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GEOPOLITICAL CONFLICT AND ECONOMIC SPILLOVERS: SIMULATING THE IMPACT OF A MIDDLE EAST WAR ON BANGLADESH

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Geopolitical Conflict and Economic Spillovers: Simulating the Impact of a Middle East War on Bangladesh

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March 2026

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Publication: March 2026

The study is funded by the Australian High Commission, Dhaka. The views and observations presented in this policy paper are those of the author and do not necessarily reflect the views of the Australian High Commission. The author is fully responsible for any errors/views/opinions contained in this research.

Suggested Citation

Raihan, S. (2026). *Geopolitical Conflict and Economic Spillovers: Simulating the Impact of a Middle East War on Bangladesh.* SANEM & Australian High Commission Policy Paper Series. SANEM Publications, Dhaka, Bangladesh.

Published by

South Asian Network on Economic Modeling (SANEM)
Flat K-5, House 1/B, Road 35, Gulshan 2, Dhaka 1212, Bangladesh
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Abstract

Geopolitical tensions in the Middle East have traditionally had implications that go far beyond the direct combat zone. The economic fallout of a protracted war in the region could be particularly consequential for Bangladesh. The country is highly reliant on energy imports, has deep trade relationships with global markets, and receives large remittance inflows from migrant workers working in the Gulf economies. And so any disruption affecting energy supply routes, maritime trade corridors, or economic activity in host countries can in turn spread quickly through Bangladesh's economy.

Using the Global Trade Analysis Project (GTAP) computable general equilibrium model, this policy paper analyzes these risks. Various simulation scenarios have been developed to encompass the key channels via which a long-standing Middle East conflict may impact Bangladesh. They include sharp rises in global oil and liquefied natural gas prices, rising international freight costs arising from disruptions to maritime routes, and a potential drop-off in remittance inflows by Bangladeshi workers in the Gulf region. This analysis then follows the narrative of energy cost, trade logistics, and household income changes through production networks, trade flows, and macroeconomic indicators by embedding these shocks into the GTAP framework.

The simulation results indicate that Bangladesh would experience a spell of moderate to significant economic stress under such a scenario. Higher energy prices increase production costs in many sectors and fuel inflation. Trade disruptions weaken export performance, particularly in industries closely tied to global supply chains such as readymade garments. A decline in remittance inflows would reduce household consumption and increase external balance pressures at the same time. When these shocks hit at the same time, the model predicts a short to medium term GDP drop of 1.2 to 3 percent, accompanied by downward pressure on real wages and slower growth in export sectors.

The sectoral results show uneven effects across the economy. Energy-intensive manufacturing industries face substantial cost pressure, while export-oriented sectors encounter both demand contraction and higher logistics costs. The same is the case with transport and logistics services, which are significantly impacted by rising fuel costs and falling trade volumes. Even those sectors that are relatively more domestically oriented, like agriculture, feel indirect effects through increased input prices and weakened domestic demand.

The findings underscore the wider challenge of economic resilience in an increasingly uncertain global environment. Bangladesh's development model has derived significant benefits from its integration with global markets, but this same integration renders the economy increasingly vulnerable to external shocks emanating from important geopolitical theatres. Increasing resilience involves policy measures from multiple areas: diversification of energy sources, strengthening trade logistics infrastructure base, wider networks of export diversification, and balanced migration strategies for overseas employment.

Although the simulations are not forecasts of precise outcomes, they offer important guidance on potential magnitude and pathways through which economic impact might

unfold. The analysis underscores the importance of preparing for external shocks that arise from geopolitical instability, particularly those affecting global energy and trade systems. In doing so, the paper contributes to ongoing policy discussions on how Bangladesh can sustain growth while managing the vulnerabilities associated with an increasingly interconnected global economy.

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1. Introduction

A prolonged war in the Middle East could have cascading economic effects throughout the global economy. The effects could be particularly pronounced for Bangladesh. The country is deeply intertwined with global trade networks, heavily reliant on imported energy, and closely linked to labour markets in the Gulf region. When geopolitical tensions intensify in the Middle East, the consequences rarely stay confined to that region alone. Some spread through energy markets, financial flows, shipping routes, and labour migration channels. Many of those transmission mechanisms have Bangladesh on the receiving end.

The Middle East occupies a singularly strategic place in the global economic system. It is still the epicenter of global oil and gas supplies and a crucial node in international shipping trade. So much of global energy trade passes through narrow chokepoints like the Strait of Hormuz and adjacent sea lanes. Any disruption there, even if temporary, tends to set off sharp ripples in global energy markets. Oil prices rise quickly. Shipping insurance premiums climb. Freight costs escalate. These developments then ripple through supply chains, impacting production costs and consumer prices long after the immediate conflict zone.

Such shocks can be especially costly for energy-importing economies. That places Bangladesh firmly in that category. There is limited domestic energy production, and the country depends on imported fuel to power its power plants, transportation system, and industry sectors. Imports of oil are still vital for transportation and electricity generation, while liquefied natural gas has taken on a greater role in meeting growing power demand. Many sectors of the economy are affected when global fuel prices spike. Production costs rise, fiscal squeezes tighten through higher subsidy burdens, and inflationary pressures accelerate quickly.

Recent geopolitical tensions in the region have already shown how swiftly these pressures can materialize. Sporadic conflicts and uncertainties had earlier pushed global energy prices upward and ramped up the market volatility for LNG. In Bangladesh's case, this has resulted in spot LNG imports at much higher prices than it paid prior. The difference in cost is not marginal. Prices have, in some cases, doubled over a relatively brief period. For an economy where energy imports already reflect a significant share of the import bill, these changes put immediate pressure on the balance of payments.

The dangers go far beyond energy markets. Maritime trade links between the Middle East, Asia, and Europe are among the busiest in the world. A prolonged war could impair these routes either directly or indirectly by raising security risks, insurance costs, and logistical cessations. Shipping companies might change shipping routes or request higher freight rates to offset increased uncertainty. As a consequence, transporting goods becomes more expensive. For Bangladesh's export-oriented economy, which depends on global supply chains, such increases could undermine competitiveness and push deliveries to important markets further behind schedule.

Labour migration and remittance flows represent another key channel of vulnerability. Millions of Bangladeshi workers are scattered across Gulf economies, working mainly in construction, services, and domestic work. These migrant workers are a lifeline for

household income and the external balance of Bangladesh through remittances. Any slowdown of economic activities in host countries due to conflict and regional instability could weaken labour demand and shrink remittance inflows. The impact on domestic consumption, poverty alleviation, and macroeconomic stability could be substantial.

These various transmission channels suggest that a protracted Middle East conflict wouldn't be just another faraway geopolitical event for Bangladesh. It would turn into a macroeconomic shock with tangible implications for growth, inflation, external balances, and sectoral performance. But the scale and spread of these effects are not always easy to predict. Energy shocks interact in complex ways with trade disruptions, financial pressures, and labour market dynamics.

This makes analytical tools that can take economy-wide interactions into account essential. One such framework is computable general equilibrium models. By capturing how shocks spill over through production systems, trade flows, and factor markets, they provide systematic frameworks for assessing possible economic consequences.

We utilize the Global Trade Analysis Project (GTAP) model to simulate the economic implications of a prolonged Middle East conflict for Bangladesh in this study. The scenarios feature shocks to energy prices, international transport costs, and remittance flows. This model captures not just the immediate effects of such shocks, but also how they percolate through production networks, trade relationships, and factor markets. to deliver insight into the scale of economic effect(s), and their sectoral/macro distribution. The simulations do not try to predict exact outcomes, but they provide a framework for predicting the vulnerabilities that could emerge and how countries could adapt to such geopolitical disruptions.

This analysis helps provide policymakers with information regarding economic resilience by taking into consideration these potential impacts. In a world where geopolitical risks are becoming more frequent and interconnected, understanding these vulnerabilities has become increasingly important for countries like Bangladesh that depend heavily on global markets and external resources.

2. Analytical Framework: The GTAP Model

The GTAP model, acronym for the Global Trade Analysis Project, has emerged as one of the most popular analytical tools used to investigate global trade and policy shocks. It is a multi-region, multi-sector computable general equilibrium model used to understand how economies are linked by production systems, consumption patterns and international trade flows. By pooling together these seemingly disparate actors and dynamics under a common analytical framework, the model enables researchers to explore how shocks in one part of the global economy propagate through multiple markets and countries. That's especially useful amid geopolitical disruptions like a protracted conflict in the Middle East. It lets us follow not just the direct effects of energy price changes or trade shocks, but also measure any indirect adjustments that happen through production costs or trade competitiveness and factor markets.

One of the advantages of the GTAP Model is its rich account of global production structures. In an economy, each sector converts intermediate inputs and primary factors into output. In general, they consist of capital, skilled labour, unskilled labour, land and natural resources. These are the combinations firms choose, subject to relative prices and limiting technology. Firms respond to shocks like a rise in energy prices or transport costs by modifying their production decisions. Higher input costs can reduce output or change the production mix towards less energy-intensive sectors of the economy. These changes will then ripple through supply chains and into other sectors that use those industries as intermediate inputs.

Trade patterns are captured in a so-called Armington assumption, which is a central part of the GTAP framework. This involves recognizing that goods produced in different countries are not perfect substitutes for one another. Imports, instead, are differentiated by country of origin. Consumers and firms then make choices between domestic goods and imported goods based on relative prices and substitution possibilities. This is especially vital to examine trade shocks, as it recognizes that exporters compete in differentiated markets rather than perfectly integrated global ones. The model reflects the fact that when transportation costs rise or trade barriers are created, buyers will shift demand towards other suppliers, but not every single consumer suddenly becomes indifferent to specific sources.

A second critical aspect of the model has to do with how factor markets work. Labour and capital are reallocated between sectors, in response to changes in wages and returns to capital. If one specific sector has falling demand, due to increased costs or declining exports, that this then leads to a drop in demand for labour and capital within that sector. Over time, those factors drift toward sectors where returns are still relatively higher. This allows the model to capture internal adjustments within economies in the face of external shocks. While such adjustments may alleviate some of the adverse effects, they also generate transitional tension in labour markets, especially in sectors highly exposed to international trade.

The GTAP framework also imposes macro consistency in that it is subject to balance of payments constraints. Changes in exports and imports must ultimately be reflected by a change in the balance of trade and relative prices. If import costs rise because fuel prices or freight charges go up, the model describes how exchange rates and domestic prices

adjust to restore equilibrium in external accounts. These mechanisms are particularly relevant in the case of economies like Bangladesh that depend heavily on imported energy and intermediate goods but also need their export earnings to pay for those imports.

Due to their incorporation of these production, trade and macroeconomic linkages in a single system, the resulting model is well-suited for examining economy-wide impacts of global shocks. War in the Middle East, for example, does not merely push up fuel prices. It changes transport costs, shifts demand patterns in global markets and influences forces such as remittances. These diverse channels can be incorporated into simulation scenarios through the GTAP framework, enabling researchers to study how different sectors and macroeconomic indicators respond at once.

The GTAP database serves as an empirical backbone for the model, containing detailed information on global production and consumption, bilateral trade flows and protection measures. The database is based on national input-output tables, trade statistics and macroeconomic accounts to ensure that the model is consistent with the input structure of the world economy. After being calibrated to this database, the model can be used for simulating hypothetical policy changes or external shocks. Through the dynamics of adjusting production, trade volumes, returns to factors, and welfare in the economy induced by changes in prices (such as commodity prices), trade costs or income flows are introduced into the model. In this exercise, we use the latest GTAP database, version 12

3. Simulation Scenarios

To understand how a prolonged Middle East conflict might affect Bangladesh's economy, it is necessary to translate geopolitical developments into concrete economic shocks that can be analyzed within the GTAP framework. Wars rarely affect economies through a single channel. Instead, they trigger a chain reaction across energy markets, global logistics networks, financial flows, and labour migration. For Bangladesh, these transmission channels are particularly relevant because the country depends heavily on imported fuel, external markets for its exports, and remittance inflows from migrant workers in the Gulf region.

With this in mind, three simulation scenarios are constructed. Each scenario represents a plausible pathway through which a prolonged conflict in the Middle East could influence Bangladesh's economic performance. The first scenario isolates the energy price channel. The second focuses on disruptions to trade and shipping. The third combines several shocks simultaneously to approximate a more severe and realistic macroeconomic stress environment. Table 1 summarizes the scenarios.

Table 1: Scenarios in the GTAP model

Scenarios	Description
Scenario 1: Energy Price Shock	• Global crude oil price increases by 40 percent • LNG prices increase by 50 percent • Transport fuel costs rise globally
Scenario 2: Trade and Shipping Disruption	• International freight costs increase by 25 percent • Export demand from the EU and the US declines by 5 percent
Scenario 3: Combined Macroeconomic Shock	• Energy price shock • Shipping disruption • Remittance inflows from the Middle East decline by 10 percent

The first scenario looks at the implications of a spike in global energy costs catalyzed by upheaval in the Middle East. Energy markets usually respond rapidly to geopolitical tensions in the region, in part because a large share of the world's oil and gas supply comes from there. If the conflict is disruptive enough to inhibit production, transport routes, or market expectations, the price of oil can spike sharply in a brief period. In this simulation, the model assumes that global crude oil prices will rise by around forty percent. Simultaneously, liquefied natural gas increases by 40 percent. These assumptions capture the reality that LNG markets are even more volatile than oil markets during supply uncertainty. Higher fuel prices would also increase transportation costs globally, because shipping, aviation, and road transport all rely heavily on petroleum products. Within the framework of the model, these changes are modeled as increases in import prices for energy commodities and transport inputs. The goal is to track how more expensive energy has a pass-through effect on production costs, the price of electricity generation, and, ultimately, consumer prices throughout the economy.

The second scenario centres on disruptions to global trade and shipping networks. Wars in or near the Middle East can have an impact on maritime routes linking Asia, Europe, and Africa. Even when shipping lanes are still technically open, security risks and insurance costs can rise sharply. Shipping companies might reroute vessels, postpone

shipments, or increase freight rates to offset the extra uncertainty. These developments can prove to be significant consequences for export-oriented economies such as Bangladesh. In this scenario, international freight costs would begin to rise by approximately 25 percent. This increase in cost is reflective of increased fuel costs and added insurance premiums for operating within high-risk maritime zones. Simultaneously, export demand from other big markets, especially the EU and the USA, is anticipated to reduce by five percent. This decline reflects the potential that global economic uncertainty and rising logistics costs would suppress consumer demand at important export destinations. In the GTAP framework, these shifts are captured by rising trade costs and falling external demand for Bangladeshi exports.

The third scenario adds many shocks all at once to reflect a more comprehensive macroeconomic stress environment. Geopolitical conflicts rarely manifest in only one part of the global economic system. Energy prices increase, transport and logistical routes become costlier, and economic conditions in host migrant countries could deteriorate. Energy is not the only thing the Gulf region provides, as it is also a major destination for migrant labour, especially from Bangladesh. An extended conflict could reduce economic activity in host countries, especially the construction and services sectors that employ many migrant workers. Consequently, remittance inflows to Bangladesh may decrease. Such remittances from the Middle East are expected to decline by 10 percent under this scenario. When taken along with higher energy prices and trade shocks, this shock gives a slightly more complete insight into the potential pressures upon the Bangladeshi economy.

In the GTAP model, we implement these shocks by altering key economic variables that influence prices, trade flows, and households' income. Rising energy prices show up as higher import costs for fuel-related sectors. Increasing freight costs are passed on as higher trade margins, which essentially increase the price for moving goods between borders. The falling remittances weaken household incomes and have an impact on patterns of domestic consumption. It does so by simulating these changes at the same time in all sectors and regions, generating estimates of how production, trade, and macroeconomic indicators react to those external shocks.

Combined, these three scenarios offer a framework to assess Bangladesh’s economic vulnerability to geopolitical volatility in the Middle East. Scenario one identifies the vulnerability of energy dependence. The second shows how global trade logistics are vital to remain competitive in exporting. The third integrates these channels along with the role of remittance flows for domestic demand assistance. These simulations do not claim to forecast the exact scale of future shocks, but suggest how various sectors of the Bangladeshi economy may cope if a certain level of such violence were sustained for an extended time.

4. Simulation Results

Macroeconomic Impacts

One of the most noticeable effects of those simulations was a decrease in GDP (Table 2). Alone, the energy price shock is now enough to drive national output down by roughly 1.2 percent. This contraction mirrors how central energy is to production and transportation throughout the economy. High fuel prices set off a chain reaction across industries, pushing production costs higher. Electricity production becomes more costly, manufacturers see their profit margins squeezed, and transport services experience higher operating expenses. Firms respond in different ways. Some reduce output. Others transfer higher costs to consumers by raising prices. Either way, economic activity declines. In this sense, the current fall in GDP results not from a single sector but reflects a general adjustment over the whole production system.

Table 2: Macroeconomic Impacts on Bangladesh

Indicator	Scenario 1	Scenario 2	Scenario 3
GDP (%)	-1.2	-1.4	-2.9
Exports (%)	-2.0	-3.4	-5.8
Imports (%)	-1.5	-2.2	-4.0
Consumer prices (%)	+3.8	+3.5	+6.1
Real wages (%)	-1.0	-0.8	-2.2

Source: GTAP simulation

The effects look somewhat higher in the trade-and-shipping-disruption scenario. In that scenario, GDP shrinks by about 1.4 percent. This number conceals significant structural changes. Bangladesh's export sectors are very sensitive to transport costs and delivery reliability. When shipping costs rise and logistics are increasingly complicated, exporters operate with tighter margins and longer lead times. Export orders will also likely switch to other suppliers, especially in sectors like garments, where delivery timing is vital. When exports also shrink, the related backward linkages, such as textiles, logistics, and supporting services, are coming down. The economy, therefore, experiences a slowdown that spreads gradually through multiple layers of the production network.

The combined shock scenario produces the largest effect, including a roughly 3 percent decline in GDP. This result is not surprising. The effects reinforce each other when multiple external pressures come at the same time. Higher fuel prices raise production costs. Trade disruptions weaken export demand. At the same time, declining remittance inflows lower household income and consumption. These forces work together, impacting the supply and demand sides of the economy. This is because rising costs and a weakening market mean firms cut back production. Households struggle with lower purchasing power and tighten their belts. The interaction between these changes generates a deeper slowdown than any of the shocks would create on their own.

Export performance also stands out as a concern in the simulations. In the energy price shock scenario, exports would decline by about 2 percent. In such industries where margins are already thin, higher production costs can make Bangladeshi goods a little less competitive in international markets. This decline gets even larger when introducing trade disruptions. In the shipping disruption scenario, exports would shrink by about 3.4 percent. Freight costs and the uncertainty of logistics are significant here. An increase in

transport costs raises the effective price of exported goods, thus reducing demand in destination markets. Exporters could also experience delays that will affect their reliability in global supply chains.

In the combined scenario, however, that pressure is multiplied. Exports drop by nearly 6 percent, a sign of the cumulative effect of rising costs, reduced demand, and shipping disruptions. Since the country has little impact on its international trade, such a contraction will be confined to sectors that are heavily dependent on world markets, such as the readymade garment industry and other manufacturing activities related to garments. As these sectors employ a large number of workers and contribute the most to export earnings, the wider implications for employment and foreign exchange earnings may be significant.

Import patterns also shift in response to these shocks. And in all three scenarios, imports fall - although the mechanisms behind that differ slightly. In the case of the energy price shock, imports decline by around 1.5 percent. This decline partly reflects a contraction in domestic economic activity, which reduces demand for imported intermediate and consumer goods. It also encompasses substitution effects, as firms and households try to cut back on consumption of pricier imported inputs. In the trade disruption scenario, imports fall further in response to higher shipping costs, which hampers trade flows. The combined scenario yields the greatest reduction, with imports dropping approximately 4 percent. Therefore, while imports on the decline may seem good for the trade balance on the surface, it often points to weaker domestic demand and lower investment activity.

A clear result of the simulations is inflationary pressure. In every scenario, consumer prices are higher, but the magnitude differs. Both the energy price shock and trade-and-shipping-disruption scenario produce large inflationary impacts, with consumer prices climbing between 3.5 and 3.8 percent. That is in line with the dominant role of fuel and transport costs in the economy. When energy prices go up, cost increases pass through supply chains until they hit retail prices. Goods that rely heavily on transportation or energy-intensive production processes become more expensive, and households feel the impact through higher living costs.

The combined scenario increases those pressures further, pushing consumer prices up by more than 6 percent. This reflects the interplay of cost-push inflation and supply disruptions. More expensive production translates into prices, and logistical constraints limit the supply of some goods. Collectively, they exert a greater upward push on the overall price level. For households with inflexible or slowly adjusting incomes, this kind of inflation diminishes purchasing power and leads to broader welfare losses.

For all scenarios, real wages are falling - and thus workers lose purchasing power. Even if nominal wages are largely unchanged, increasing consumer prices depress the real value of revenue. The real wage drops by about 1 percent in the energy shock scenario. The decrease is less pronounced in the trade disruption scenario but remains significant. Under the combined scenario, real wages fall by more than 2 percent. This drop is a symptom of both reduced labour demand in the export-oriented sectors and the depreciation of real incomes linked to inflation.

Together, these results illustrate how external geopolitical shocks can propagate through multiple layers of the economy. Bangladesh's economic structure is heavily interwoven with energy markets, global trade logistics, and remittance flows. Dislocations in these areas don't just impact individual sectors; they also affect the wider macroeconomic landscape. Therefore, the simulations show not just the immediate effects of a conflict in the Middle East, but also some indirect economic adjustments that might follow, as firms and householders, and markets in general, respond to a world that's changing.

Sectoral Impacts

The sectoral outcomes highlight the highly uneven nature in which the economic impacts of an extended Middle East conflict could transmit through Bangladesh's production structure (Table 3). Macroeconomic indicators, like GDP or exports, paint a helpful picture, but often mask important changes happening within the industries themselves. Some sectors are directly impacted by cost shock, others through contracting demand, and a few through linkages in the supply chain. The simulation results indicate that industries most directly dependent on global trade, energy use, and transport systems are stuck with the largest share of adjustment burden.

Table 3: Sectoral Output Changes (%)

Sector	Scenario 1	Scenario 2	Scenario 3
RMG	-1.5	-3.0	-4.5
Transport	-2.8	-3.2	-5.1
Agriculture	-0.7	-0.9	-1.5
Energy-intensive manufacturing	-2.5	-1.8	-4.0

Source: GTAP simulation

The readymade garment sector stands out as one of the most vulnerable sectors in both of the simulations. In the energy price shock scenario, sector output falls by around 1.5 percent. At first glance, that might seem relatively moderate, but the process by which it is going down matters. Imported raw materials, electricity, and transport services play a large part in garment production. Higher energy prices make generating electricity more costly and operating factories pricier, too. Those extra costs only squeeze already tight profit margins in an industry where overseas buyers apply heavy price pressure. In consequence, some producers cut output while others struggle to remain competitive in global markets.

The pressure grows under the shipping disruption scenario. In this case, the output of garments declines by about 3 percent. The decline indicates the sector's deep reliance on global supply chains. The garment industry's production and delivery process in Bangladesh is tightly scheduled. European and North American buyers demand dependable lead times, and even minor logistical delays can affect sourcing decisions. When it is more expensive to ship freight and less predictable where goods are shipped, the effective price of exporting garments increases. In response, buyers may diversify orders between rival suppliers in countries like Vietnam, India, or Turkey. The model embodies this change through net export demand, which feeds into reduced production in the sector.

When the shocks are combined, contraction is even stronger. In this third scenario, however, garment output declines by about 4.5 percent. This broader decline is a more

nuanced reflection of the interplay between higher production costs, slackening global demand, and uncertainty about logistics. The consequences go further than the garment factories themselves. The sector employs millions and accounts for the bulk of Bangladesh's export earnings. A sustained contraction could thus have wider consequences for jobs, household income, and foreign exchange reserves.

Transport and logistics services rank among the hardest-hit sectors in the simulations. In the energy price shock scenario, output in this sector contracts by nearly 2.8 percent, while further inclusion of shipping disruptions leads to a contraction of over 3 percent. Fuel prices can have profound impacts on the transport sector in particular. Higher oil prices raise the operating costs of trucks, boats, and other transport infrastructure. As freight prices increase, either transport companies will pass these all the way to client bases, or they will cut activity as quantities of trade decrease. Maritime route disruptions can also delay the movement of cargo and reduce the overall volume of cargo being shipped.

The combined scenario produces the greatest contraction in transport by over a 5 percent drop in output. This result reflects the sector's importance in connecting production and trade activities. When manufacturing production falls, and international trade slows, the demand for logistics services also drops at the same time. As a result, the industry feels the compounded impact of rising fuel prices and diminished economic activity throughout the wider economy.

Agriculture is relatively less affected than other sectors, but even in this sector, simulations predict a noticeable decrease in output. In the energy shock scenario, output in agriculture declines by some 0.7 percent. The sector is less directly vulnerable to disruptions in international trade than manufacturing, but it remains sensitive to energy and input prices. It sustains irrigation, mechanized agriculture, and the transport of agricultural goods. When energy prices climb, farmers' production costs increase, which may discourage output or depress profitability.

When these factors are combined, the reduction in agricultural output would be about 1.5 percent. While this is a shallower contraction than what has been witnessed in export-oriented sectors, the intermediate-sectoral contraction is nonetheless notable given the role of the sector in providing rural livelihoods and food. Rising transportation costs also impact the flow of agricultural products from rural areas to urban marketplaces, putting an additional squeeze on producers.

Output in energy-intensive manufacturing sectors (such as cement, chemicals, and metal processing) also declines significantly. These industries depend on imported fuel and electricity to run machinery and production lines. Production costs increase immediately when energy prices soar. Output in these sectors drops by about 2.5 percent in the energy price shock scenario in our simulations. The sector contracts even if we only consider the disruptions to trade, due to a reliance on imported inputs and energy.

The combined shock scenario results in a decrease of roughly 4 percent in energy-intensive manufacturing. This reflects the cumulative impact of rising fuel prices, higher transport costs, and lower demand from downstream industries like construction and manufacturing. Because those sectors are frequently associated with infrastructure and

industrial investment, extended disruptions could also impact longer-term economic growth.

The sectoral takeaways together note the unevenness of economic adjustments following external shocks. Export-oriented sectors, transport services, and energy-intensive manufacturing take the heaviest hit, because they are directly exposed to world markets and fuel prices. Agriculture and domestic sectors have more moderate declines but are indirectly affected by rising input costs and weaker domestic demand. The bigger picture that emerges is one of interconnected pressures, in which shocks originating in global energy markets and shipping routes slowly ripple out through Bangladesh's production network.

5. Policy Implications

The simulation findings emphasize an unpleasant truth. Bangladesh's economic structure is still closely linked to global developments, most of which are beyond the country's control. Energy markets, shipping routes, and labour migration networks are all fundamental to the country's development model. When there are disruptions in any one of these areas, the impacts spread fast through production systems, trade flows, and household incomes. Hence, these findings underscore the need to strengthen economic resilience at all times, rather than predicting or avoiding external shocks on an uncertain horizon.

One unavoidable takeaway is the country's reliance on energy from abroad. Bangladesh imports the vast majority of its crude oil and a growing share of its natural gas as LNG. This dependence makes the economy vulnerable to sharp price swings whenever geopolitical tensions impact the supply of energy in the global economy. Rising fuel prices reverberate through electricity generation, transport costs, and industrial production. These pressures eventually feed into inflation and undermine economic competitiveness. Substantial campaigns will be necessary to achieve a reduction in this vulnerability towards the diversification of energy sources. Deploying more renewable energy capacity, especially solar and wind power, can insulate the economy from foreign price shocks. Diversifying LNG supply arrangements over many countries at the same time is likely to lower the risks of disruptions concentrated in a region.

This challenge is closely related to the question of strategic energy security. Several large energy-importing economies hold petroleum reserves that enable them to weather temporary supply interruptions without directly transmitting increased costs to their domestic consumers. Bangladesh's strategic reserves are still relatively small, given its growing energy needs. Building up these reserves would give a helpful buffer in times of geopolitical instability. These sorts of investments entail high front-loaded costs, but they serve as a form of insurance against sudden supply disruptions or price shocks that can cause instability at the macroeconomic scale.

The simulations also highlight the imperative for raising the resilience of Bangladesh's trade logistics system. Global supply chains have become increasingly sensitive to disruptions in major maritime routes. Conflicts near important shipping routes can increase freight rates, slow down cargo movement, and create uncertainty for exporters. Reliable transport links to European and North American markets are vital for the export industries of Bangladesh. By increasing port efficiency, growing its container-handling capacity, and solidifying shipping partnerships with leading logistics providers worldwide, the U.S. may mitigate some of that exposure to new international trade route disruptions. Expensive investments in modern port infrastructure and digital logistics systems may not be able to erase global shocks, but they can make the country's export sector more resilient when disruptions take place.

Export diversification is another area that needs to be looked into. The country's export composition is still heavily skewed towards the readymade garment sector. This specialization has delivered tremendous economic rewards over the past 30 years, but also made the economy vulnerable to sector-specific risks. Because global demand or supply chains in the apparel industry are affected by external shocks, the consequences

can ripple throughout most of the economy. Increased diversification of the export base could lessen this exposure. A more balanced export structure will not happen overnight, but the types of sectors that should be tapped into gradually include pharmaceuticals, leather goods, agro processing, and information technology services. Such diversification would not replace the garment industry, but it could provide additional sources of growth and foreign exchange earnings.

Another important dimension of economic resilience comes through remittance flows. Over the past four decades, migrant workers in the Middle East have contributed greatly to Bangladesh's external balance and household consumption. But this focus on one area also poses its own risks. Host countries experiencing economic disruptions - whether due to conflict or a slowdown in construction activity - can have an immediate ripple effect on employment opportunities for migrant workers. A more varied migration strategy may thus be required. The widening of labour agreements with countries in East Asia, Southeast Asia, and parts of Europe would eventually widen the geographical scope of overseas employment. Simultaneously, better skills training for migrant workers would allow them to take better-paying jobs abroad, with remittance flows becoming more stable and resilient as a result.

Last but not least, the macro policy challenge is to secure greater flexibility. External shocks of the sort exercised in this analysis typically arrive suddenly and transmit across multiple sectors simultaneously. Governments thus require policy frameworks that permit timely responses. The need to build appealing foreign exchange reserves and manage inflation pressures also comes into play during such global uncertainties, as does the availability of fiscal space for targeted support measures. In this sense, economic resilience is not achieved after a single policy response but rather through a set of structural reforms, strategic investments, and sound macroeconomic policies.

When considered together, these policy directions suggest that preparing for a far-off shock requires looking beyond only the next crisis. A full explanation of the vulnerabilities revealed by the simulations lies in structural features of Bangladesh's economy overall, including energy dependence, export concentration, and reliance on certain migration corridors. It will take time for these challenges to be addressed. But incremental changes in these respects could greatly reinforce the country's capacity to mitigate global disruptions down the road, including geopolitical conflicts well beyond its borders.

6. Conclusion

A prolonged conflict in the Middle East would not remain a distant geopolitical event for Bangladesh. The analysis in this paper suggests that its economic consequences could travel quickly through several interconnected channels. Energy prices would likely rise first, increasing production costs across industries and placing immediate pressure on inflation. Trade disruptions could be next, as maritime routes grow more uncertain and freight costs increase. At the same time, migrant workers send more remittances back home from the Gulf economies, which may drop if economic activity in their host countries slows down. Each of these mechanisms alone could create significant economic pressure. Together, they each reinforce one another and compound the overall effect.

The GTAP simulations presented in this paper provide an analytical framework through which to better understand these potential pressures. The findings suggest that Bangladesh's economy could face a tangible economic slowdown if the fighting drags on over the long term. The economy could shrink by about two to three percent in the short to medium term, with export performance declining and consumer prices on the rise. These adjustments are not just the numerical estimates of a model. These point to wider structural vulnerabilities within the economy, especially a reliance on imported energy, exports concentrated largely in only a few industries, and remittance inflows, which are important for both domestic consumption as well as external balances.

At the sectoral level, the effects seem uneven but interrelated. Export-oriented sectors like readymade garments are experiencing shrinking demand and growing logistics costs. High production costs persist in energy-intensive manufacturing sectors. Trade flows weaken, leading to a slowdown in transport and logistics services. Even agriculture, which at least intuitively looks relatively insulated from global shocks, suffers indirectly via more expensive inputs and weaker economic growth. The model thus shows how an external geopolitical shock spreads gradually through a wide range of economic activities.

These findings also reveal a wider lesson about economic resilience in an environment that is still growing more uncertain around the globe. Bangladesh's growth story over the last few decades has been inextricably linked to global markets. Export-oriented manufacturing, labour migration, and access to international energy resources have all been integral parts of the country's developmental pathway. But these same linkages also make the economy vulnerable to external shocks that originate well outside its borders. When political tensions arise in regions so much a part of the global energy and trade networks as these, Bangladesh cannot remain insulated.

For this reason, the policy debate should not be limited to the immediate effects of a particular conflict. Instead, it needs to be considered how the economy might adjust to a world where such disruptions are likely to be more common. Incorporating this broader strategy, including strengthening domestic energy security, expanding the variety of export sectors, and optimizing trade logistics. At least as important, though, is the need to preserve macroeconomic flexibility so that when external shocks do appear, policymakers can respond elastically.

In the end, no country can completely insulate itself from global instability. Bangladesh will remain integrated with international markets, and that integration will continue to

bring both opportunities and risks. What matters is the ability to manage those risks effectively. The implications of this analysis are mixed: an extended Middle East war would likely incur high economic costs, but proactive policy choices and structural adjustments might help ameliorate the impact. This is a critical task to build the kind of resilience necessary to sustain Bangladesh's growth momentum in an increasingly unpredictable global economy.

The South Asian Network on Economic Modeling (SANEM), established in 2007, is a Dhaka-based non-profit research organization. Over the past nearly two decades, it has grown into an international platform for economists, researchers, policymakers, and institutions committed to promoting high-quality, evidence-based economic analysis and informed policy advocacy in Bangladesh, South Asia, and beyond. SANEM conducts both quantitative and qualitative research on a broad range of development issues, including macroeconomics, international trade, poverty, inequality, labor markets, climate change, political economy, renewable energy, human capital, agriculture, social protection, and sustainability, and translates its findings into policy briefs, technical papers, and public discussions aimed at supporting effective decision-making. Through collaborative projects, training programs, conferences, publications, and initiatives for young economists, SANEM plays a key role in strengthening research capacity, fostering policy engagement, and contributing to inclusive and sustainable economic development in the region.