decrease in consumer prices, on the other hand, causes an expansion of non-tourism exports and a decrease in imports.

In terms of the labour market, the unemployment rate of skilled labour increases faster in the short run but decreases over time, while semi-skilled labour unemployment starts at a lower rate but grows at an increasing rate in the long run (Figure 3). The initial level of unemployment is relatively high, namely 15% for skilled labour and 10% for semi-skilled labour. This finding can be explained by the contribution of the different type of labour to total labour in general and to the tourism sector in particular. Kenya's Social Accounting Matrix shows that semi-skilled labour constitutes 47.6% of the total industry share in labour employment, with skilled and unskilled contributing 21.7% and 30.9%, respectively. On the other hand, the semi-skilled and skilled share of service sector labour employment are 15.4% and 11%, respectively.

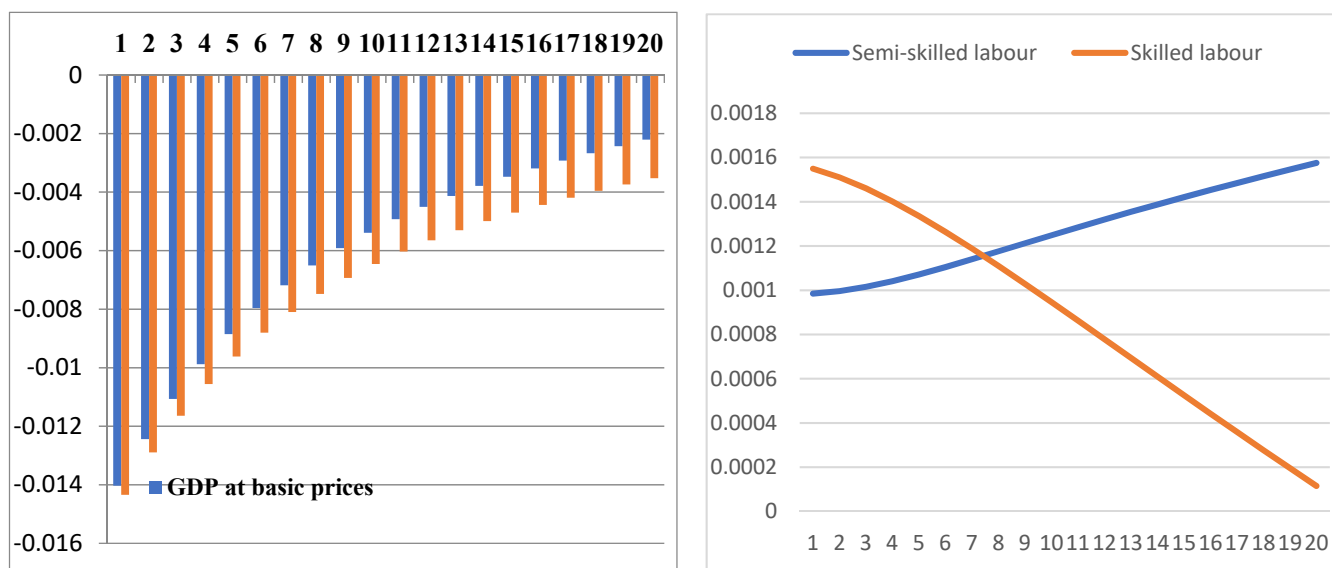


Figure 3. Impact of a permanent 3 percent fall of tourism spending on GDP (left Panel) and Unemployment (right panel).

Figure 4 presents the impact of tourism contraction on investment. The quantity demanded of each commodity for investment purposes is defined as the sum of the quantity demanded for private and public investment. Both private and public investment demand by sector of origin is a fixed share of the total investment. The results show that both private and public investment expenditures decline in the wake of tourism contraction. However, private investment expenditures are more affected than public investment expenditures, which is expected given that tourism in Kenya is led by the private sector (World Bank 2010). Additionally, the total adverse impact is stronger in the first period as compared to the medium-term (period seven and onwards) and long term (last periods). Thus, while both private and public investment expenditures improve in the long run, private investment remains negative.

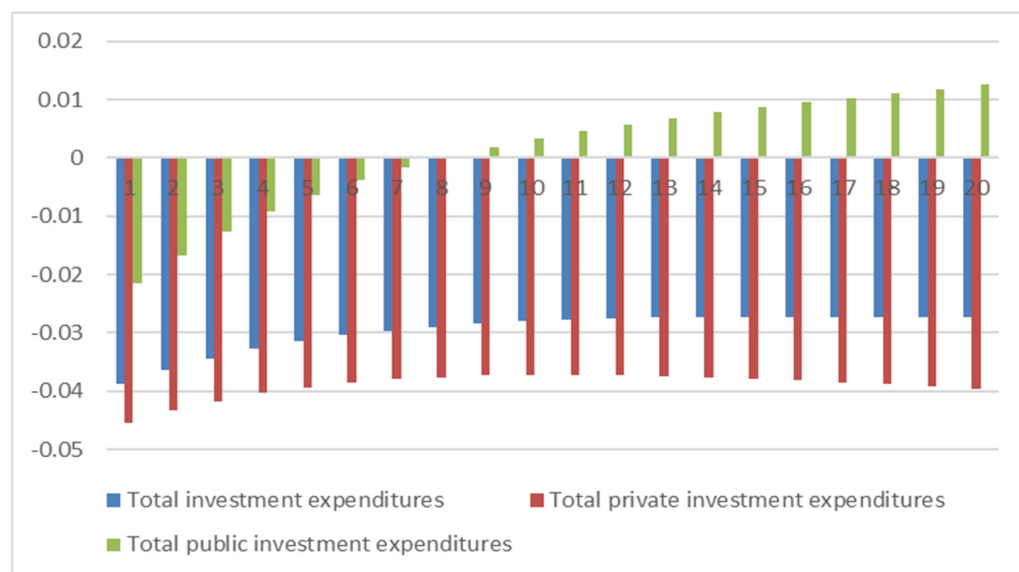
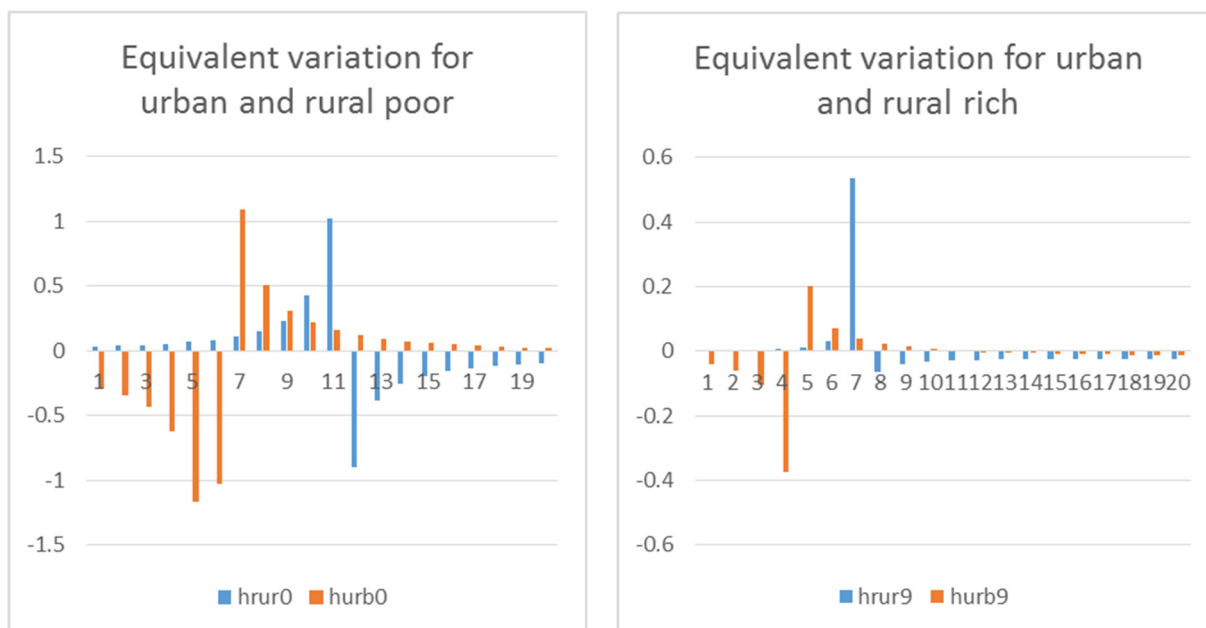


Figure 4. Impact of a permanent 3 percent fall of tourism spending on investment expenditures.

#### 4.2. Equivalent Variation

The results of the impact of tourism contraction generated by crisis on welfare are presented in Figure 5. The model reveals that the impact on welfare differs between rural

and urban households and between different timespans. Urban households experience a gradual decrease in welfare in the short term (periods 1 to 6). However, welfare increases strongly in the medium term (periods 7 to 10), with the increase continuing in the long run at a decreasing rate. Tourism contraction leads to decreased output, prices and wages in the sectors that sell products directly to tourists. Unlike urban households, rural households record an increase in welfare in the short and medium-term and a decrease in the long term. The difference between rural and urban household impacts can be explained by the share of tourism-related goods and services in total consumption and income of the different household groups.



**Figure 5.** Impact of a permanent 3 percent fall of tourism spending on welfare measured by equivalent variation. hrur0: rural poor household; hurb0: urban poor household; hrur9: rural rich household; hurb9: urban rich household.

Moreover, the impact depends on household factor endowments and consumption patterns. The urban household is more involved in tourism-related activities (transport and accommodation) than their rural counterpart, who relies heavily on agricultural activities. Labour income decreases strongly because unemployment of both skilled and semi-skilled labour is increasing while labour demand is decreasing. The decrease in production also leads to a fall in the rate of return on capital and a decrease in the firm's income. According to 2003 Kenya SAM, spending on agricultural commodities accounts for over 30% of rural household consumption but only 8% for urban households. In contrast, all household groups spend more than 30% of their income on services and manufactured goods. The short and long run results are in line with the finding by [Njoya and Seetaram \(2018\)](#), arguing that the easier an economy can adjust to the shock, the lower will be the welfare effect.

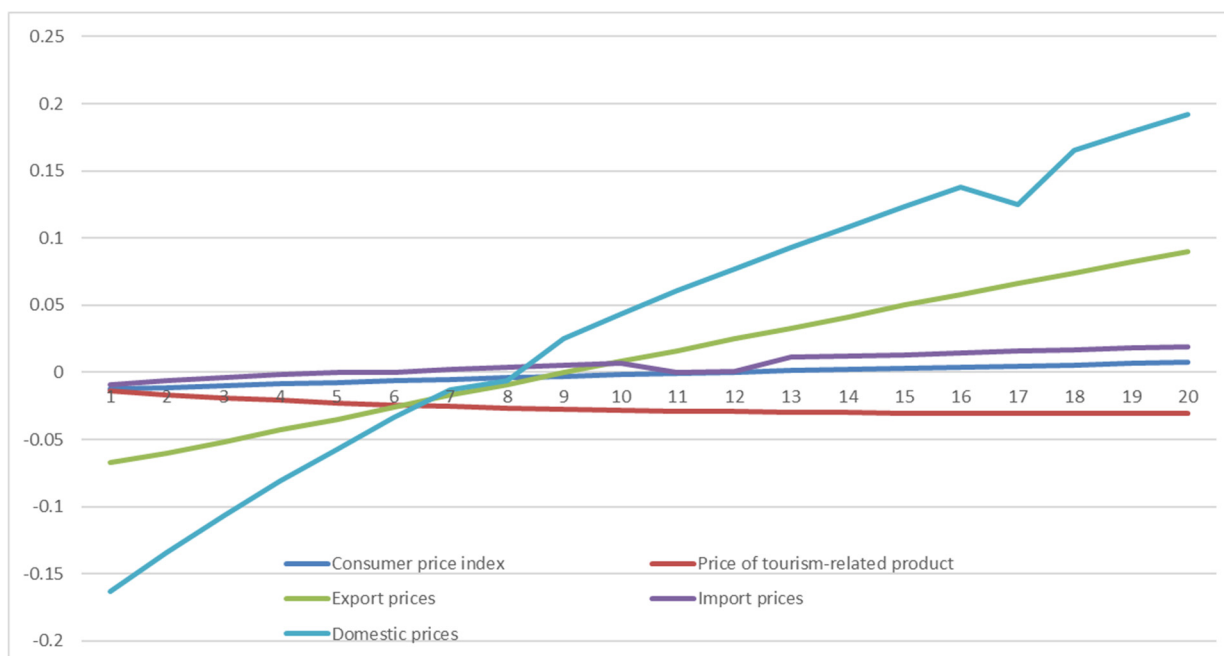
#### 4.3. Industry Effects

Table 3 records changes in industry output. The decrease in tourism spending has contractionary effects among all industries in the short and long run, with the most substantial impact recorded in related-tourism sectors such as transport, hotels, restaurants, financial services. These industries can be considered mostly as non-traded sectors in the absence of tourism and are strongly influenced by changes in export demand. The fall in tourism leads to a shift of resources from tourism sectors to the non-tourism sector, such as administration and manufacturing. Thus, there is an increase in the output of those sectors in the short run. As expected, the most significant declines in both short and long term are experienced

in the service industries catering directly for tourists (e.g., transport, accommodation and catering) or supplying the tourism-related activities (e.g., agriculture and construction). Some sectors, such as manufacturing or public utilities are not affected in the short run, which can be explained by a decrease in domestic prices (Figure 6); decrease and export prices not affected by the reduction in tourism demand. However, in the long run, both domestic and export prices increase, resulting in an appreciation of the exchange rate for most sectors and this movement has consequences for their output.

**Table 3.** Impact of a permanent 3 percent fall of tourism spending on other sectors (% change in output).

	Output		
	Period 1	Period 10	Period 20
Agriculture	−0.041	−0.038	−0.119
Manufacturing	0.008	−0.002	−0.01
Public Utilities	0.006	0.004	−0.001
Construction	−0.016	−0.034	−0.044
Wholesale and retail trade	−0.006	−0.01	−0.015
Hotels and restaurants	−0.053	−0.076	−0.08
Communication	0.002	−0.004	−0.01
Financial Services	0.000	−0.007	−0.016
Real estate activities	0.005	−0.003	−0.013
Other services	−0.003	−0.001	−0.008
Administration	0.004	0.001	−0.001
Health	−0.003	−0.004	−0.005
Education	−0.001	−0.004	−0.006
Transport	−0.026	−0.034	−0.044



**Figure 6.** Price effects of a permanent 3 percent fall of tourism spending on.

Figure 6 illustrates the effects of a tourism shock as generated by political unrest and terrorism events on various prices. The decrease in tourism demand leads to a decrease in prices with domestic and export prices decreasing in the short run faster than import prices and consumer price index. The prices of tourism-related products are the most affected in the long run. Low export prices and high prices explain the increase in the export demand in Table 3 above. As illustrated in Figure 6, all prices except the price of tourism-related

products increase in the long run. These changes in prices partly explain the improvement in macroeconomic variables (Figure 3) and welfare impact (Figure 6) in the long run.

## 5. Discussion and Policy Recommendations

Tourism, a major means of achieving Kenya's development aspirations, have been exposed to factors that have largely contributed to suboptimal performance characterised by periods of boom followed by prolonged periods of dismal performance (Mayaka and Prasad 2012). More specifically, Kenyan international tourism arrivals have been characterised by fluctuations emanating from various crises that could be the result of political unrest or terrorist attacks. Kenya as any country that heavily relies on tourism's contribution to GDP can experience significant adverse economic effects because of these fluctuations. Tourism is supply led and demand-driven. In terms of supply led effects, terrorist attacks and political unrest can destroy infrastructure and reduce finance accessibility, while the bruising of the destination image can decrease tourism demand. When the political unrest is a prevailing and constant phenomenon, and terrorism is a constant threat the effects can be multifaceted and complex. Policy makers and tourism entrepreneurs do not have an impressive arsenal of weapons with which to defend tourism in the face of political unrest and terrorism (Richter 1999). Kenya despite the low safety and security rates, has noted an increase of almost 38% in international tourist arrivals in 2018 (Tourism Research Institute of Kenya 2019), with the country diversifying their tourism product and trying to attract domestic tourists that are less affected by poor safety and security rates. Nevertheless, the disruption that terrorism and/or political unrest could create has adverse effects on a destination. This paper investigated the impacts of terrorism and political unrest-induced crisis on the Kenyan economy by looking into the macroeconomic and sectoral effects of tourism that in such situation is forced to contract. We simulated the impacts of the tourism spending decrease of 3% over 20 years on various industries, household consumption, employment, investments, imports and exports as well as on real GDP.

Overall, the results of the CGE model were explained based on the literature review and the authors' solid understanding of the Kenyan market. The results could be summarised in the following six statements: (1) The decrease in tourism spending causes a contraction of the economy in the short-term and long-term; (2) All components of the domestic absorption experience a reduction; (3) The export revenue is decreased and drives the trade balance towards deficit; (4) Private and public investment expenditures decline; (5) Tourism contraction leads to decreased output, prices and wages in the urban households, whereas the rural households notice an increase in welfare in the short and medium-term and a decrease in the long-term; and finally (6) Tourism related industries (services and supply) noticed contractionary effects whereas resources shifted to non-tourism sector industries.

These macroeconomic and sectoral impacts are in line with the findings by Blake and Sinclair (2003), Yang and Chen (2009) and Blake and Sinclair (2003), that show that fall in tourism expenditures significantly reduces GDP and worsen government revenues, causing a loss of employment and adversely affect tourism-related sectors.

This study contributes in various ways and adds value to existing research on the economic impact of tourism crisis. Firstly, it examines the impact of economic impact of decreased tourism spending in a context that is under-researched. Existing studies using a CGE model have focused on other regions such as Australia (Dwyer et al. 2006), Taiwan (Yang and Chen 2009), UK (Blake and Sinclair 2003) and USA (Blake and Sinclair 2003). Secondly, unlike previous studies, this study adopts a dynamic approach and captures both the short and long terms impact of a fall in tourism spending. Lastly, another novelty of this study is the use a highly disaggregated database and captures the distributional as well as welfare implications of tourism crises as these induced by political unrest and terrorism events.

This research confirms that political unrest and terrorism can disturb tourism international arrivals and expenditure and that a tourism crisis could impact the economy of a

country significantly. Our findings are consistent with other studies on macroeconomic costs and wider economic effects on Kenya (United Nations Development Programme 2017). Affected destinations and countries struggle to restore the image and reputation of their tourism product (Faulkner 2001) unless they have invested a lot in their brand name before the disruption occurred like Thailand has done (Ingram et al. 2013).

Diversification of the tourism product could increase the perceived value of the product and hopefully encourage more international tourist arrivals and expenditure. Analysing the sensitivity characteristics of tourist target groups and creating custom tailored solutions for them is also important. In line with Seddighi et al. (2001), our paper suggests that the more sensitive the tourists are to political unrest, the more aggressive the marketing and promotional strategies, of a tourist destination should be in order to counterbalance the adverse and devastating consequences of a situation of unrest. Politically unstable countries are in need of proper tourism planning so they must have in place, much like Issa and Altinay (2006) suggested, well-balanced (and trialled) crisis management practices to deal with unexpected events when these occur. In line with Gurtner (2016) we believe that proactive vulnerability reduction premised in sustainable development and comprehensive, integrated disaster risk reduction is a key to successful tourism for destinations similar to Kenya. As identified in Section 2, domestic tourism is more resilient and thus less impacted by terrorism attacks and political unrest. Therefore, emphasis on domestic tourism could mitigate the loss of international tourism expenditure and reduce its effects on the economy (Li et al. 2010). Finally, destination Management Organisations, a collective representative/coordinator of local destination interests (Njoya 2021; Gurtner 2016) should take measures to prevent such events and when they do happen to mitigate their effects.

## 6. Conclusions, Limitations and Future Research

This research fills in a gap in the literature using as its case study the rarely explored context of an emerging economy in a tourism-centric country that has experienced serious disruptive events that contracted its tourism industry including political unrest and terrorism. The model we present about Kenya is conclusive and demonstrates without a doubt that a diminished tourism product leads to short- and long-term adverse impacts for the economy. This work could offer some potentially generalisable conclusions applicable to similar socio-economic environments with its prime lesson being that tourism should be shielded against violent-centric exogenous events because they can significantly contract it devastating the local economy. We do appreciate that our study, like every research effort, might have some limitations including the lack of primary data collection and analysis and the inability to have model parameters directly referring to terrorism and political unrest. Additional studies related to the nexus economy-tourism-terrorism/political unrest are needed to aid in providing a broad and well-rounded understanding about the problems and solutions discussed herein in various geopolitical settings.

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