Implications of Transnational Terrorism on International Trade

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1. Introduction

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This paper investigates the short term and long term implications that transnational terrorism has on international trade. Terrorism, as understood by Nitsch and Schumacher, is the "use, or threat of use, of anxiety-inducing extra-normal violence for political purposes . . . when such action is intended to influence the attitudes and behavior of a target group wider than the immediate victims and when its ramifications transcend national boundaries."[1] Because these events are intensely emotional and extremely visual, the loss of life and climate of fear produced have profound impacts on general human well being. Frey, Luechinger, and Stutzer (2004) find that the implications on life-satisfaction for populations affected by terrorist activity far outweigh the economic impacts. In their study of subjective well-being data, they find that, in the case of the Northern Ireland conflict, individuals would be willing to pay, on average, 41% of their annual income for a reduction in terrorist activity to a level comparable to unaffected parts of the country.[2] While it is imperative to recognize the impact political violence has on the family unit, the aggregate impact of terrorism on domestic economies and international trade flows is staggering.

2. Literature Review and Discussion

Much literature has been produced about the financial impacts of terrorism. Current accounts, exchanges in goods, are influenced by events which disrupt consumption and production preferences. Bruck and Wickstrom (2004) assert that consumer unease effects service sectors the highest, specifically tourism, transportation, and insurance. Households and clients exhibit decreased propensity for consumption due to higher assessed risks and fund managers reduce their portfolio exposure in these industries, limiting growth.[3] Klein and Ozmucur (2004) contend that industries targeted by terrorist activity show decreased action in the short run yet consumer confidence rebounds quickly due to

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[1] Nitsch, Volker and Dieter Schumacher. "Terrorism and international trade: and empirical investigation." European Journal of Political Economy. Vol 20, 2004. . 423.
[2] Frey, Bruno S. and Simon Leuchinger, et al. "Calculating Tragedy: Assessing the Costs of Terrorism." CESifo Working paper. no 1314. Category 1: Public Finance. November 2004.
[3] Bruck, Tilman and Bengt-Arne Wickstrom. "The Economic Consequences of Terror: A Brief Survey." HiCN working paper. no 3. School of Social Sciences and Cultural Studies University of Sussex. April 2004.

government reassurance and lower interest rates in durable goods and real-estate sectors. However, Nitsch and Schumacher (2004) conclude that because consumption patterns are adversely affected in the short run, the domestic production in export and import substitution sectors affects a countries ability to promote stable international trade.[4]

Empirical data suggests that terrorism poses a risk to production as well. Oil producing nations consistently lose profits from domestic attacks on supply chains, pipelines, and distribution mechanisms. (Nitsch and Schumacher, 2004) In the case of oil exporting nations, terrorist activity inhibits the central government's ability to properly estimate tax revenue, limits income from labor in production industries, and increases the insurance premiums for multinational firms and government owned enterprises operating in the petroleum sector. Additionally, occurrences of terrorist violence raise the cost of doing business, thereby influencing the predictability of current account equilibriums. Nitsch and Schumacher (2004) also contend that spontaneous nature of terrorist action negatively impacts the ability of firms to execute business as their presence raises the level of uncertainty. In addition, stronger security measures make international trade more expensive while increased delivery times and higher border precautions inhibit product mobility. Disruption of supply chain activity results in lower profitability especially to firms whose products must compete with firms whose supply is not disrupted.

Events also influence a country's capital account. Eldor and Melnick (2004) conclude that while terrorist attacks can have a real impact on a firm's expected profits, their analysis finds that financial markets incorporate the business premiums associated with terrorist events even though they find no evidence that markets become desensitized over time. Industrialized countries with liberal economic systems efficiently respond to terrorist events because monetary autonomy promotes investor confidence. Gupta and Clements et al. find that prolonged terrorist violence, especially in middle and low income nations, forces governments to divert investment from economically viable sectors to military and defense spending. However, as the government's revenue as share of GDP falls, the private sector's share of GDP

[4] Nitsch, Volker and Dieter Schumacher. "Terrorism and international trade: and empirical investigation." European Journal of Political Economy. Vol 20, 2004. 424.

rises. This corresponds with inflation during the period of uncertainty immediately after an event. Over time however, inflation declines as market equilibriums are reestablished.[5]

Equity markets are also affected in times of terrorist activity. Because information travels quickly, knowledge of uncertainty in the financial markets can induce decisions rapidly, exacerbating contagion and spreading investor panic. As investors access information about specific events, they make assessments about firms' ability to cope with potential political, societal, and economic changes, discounting the value of current and future performance. Since stock market indices, and currency rates for that matter, are representative of all individual equity and currency portfolios, a market's positive or negative movement is characteristic of the aggregate portfolios within that market. Chen and Siems (2004) assert that while terrorist events tend to trigger a negative reaction, the degree to which contagion effects domestic capital markets depends on the financial sector's supply of adequate liquidity. Higher liquidity promotes stability by buffering against fluctuations in investor confidence.[6]

As the preceding work of Chen and Siems (2004) suggests, policy reactions can dictate the economic impact of terrorist events. Following much of the current literature, Blomberg et al. (2004) find that terrorism is associated with a diversion of spending from investment to government expenditure.[7] This necessitates higher borrowing from foreign governments and institutional investors. For OECD countries with less volatile currencies, issuing debt does not have many long term implications other than possibly increasing the volume of foreign bound remittances. For lower income nations, confronting terrorism through government spending requires sale of foreign reserves and production of domestic currency, increasing inflation. Gupta and Clements (2004) reach the similar conclusion that policy

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[5] Gupta, Sanjeev, et al. "Fiscal consequences of armed conflict and terrorism in low- and middle-income countries." European Journal of Political Economy. Vol. 20, 2004. 418.
[6] Chen, Andrew H. and Thomas F. Siems. "The Effects of Terrorism on Global Capital Markets." European Journal of Political Economy. Vol. 20. 2004. 363.
[7] Blomberg, Brock S. and Gregory D. Hess, et al. "The macroeconomic consequences of terrorism." Journal of Monetary Economics. Vol. 51, 2004.
1030.

reaction to terrorist activity impact less developed nations more adversely than developed nations from a monetary policy perspective.[8]

3. Implications of Discussion on Heckscher-Ohlin Model

As outlined above, economic consequences of terrorist activity negatively impact the volume of and the propensity to engage in international trade. These implications can be realized in the theoretical H-O model in three distinct ways. First, terrorism re-directs investment in capital intensive goods production to government spending due to expanse in defense budgeting. Second, transnational terrorism acts as a transaction cost, limiting factor mobility to areas where labor/capital might be otherwise cheaper. Thirdly, because certain costs of production, such as licenses, are associated with the level of democratization, the more advanced the democracy, the more capable the nation is to deal with terrorism.

Composition of Government Spending

Expansion of government spending due to terrorist events is associated with lower growth and higher inflation. Disruption of economic activities compromises the stability of the fiscal account by eroding the tax base, lowering the efficiency of tax administration, and distorting the composition of public spending. Gupta et al. (2004) find that catastrophic events not only destroy portions of the tax base but hamper a government's ability to collect receipts. Lower fiscal revenues are exacerbated by the spillover effects of increased government spending. High defense and security expenditures crowd out resources available to the economy for private investment and public spending. However, positive supply-side spillover of defense spending in non-defense sectors encourages resource mobilization of savings and investment. Gupta et al. (2004) additionally conclude that government safeguards that follow terrorist activities provide internal and external security to endorse private savings and promote foreign investment. For developed economies, resilient capital markets and autonomous monetary policies dampen the effects of robust government spending, soaking up expenditures quickly. In low- and middle-

[8] Gupta, Sanjeev, et al. "Fiscal consequences of armed conflict and terrorism in low- and middle-income countries." European Journal of Political Economy. Vol. 20, 2004. 404.

income nations, defense spending primarily means purchase of foreign armaments. Because government expenditures requires releasing foreign reserves, devaluing the domestic currency, and siphoning resources from growth oriented sectors, sustained terrorist activity can have an amplified negative impact on economic growth.

The implications on the H-O primarily relate to a nation's ability to allocate endowed resources efficiently. In both labor and capital intensive economies, government spending in defense sectors has a negative effect on growth by diverting resources away from spending on sectors that promote economic growth. Labor endowed nations are more affected because the impact of government spending on wage rates is amplified compared to the impact on rental rates to capital. Inflation resulting from reserve depletion reduces the purchasing power of wages to labor. Especially in low-income nations that specialize in agricultural production and manufacturing, inflation devalues the domestic currency resulting in lower profit margins, decreased foreign investment, and higher risk. Rental rates to capital in developed nations do not undergo as much fluctuation due to strong monetary policy, government regulation, and entrenched financial liquidity in the banking sectors. Thus, terrorist events have varied effects depending on the composition of output, factor abundance, and trade partners of the targeted nation. For developed nations, occurrence of terrorist events will not inhibit capital mobility because there will be no extreme fluctuation in real or relative interest rates. If anything, a terrorist event in a developed country could have a positive effect on long term intra-industry trade as the government purchases capital intensive goods from other developed nations. In addition, it can be an impetus to capital flows as global investors move monies into "safe havens."

Transaction Costs

Transnational terrorism also acts as a transaction cost, inhibiting a firm's ability to fragment production processes where access to labor and capital is cheapest. Transportation hindrances result primarily from implementation of government policy via stringent immigration controls, increased inspection protocols at borders, and more intensive screening procedures. The higher costs to doing business decreases firm profitability, encouraging firms to seek labor and capital in nations which do not have such border restrictions. Nitsch and Schumacher (2004) find that countries plagued by a larger number of terrorist attacks trade significantly less with each other. Higher risks, additional security measures, and destruction raise transaction costs, directly influencing the real returns to capital and labor.

Since capital has historically been more mobile than labor, the deletrious effects of terrorism may be more pronounced for capital. Since labor intensive nations are more likely to engage in production of export goods that do not require considerable capital investment, added transaction costs are principally concentrated in the transport sector. Border inspection may be longer and import restriction may prohibit certain goods from passing inspections, adding to the cost of doing business. However, with respect to capital, terrorist events contribute to investment uncertainty, raising interest rates on investments which may have higher exposure to risk. Additionally, insurance premiums on high risk investments raise the costs to firms seeking to protect themselves from possible harmful events. Because developed nations are the primary producers of capital intensive goods, the home of most multinational firms, and have high portfolio exposure in high risk nations, terrorist events can have disproportionately larger effects on the rental rates of capital in developed nations than wage rates in developing nations.

Level of Democratization

Weak institutions cause macroeconomic volatility, and macroeconomic volatility has been shown to reduce economic efficiency. (Kose, Prasad, and Torrones, 2004) Legal and political institutions which can adapt to strenuous circumstances help to diminish the negative economic impact or high risk factors. However, empirical work has shown that political rights and economic growth are not necessarily associated and, moreover, there exists a negative and insignificant correlation between democracy and growth.[9] Despite the data, democratic societies have the ability to manage catastrophic events because the range of policies is more restrictive than in autocracies, participation allows for a public voice without resorting to further violence, and in open societies groups have fewer incentives to engage in "non-cooperative and destructive behavior."[10] Frey and Luechinger (2004) find that political and economic

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[9] Tavares, Jose. "The open society assesses its enemies." Journal of Monetary Economics. Vol 51, 2004. 1045
[10] Tavares, Jose. "The open society assesses its enemies." Journal of Monetary Economics. Vol 51, 2004. 1045

decentralization results in distribution of power across public and private actors, encouraging rule of law through strong federalist institutions. Thus, open societies will be less vulnerable to terrorism because the decision-making process will involve market driven dialogue. In contrast to an authoritarian political and economic landscape, democracies allow public institutions to absorb much of the opportunity costs associated with response to terrorist events. Tavares' empirics show that "ethnic, linguistic, and religious diversity are, by contrast, more closely associated with terrorism incidents" and "countries that are primary goods exporters do not seem to suffer from increased vulnerability to attack."[11] The data shows that wealthy countries are more prone to attack; however, after controlling for personal income, the data suggests that democracies are not especially vulnerable to terrorist violence but do have lower output costs immediately after events occur.

Within the H-O model, labor intensive nations, those with primary goods exports and low levels of overall diversity, are less prone to attack yet observe higher output costs when terrorism occurs. Conversely, capital intensive countries, those with high levels of personal income and politically institutionalized federal structures, are more likely to be victims of terrorist violence yet absorb the economic burdens more seamlessly. Thus, in the two good, two factor, two country world, transnational terrorism can effect both trading partners. Less developed countries suffer disproportionately more from events because political and economic reactions are not spread across the public spaces and are not market driven. Much of the same rationale can be applied to response to natural disasters as well. Since LDCs are characteristically labor intensive, terrorist events will cause more economic turmoil for primary goods producers than capital goods producers.

Concluding Thoughts on Discussion

Terrorism causes unpredictable economic and political consequences, infuses the public with fear, and inhibits the free flow of capital, labor, and free market principles. By redirecting the composition of government spending, acting as a transaction cost, and disproportionately effecting less democratized countries, terrorist violence has strong ramifications on intra- and inter-industry trade.

[11] Tavares, Jose. "The open society assesses its enemies." Journal of Monetary Economics. Vol 51, 2004. 1051

Since most international trade occurs between industries, between nations with similar factor endowments, costs of terrorist violence will be disproportionately amplified in South-South trade. Because LDC governments have unpredictable response mechanisms, more volatile economic systems, and lower liquidity, exchange of goods and currency will be greatly hampered. Transaction, output, and transportation costs become exacerbated by higher inflation and devalued domestic currency. In addition, government spending crowds out the private sector in the short run and exacerbates indebtedness. Moreover, international firms and investors rebalance their portfolios in a manner biased towards countries with lower risk profiles and less macroeconomic instability.

For North-North trade, terrorism may discourage trade in the short run due to stringent border policies and investor uncertainty. However, after this period expires, infrastructure expansion, government spending, and political cooperation can motivate increased trade. Moreover, portfolio trade in stocks, bonds, and currency rebounds more quickly than consumer confidence due to the high volume of traded securities, confidence in government institutions, and sound market practices. Finally, the boose in defense spending in industrial countries is more likely to generate positive externalities in terms of technological innovation which over the longer term can serve as an impetus for growth.

4. Examples of Terrorist Incidents

Testing the practicality of the discussion above gives some credibility to the disproportionate impacts terrorism has on labor and capital intensive countries. Nitsch and Schumacher (2004) find that a doubling in the number of terrorist incidents is associated with a decrease in bilateral trade by 4%. Taken from a sample of 200 countries between 1960 and 1993, the data shows that while the raw number of events was higher in OECD countries, those countries had a statistically lower number of events per capita. In Israel, Eldor and Melnick (2004) find that while the financial market has not become desensitized to terrorist events despite daily occurrence, liberalization policies allow markets to reach equilibrium organically, without government mediation.[12]

Catastrophic events have different economic consequences than sustained terrorist occurrences. Bruck and Wickstrom (2004) show that the cost of 9/11 on the US economy, estimated by the OECD, was $14 billion for the private sector, $1.5 billion for state and local governments, and $11 billion for rescue and infrastructure operations. Despite these figures, the US economy was remarkably resilient. Cummins and Lewis (2003) examined stock-price trends post 9/11 and find that insurers with sound financial ratings rebounded substantially after only one week.[13] Contributing to the financial slowdown was the closure of the market after 9/11. Consumer confidence outpaced optimism of the investing population in October 2001, turning the economic fundamentals of the consumer sector in an uncharacteristically favorable direction.[14] Positive growth post 9/11 was augmented by strong policy action. The Fed reduced the federal funds rate, fiscal policy became expansionary, and the inflated dollar began to regain confidence. England's experience was much the same, although the subway bombings were less catastrophic. Oil prices dropped due to conjectures about decreased economic activity, sterling markets rebounded quickly, and the stock market showed no overall depression.[15]

5. Conclusion

As globalization integrates multinational firms, governments, and financial markets, events which spurn economic uncertainty have increasingly international consequences. Because of their disastrous social and political impacts, occurrences of transnational terrorism have serious implications on the performance of international market systems and the domestic economic environment. Immediate

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[12] Eldor, Rafi and Rafi Melnick. "Financial markets and terrorism." European Journal of Political Economy. Vol 20, 2004. p367.
[13] Cummins, J. David and Christopher M. Lewis. "Catastrophic events, parameter uncertainty, and the breakdown of implicit long term contracting; the case of terrorism insurance." The Journal of Risk and Uncertainty. Vol 26, 2003. p153.
[14] Klein, Lawrence R. and Suleyman Ozmucur. "Consumer Behavior Under the Influence of Terrorism in the United States." University of Toronto working paper. http://www.chass.utoronto.ca/link/200204/usconsumer.pdf.
[15] Gapper, John. "Business and Bombs." Financial Times. July 7, 2005. Online publication www.ft.com.

responses are felt in financial markets, commodity markets, and the effected industry sectors. Sustained reactions can be observed through economic policy responses, macroeconomic impacts, and investor confidence. As nations move towards more liberal economies and democratic political structures, institutions must foster the ability of the economy to adapt and respond to terrorist events. In order to do so appropriately policy makers need a more complete understanding of the deleterious effects of terrorism given the specific demographic, industrial and institutional characteristics of their economies.

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