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Do Crisis Response Operations Affect Political and Economic Stability?

Berta M. Heybey • Lisa C. Bush

4825 Mark Center Drive • Alexandria, Virginia 22311-1850

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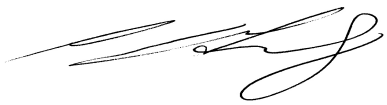

Dr. E.D. McGrady
Director, Evolvoing Security Operations
Operations Evaluation Group

This document represents the best opinion of CNA at the time of issue.
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Contents

Summary

Proponents of US military operations abroad often argue that maintaining visibility around the world helps promote global stability.[1] In turn, stability provides an environment conducive to increased economic growth and development by encouraging trade and investment. However, whether or not military presence itself actually affects overall levels of political and economic stability is still an open question.

We look at the following two questions:

- Do different regions of the world react in different ways to military crisis response operations?
- Do countries at different levels of economic development react in different ways to military crisis response operations?

It is important to note that, in this study, we look only at crisis response operations, not at "military presence." The term "presence" can incorporate many different types of military activities, from port visits to full-scale operations, depending on the particular definition applied. These varied definitions of "presence" further complicate attempts to understand the relationship between military actions and political and economic stability. In this paper, we focus only on the crisis response piece of the overseas presence issue.[2]

We use a combination of case studies and cross-country regression analysis to examine the questions listed above. We extend the previous analysis in several ways:

1. See [1] and its extensive bibliography.
2. All other terms used—such as "involvement" or "intervention"—also refer to crisis response operations only.

- We analyze effects by geographic region (Africa and the Middle East), level of economic development in the affected countries (low and middle income), and length of operation (short and long)[3].
- We look at economic stability along with political stability.
- We use data from the entire world, not just from countries where the US Navy and/or US Marine Corps have been involved in crisis response operations.[4]

Findings

We find the following:

- Short operations tend to affect political stability scores for several months after the completion of the operation, showing that short operations can have long-term effects on political stability. Short operations do not appear to have an impact on economic stability.
- Long operations tend to affect both political and economic stability scores over the long term. The magnitude of this effect is difficult to determine, for two reasons. First, we measure the *change* in stability scores, not the *level* of the score: An operation continuing for many years may not affect month-to-month scores during the course of the operation. Second, because there are few long operations, outliers may have large effects on the results.

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3. "Short" operations last one to three months. "Long" operations last four or more months. The Data section explains why we chose this break point.
4. While we would like to analyze the effects of two cases—one case where the US intervened and one where it did not— it is not possible to test such hypotheticals. However, by using data from the entire world we had some "control" countries—-countries where there were crises in which the US did not intervene — along with those countries where the US did intervene. (We should think of these "control" countries as a set of "non-Navy, non-Marine Corps involvement" rather than non-US military involvement, as the Army and Air Force may have conducted operations in these countries. Further research is needed to look at the effects of operations across all services.)

- Crisis response operations affect African countries substantially more than Middle Eastern countries. This result may be due more to the types of operations the US military has undertaken in Africa, than to anything particular about that geographic region. Short operations in Africa, for example, tend to be those where the US assists with refugees or natural disaster response, whereas short operations in the Middle East tend to be part of a larger conflict.
- Crisis response operations affect low-income countries substantially more than middle-income countries. Low-income countries may be more likely to react strongly to the introduction of foreign military forces. An injection of highly trained and well-equipped forces into a country with very few resources of its own may have more of an effect than those same foreign forces in a country that is at a higher level of development and has more resources.

Note that in this context "long-term effects" refer to effects over the course of several months, not several years. Ideally, we would want to examine whether military operations affect stability for several years after the operation is completed. However, before we can look at the effects over several years, a first step is to see whether there are any effects in the months after an operation. We focus on these effects due to the limitations of the data available for both crisis response operations and stability scores. Further study is needed on the effects of operations in the years following the military action.

Introduction

Background

Proponents of US military operations abroad often argue that maintaining visibility around the world helps promote global stability.[5] In turn, stability provides an environment conducive to increased economic growth and development by encouraging trade and investment. However, whether or not military presence itself actually affects overall levels of political and economic stability is still an open question.

A previous CNA study began to examine this question [2]. The approach compared US military-crisis response operations with country risk ratings, which take into account factors such as the level of internal political strife, ethnic tensions, and the possibility of conflict with other countries. The findings included the following:

- Examining sample operations showed no predictable relationship between crisis response and a country's political risk levels. Depending on the type and length of the operation, as well as country-specific effects, crisis response operations may correlate positively, negatively, or not at all with political risk ratings.
- Cross-country regression analysis showed some links between crisis response, political risk ratings, and economic growth.
  - These results suggest that US military involvement in crisis response operations may have a net positive effect on political stability over time. Present political stability is affected by previous crisis response operations, and the effect changes as a function of time. Crisis response operations conducted in the previous month have a negative

5. See [1] and its extensive bibliography.

effect on present political stability, while operations that took place two or three months ago have a positive effect on present political stability.

— There are two ways in which crisis response operations appear to affect economic growth: directly, and indirectly through the positive effect that political stability has on economic growth.

We must give some important caveats to these findings, however. First, it is not possible to include all factors that may affect political risk or economic growth in these regressions. It is very possible that other factors, affecting one, two, or all three of these variables, must be considered to be able to determine a conclusive finding. The many interrelationships between military operations, political stability, and economic growth complicate the econometric analysis of these issues.

Second, crisis response operations appeared to have only a small effect on political risk ratings and economic growth. This could be because effects depend on the type of crisis response operation being conducted—a short humanitarian assistance operation may have very different effects than a protracted peacekeeping presence.

Approach

The previous study only scratched the surface of the complex nature of these relationships. This study, a CNA-initiated project, is designed to add depth to the analysis by delving into the relationships between crisis response operations, political stability, and economic stability. An examination of these relationships in more detail should help inform policymakers of potential effects of crisis response operations in different scenarios.

Military operations may have differing effects depending on the circumstances of the country in crisis. For example, military forces may bring large amounts of humanitarian assistance that can make a big difference for very poor people. They may also inject large amounts of money into the local economy. However, if military forces are involved in a country for a long period of time, we may not see dramatic effects of their presence when we measure the country's stability.

We look at the following two questions:

- Do different regions of the world react in different ways to military crisis response operations?
- Do countries at different levels of economic development react in different ways to military crisis response operations?

It is important to note that, in this study, we look only at crisis response operations, not at "military presence." The term "presence" can incorporate many different types of military activities, from port visits to full-scale operations, depending on the particular definition applied. These varied definitions of "presence" further complicate attempts to understand the relationship between military actions and political and economic stability. In this paper, we focus only on the crisis response piece of the overseas presence issue.[6]

In this study, we use a combination of case studies and cross-country regression analysis to examine the questions listed above. We extend the previous analysis in several ways:

- We analyze effects by geographic region (Africa and the Middle East), level of economic development in the affected countries (low and middle income), and length of operation (short and long)[7].
- We look at economic stability along with political stability.

6. All other terms used—such as "involvement" or "intervention"—also refer to crisis response operations only.

7. "Short" operations last one to three months. "Long" operations last four or more months. The Data section explains why we chose this break point.

- We use data from the entire world, not just from countries where the US Navy and/or US Marine Corps have been involved in crisis response operations.[8]

Findings

We find the following:

- Short operations tend to affect political stability scores for several months after the completion of the operation, showing that short operations can have long-term effects on political stability. Short operations do not appear to have an impact on economic stability.
- Long operations tend to affect both political and economic stability scores over the long term. The magnitude of this effect is difficult to determine, for two reasons. First, we measure the *change* in stability scores, not the *level* of the score: An operation continuing for many years may not affect month-to-month scores during the course of the operation. Second, because there are few long operations, outliers may have large effects on the results.
- Crisis response operations affect African countries substantially more than Middle Eastern countries. This result may be due more to the types of operations the US military has undertaken in Africa, than to anything particular about that geographic region. Short operations in Africa, for example, tend to be those where the US assists with refugees or natural disaster response, whereas short operations in the Middle East tend to be part of a larger conflict.

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8. While we would like to analyze the effects of two cases—one case where the US intervened and one where it did not— it is not possible to test such hypotheticals. However, by using data from the entire world we had some "control" countries—-countries where there were crises in which the US did not intervene — along with those countries where the US did intervene. (We should think of these "control" countries as a set of "non-Navy, non-Marine Corps involvement" rather than non-US military involvement, as the Army and Air Force may have conducted operations in these countries. Further research is needed to look at the effects of operations across all services.)

- Crisis response operations affect low-income countries substantially more than middle-income countries. Low-income countries may be more likely to react strongly to the introduction of foreign military forces. An injection of highly trained and well-equipped forces into a country with very few resources of its own may have more of an effect than those same foreign forces in a country that is at a higher level of development and has more resources.

Note that in this context "long-term effects" refer to effects over the course of several months, not several years. Ideally, we would want to examine whether military operations affect stability for several years after the operation is completed. However, before we can look at the effects over several years, a first step is to see whether if there are any effects in the months after the operation. There are several reasons why we look at effects over several months, rather than over several years, in this study:

- Most of the operations classified as "crisis response operations" are very short — less than three months in length. The effects from such short operations may be lost if we look at data on an annual basis. Even if these operations do not have direct effects on stability that last for years, a short-term positive effect may help prevent instability over the longer term. For example, a newly elected government may need help at a crucial point to help it retain power long enough to become effective. Without a "push" at the right time from a crisis response operation, the government may fall, causing years of instability. In this case, the direct effects of the operation may be short lived, but the indirect effects last for an extended time. Unfortunately, examining all these indirect effects is outside the scope of this analysis.

- We base our analysis on political and economic stability scores, looking at changes due to military operations, after controlling for other possible factors influencing these scores. These scores may show only direct effects of operations in the short term since the scorers may discount military presence as a factor after forces have been in a country for an extended period of time. Again, we may see only direct effects of military operations on these scores

in the relatively short term, but that does not mean that there are no long-term indirect effects. Further study is needed on what these long-term indirect effects might be.

Roadmap

The paper starts with a discussion of the data we used, which provide risk ratings and describe crisis response operations. Next, we discuss how we divided the data according to length of crisis response operation, geographic area, and country income levels. We then present two case studies showing relationships between crisis response operations and stability. Next, we move to cross-country regression analysis to analyze further the relationships between crisis response operations, political risk ratings, and economic risk ratings by geographic region and country income level. We conclude the paper with some ideas for possible extensions of this research.

Data

Risk data

The data on country risk ratings are taken from the International Country Risk Guide (ICRG), produced by Political Risk Services [4]. The ICRG measures many possible factors affecting both political and economic stability, and provides numerical ratings for each month from 1984 to 2002 for each risk factor. We chose to use the ICRG because it provides monthly data for both a substantial period of time and a large number of countries.[9] The ICRG covers more countries and provides more detail than most of the other services and has been used in many studies.[10]

Political risk

The political risk rating considers following 12 components, which have weights (shown in parentheses), that add up to a maximum score of 100:

- Government stability (12 points)
- Socioeconomic conditions (12 points)
- Investment profile (12 points)
- Internal conflict (12 points)
- External conflict (12 points)
- Corruption (6 points)

9. Many firms produce similar data. All of the data are of course subjective. However, "although the data represent only the informed opinions of experts, one argument for their reliability is that clients are willing to pay substantial fees to acquire the information" ([5, p. 439]).

10. See [5] and [6] for some examples.

- Military in politics (6 points)
- Religion in politics (6 points)
- Law and order (6 points)
- Ethnic tensions (6 points)
- Democratic accountability (6 points)
- Bureaucratic quality (4 points).

These factors measure risks to investment due to the country's overall political environment. The higher the score, the less risky the country is judged to be. The ICRG considers a country that has a rating under 50 to be a "very high risk" country.

In this paper, we focus on three aspects of political risk: the overall rating, government stability, and a combination of the three components that directly influence military involvement—internal conflict, external conflict, and ethnic tensions.

Economic risk

Economic risk ratings reflect the macroeconomic health of the country. The economic risk rating consists of five components, weighted as shown, with a total maximum score of 50:

- Per capita GDP (5 points)
- Real GDP growth (10 points)
- Annual inflation rate (10 points)
- Budget balance as a percentage of GDP (10 points)
- Current account as a percentage of GDP (15 points).

The higher the score, the less risky the country is judged to be. The ICRG considers an economic risk rating under 25 to be "very high risk."

Data on crisis response operations

We collected data on crisis response operations from various sources, including the Chief of Naval Operations' (CNO's) website, internal CNA databases,[11] and the Federation of American Scientists. The category into which each operation falls can be debated; therefore, for consistency, we used the CNO's categorizations for types of operation—joint operations, contingency buildup, responses to terrorism, peacekeeping, and humanitarian assistance.

Our data includes about 50 countries where US forces have performed crisis response operations at some point since January 1984.[12] The number of months US forces have been involved varies greatly, depending on the country. In this analysis, we include both major crisis response operations lasting long periods of time (such as those in Iraq and the former Yugoslavia) and smaller operations (such as disaster relief in the Bahamas).

The previous study looked at the universe of crisis response operations as a whole. In this paper, we wanted to classify operations into smaller sets to see whether different types of operations have different effects on the affected countries. Ideally, we would have wanted to separate operations by type —joint operations, contingency buildup, responses to terrorism, peacekeeping, and humanitarian assistance. However, operations are often classified under multiple types. Therefore, we looked at operations by length in terms of the number of months the operation lasted.[13] While this division does not exactly correspond to a sign of operations by type, there is some correlation between length and general kind of operation.

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11. Reference [7], for example, includes a chronology of humanitarian assistance and peacekeeping operations.

12. The ICRG began to be calculated at that time, and we can compare risk ratings with crisis response operations for only as long as the ICRG has existed.

13. Due to the constraints of our data, we can break the data down only by month, not by number of days. Thus, an operation running from 15 January to 15 February counts as two months long, while an operation running from 1 January to 31 January counts as one month.

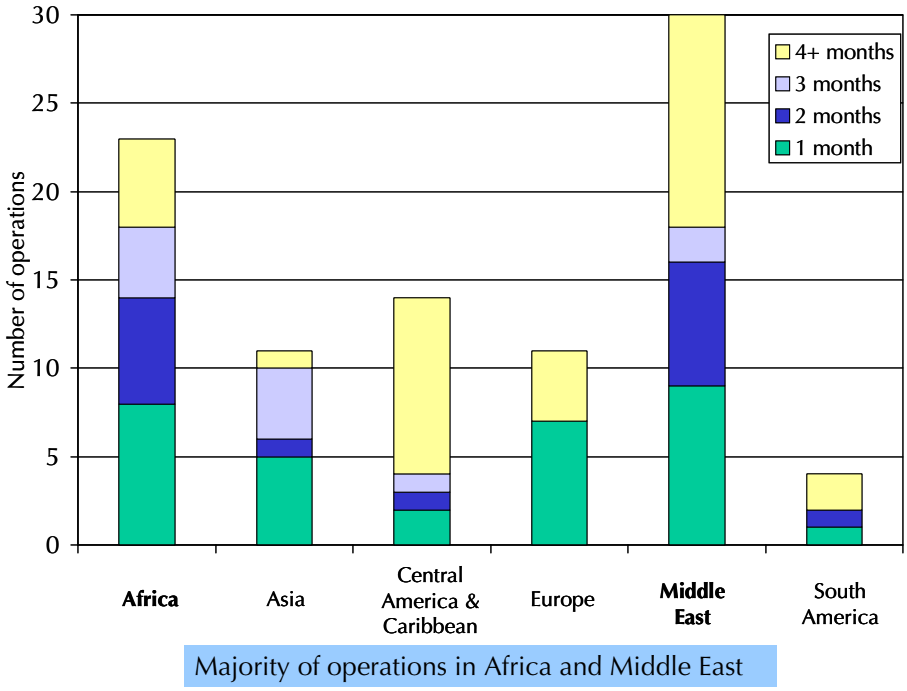
Short operations tend to be geared toward resolving a very specific problem quickly: cleaning up after a natural disaster, evacuating noncombatants, or helping refugees who are fleeing a particular crisis. On the other hand, long operations, such as Desert Shield and the following Middle Eastern operations centering on the Iraq situation, may slowly change into an issue of presence in the region. Military forces may become incorporated into a country's political and economic climate over time. Therefore, short and long operations may have very different effects on stability.

The question is where to draw the line between "short" and "long" operations. We used a simple methodology: we tested several models using different possible break points and found that there was a distinct shift in the patterns between operations one to three months long and operations lasting four months or more. Therefore, we defined "short" as operations lasting three or fewer months, and "long" as operations lasting more than three months.

Figure 1 shows the number of operations, by length and by geographic region.[14] Most operations took place in Africa or the Middle East. The African operations tend to be isolated events, occurring in only one or two countries. (Crisis in Somalia, flooding in Mozambique and South Africa). The Middle Eastern operations tend to be more regional events, many of which occurred over a long time period (Desert Shield/Storm, for example).

14. Note that this method over-counts the number of operations. An operation that extended over multiple countries is counted as a separate operation in each country. For example, response to flooding in Mozambique and South Africa during the spring of 2000 counts as two separate three-month operations.

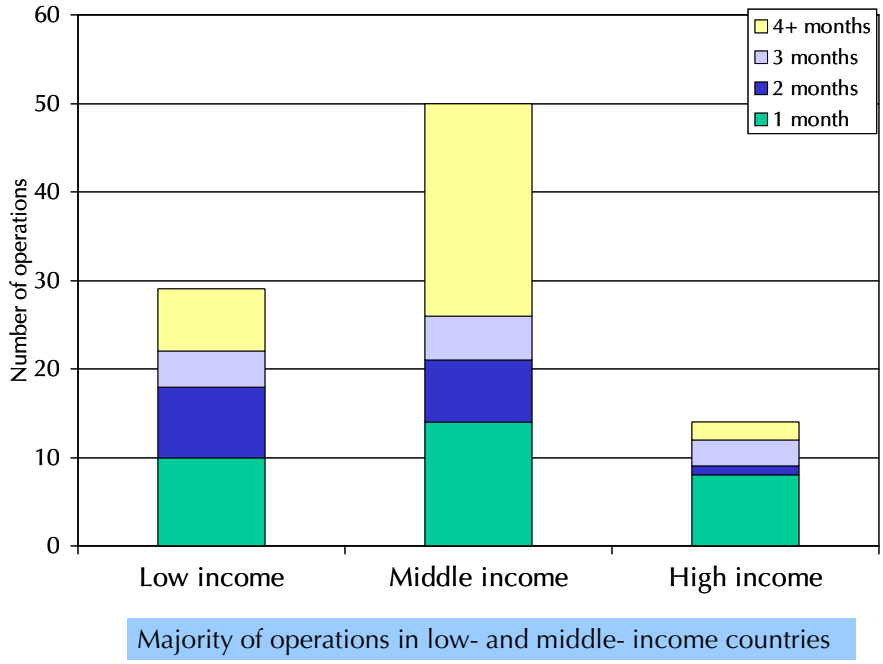
Figure 1. Crisis response operations, 1984-2002, by geographic area



We also divided affected countries by their income level. The World Bank divides countries by gross national product (GNP) per capita into low-income, lower-middle-income, upper-middle-income, and high-income countries.[15] The vast majority of crisis response operations occurred in low- and middle-income countries. Figure 2 shows the number of operations, by length and by country income levels.

15. See [3]. Of course, income levels are only one factor and do not completely describe the overall level of development. Many other issues — infrastructure, education of the population, etc. — also contribute to determining an overall development level.

Figure 2. Crisis response operations, 1984-2002, by level of economic development



Majority of operations in low- and middle- income countries

Country case studies

Previous research in this area has tended to take a case study approach to analyze the relationship between crisis response operations and country stability.[16] Case studies provide information about the impact of a specific operation on a specific country or region. However, given the wide variety of simultaneous forces affecting stability, it is difficult to isolate the effects of a crisis response operation from the effects of other factors by using simple correlation analysis. To illustrate some of the complexities involved in analyzing these relationships, we discuss two countries in which there have been multiple military operations: the Democratic Republic of Congo and Kuwait.

Democratic Republic of Congo

We look at ICRG risk scores and military operations in the Democratic Republic of Congo (formerly Zaire) in the mid 1990s. We focus on four different risk indicators:

- The **overall political risk rating** is the sum of all 12 components of the ICRG's political risk rating. Political risk ratings range from 0 to 100, with higher scores denoting less risk. (The United States, for example, normally scores around 90.) The ICRG considers a country that has a rating under 50 to be a "very high risk" country.[17]
- **Government stability** is one of the most heavily weighted components of the overall political risk rating. The maximum score is 12 points. According to the ICRG, it is "a measure both of the government's ability to carry out its declared program(s) and its ability to stay in office." High scores indicate more stability.

16. See, for example, [8].

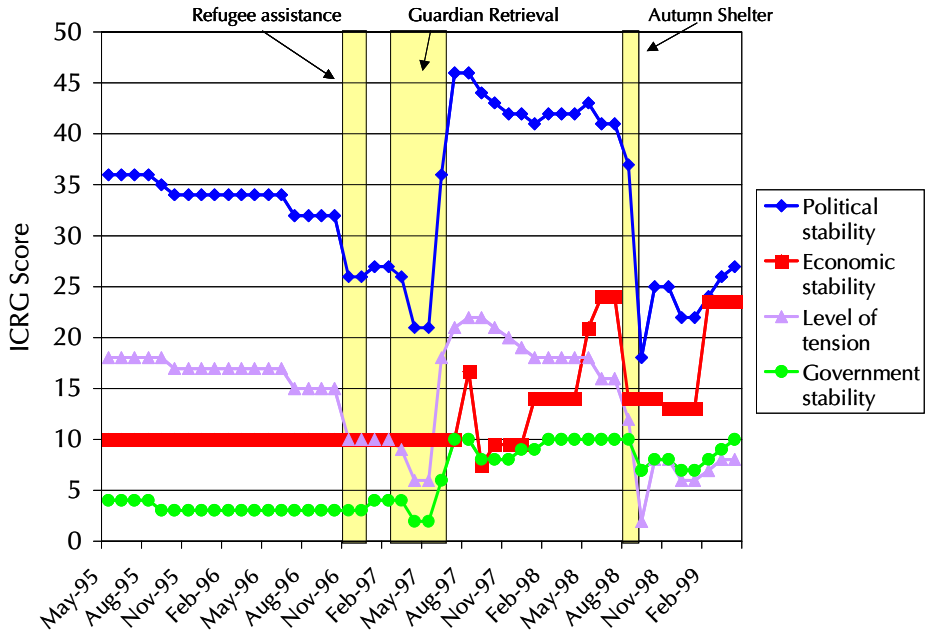
17. Scores are as follows: 50–59.9, high risk; 60–69.9, moderate risk; 70—79.9, low risk; 80 and higher, very low risk.

- **Level of tension** is a combination of three components of the political risk rating—internal conflict, external conflict, and ethnic tensions—that are likely to be affected directly by US military involvement. The maximum score for the sum of these three components is 30. High scores indicate less risk of conflict and lower ethnic tensions.
- **Economic risk** is the sum of all five components of the ICRG's economic risk rating. The maximum score is 50, and the higher the score, the less risky the country is judged to be. An economic risk rating under 25 is considered to be "very high risk."

When looking at the following charts, remember that higher numbers for the risk indicators mean that the country is better off—that is, it has higher overall political and economic stability, a more stable government, and less risk of conflict.

Figure 3 shows data for the DR Congo from May 1995 through April 1999. During this time, there were three separate operations in the country: Operation Guardian Assistance/Assurance/Phoenix Tusk (November–December 1996); Operation Guardian Retrieval (March–June 1997); and Operation Autumn Shelter (August 1998). We analyze the changes in the risk scores for each of these operations to see whether US military involvement seemed to affect these scores, either during or after the operation.

Figure 3. Democratic Republic of Congo, 1995-1999



Many factors influencing changes in stability simultaneously

Operation Guardian Assistance/Assurance/Phoenix Tusk (Nov.–Dec. 1996)

The primary goal of this mission was to help deliver humanitarian aid to Rwandan refugees in the aftermath of civil war and ethnic violence. The operation also provided security at Goma airfield and helped air-lift Allied forces, as well as supporting ground troops.

- **Political stability**: The risk level remained high throughout the operation. In fact, the score decreased by 5–6 points as the operation progressed.
- **Government stability**: This score remained at the "very high risk" level during and after the operation because the government, under the dictatorship of Mobutu Sese Seko, was becoming increasingly vulnerable in the wake of the Rwandan refugee crisis and an emerging rebel alliance.

- **Level of tension:** The increasing refugee crisis and the onslaught of civil war contributed to the "very high risk" score.
- **Economic stability:** Congo/Zaire's score remained at the "very high risk" (10) level in view of increasing political strife.

Operation Guardian Retrieval (March–June 1997)

This was a noncombatant evacuation operation (NEO) in the wake of factional fighting that had spilled over from Rwanda, and an increasing refugee population in the eastern part of Congo/Zaire. The environment became increasingly unstable and dangerous for US citizens who were involved in non-government and private volunteer humanitarian relief organizations. In view of this situation, the operation's main purpose was the evacuation of US citizens from Congo/Zaire.

- **Political stability:** Several factors contributed to the "high risk" rating during the course of this three-month operation: the spill-over from the internal strife in Rwanda, an increasing refugee crisis, the onslaught of a rebel alliance, and the subsequent decline and fall of the Mobutu regime. During the first two months of the operation, the risk score remained within the 20–25 range; however, it increased by 10 points towards the end (June–July). By that time, a new regime was in place under the leadership of rebel leader Laurent Kabila.
- **Government stability:** The Congo's score was consistently at the "high risk" level throughout the operation. There was only a slight increase in score (decrease in level) towards the end of the operation, which probably coincided with the emergence of the new Kabila regime.
- **Level of tension:** Again, the Congo's score remained within the "very high risk" category, and again, there was a very slight increase in score during the last month of the operation.
- **Economic stability:** The US military operation did not appear to have any impact on the economic situation. The risk score consistently remained at the "very high" level.

Operation Autumn Shelter (August 1998)

Another NEO took place in the wake of a rebellion in the eastern part of the DR Congo, reportedly with French and Rwandan support, against the Kabila government. In response to the crisis, the embassies of several Western nations closed and evacuated their personnel. The Marine Medium Helicopter Squadron 162 evacuated American citizens.[18]

- **Political stability:** The score dropped by 5 points within the "high risk" category during the operation. It plummeted by 20 points, to the "very high risk" level, a month after the operation ended. However, the decline could be attributed to the increasing internal strife (the rebel insurgency and the threat to the Kabila government) rather than to the US military presence.
- **Government stability:** The Congo's score remained at the "very high risk" level before, during, and after the operation (with a 3-point drop afterwards). Again, this drop could be in response to internal factors.
- **Level of tension:** Again, the score remained within the "very high risk" category, at 12 points; however, it decreased by 10 points within a month after the operation.
- **Economic stability:** The level of economic risk remained "very high" during the operation (it had actually dropped by 10 points by the time the operation began).

When we look only at the correlations between risk scores and US military involvement, in the case of the DR Congo, US military crisis response does not appear to coincide with changes in the risk indicators. The DR Congo's scores remained in the "high risk" to "very high risk" categories throughout the five-year period. Since the US military operations were not extensive, and consisted of short periods of involvement for specific events, it appears that they may not have had any substantial impact on the risk indicators. Instead, internal events, such as civil war, rebellion, regional instability, and regime change, appear to show a far greater influence on risk levels than US military involvement.

18. Information on operations in the DR Congo is from [9–13].

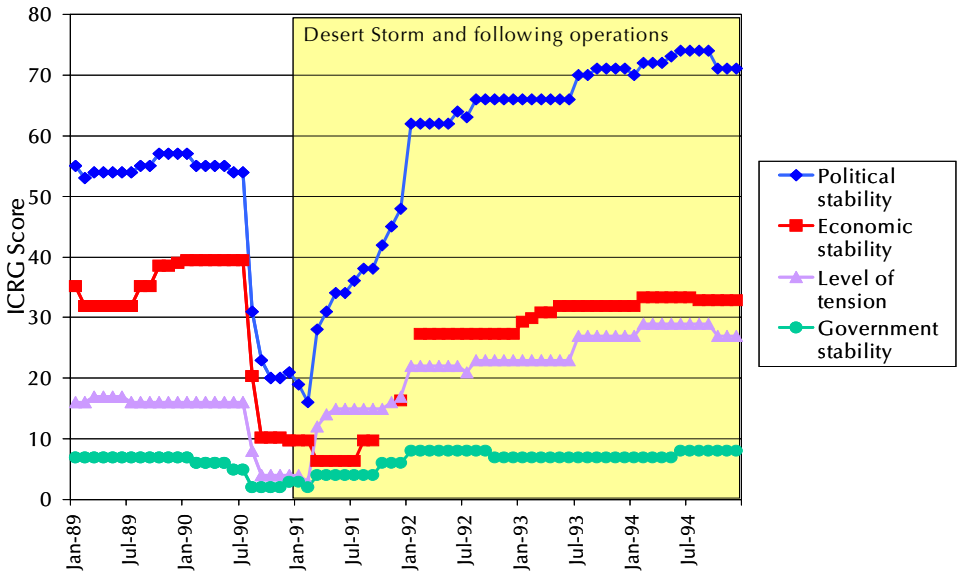
However, we cannot tell whether US military involvement did indeed influence risk scores without controlling for all the other activities occurring at the same time. Regression analysis allows us to control for these other influences on the risk scores and pull out the effect of military involvement.

Kuwait

Kuwait in the early 1990s provides one example of a long operation in the Middle East. The US military was involved in the country from the start of Desert Storm in January 1991 throughout the decade following. The overall operation was divided into several pieces, including Operation Desert Shield/Desert Storm (August 1990–February 1991); Operation Desert Calm/Desert Farewell (March 1991–January 1992); and Operation Southern Watch (1991 and beyond).

We analyze the changes in the risk scores for each of these operations to see whether US military involvement seemed to affect these scores, either during or after the completion of the operation. Figure 4 shows the ICRG scores for political stability, economic stability, and two components of the political stability score (government stability and the level of tension) for Kuwait.

Figure 4. Kuwait, 1989-1994



Marked rebound in stability scores after Desert Storm begins

Operation Desert Shield/Desert Storm (1990–1991)

Five months after the August 1990 invasion of Kuwait by Iraqi forces, US military forces, in a coalition effort with various Arab and European allies, were deployed to the Persian Gulf region. Along with air strikes that began in January 1991, the coalition ground forces successfully drove Iraqi troops from Kuwait. In March 1991, the Emir of Kuwait returned to his country from Saudi Arabia, and in June, martial law, which had been in effect since the end of the Gulf War, was lifted.

- **Political stability.** Kuwait's ICRG score plummeted from the "high risk" category to "very high risk" after the Iraqi invasion. It remained at that level throughout Operation Desert Storm. This could be attributed to the establishment of the pro-Iraqi provisional government after the Iraqi invasion in August 1990, the subsequent flight of the Emir of Kuwait to Saudi Arabia, and the ensuing Persian Gulf War.

- **Government stability.** Kuwait's score was at the "low risk" level (slightly below 10); however, after the Iraqi invasion, it dropped to "high risk." It did not pick up again until January 1992 (after Desert Storm).
- **Level of tension.** This score was at the "moderate to high risk" level before the operation. It dropped by more than 10 points after the Iraqi invasion, but increased by approximately 5 points in the aftermath of Operation Desert Storm.
- **Economic stability.** This score plummeted 30 points from 40 ("low risk") to 10 ("very high risk"), after the August 1990 invasion. It remained at 10 throughout the operation.

Operation Desert Calm/Desert Farewell (March 1991–January 1992)

This operational phase covered the redeployment of Coalition forces, the cessation of hostilities, the return of the Emir, the end of martial law, and the beginning of the political and economic recovery of Kuwait in the aftermath of the Persian Gulf War.

- **Political stability.** Kuwait's ICRG score rose, by approximately 45 points, from "very high risk" to "moderate risk". This could be attributed to the country's political recovery in the aftermath of the war (the Emir's return and the formation of a new government by Crown Prince Sheik Saad).
- **Government stability.** Kuwait's score gradually increased by more than 5 points during and after the operation; this increase appears to reflect the country's efforts at political recovery. The ICRG score remained within the "low risk" area for the remainder of the four-year period.
- **Level of tension.** This score gradually rose from "very high risk" to "low to moderate risk" throughout the operation. By January 1992, the score had increased by approximately 15 points.
- **Economic stability.** Kuwait's ICRG score dramatically increased by approximately 20 points (from "very high risk" to "moderately low risk") by January 1992.

Operation Southern Watch (1991–1994 & beyond)

The main objective of this operation was (until recently) to monitor and control the airspace south of the 32nd parallel in Iraq and to monitor Iraq's compliance with UN Security Council Resolutions 687, 688, and 949. The resolutions demanded that Saddam Hussein cease the repression of Iraqi civilians and prohibited Iraq from using its forces to threaten its neighbors, such as Kuwait and Saudi Arabia. On several occasions, Hussein defied the resolutions and chose not to comply with them. (His actions included attacking the Shi'ite Muslim population in southern Iraq, attempting to assassinate President George H. W. Bush during his visit to Kuwait in April 1992, challenging the no-fly zone in 1992 and 1993, and conducting troop movements near the Kuwaiti border in October 1994). In 1992, coalition forces began surveillance operations in Iraq below the 32nd parallel. A command and control unit for the coalition force, Joint Task Force Southwest Asia, was activated by US Central Command to monitor the no-fly zone.[19]

- **Political stability.** During this time period, Kuwait's ICRG score remained in the "moderate risk" to "low risk" categories. In fact, it reached 75 during the summer of 1994. It decreased slightly (by about 5 points) with the possibility of another Iraqi invasion in October 1994. However, it appeared to have stabilized with the rapid deployment of US and British troops.
- **Government stability.** Again, this score remained within the "low risk" category (8–10) throughout the operation. (It should be noted that during this period, Kuwait had a general election in October 1992, which was a success for supporters of Islamic (Shariah) law.)
- **Level of tension.** Kuwait's score gradually increased from "very high risk" to "low risk" (with a near-perfect score of 29 by August 1994); however, it decreased slightly in October 1994, with the threat of Iraqi military maneuvers near the border.
- **Economic stability.** After January 1992, this score gradually increased within the "moderate risk" area, with some fluctuation in 1993–1994.

19. Information for Kuwait is from [11-17].

We see that the scores react strongly to Iraq's invasion in August 1990, as we would expect. The scores also react strongly to the success of military operations and the initial recovery of Kuwait in 1991–1992. Then in 1993–1994 we see no large changes in the scores. This example shows that there can be large changes in stability scores at the beginning of an operation—but that during the operation, although the US Military may be a stabilizing influence, that influence may not appear in changes in the scores. In this case, given the magnitude of the operations, it is likely that US military involvement was one of the driving factors behind the changes in stability between 1991 and 1992. However, we cannot say this with certainty if we use only correlation analysis, which does not tell us anything about causation. That is, we cannot determine whether the change in the score is prompted in part by the arrival of the US military or whether, instead, the arrival of US forces is prompted by a crisis that causes the change in score.

Cross-country regression analysis

Regression analysis of cross-country data provides information about general trends in the relationship between crisis response and country risk, even though it does not provide information about specific operations in specific countries. This kind of analysis also allows us to examine isolated factors, holding other influences constant.[20] By seeing whether there are any overall trends, policymakers can better understand the possible effects of military operations on affected countries.

Determining the effects of military involvement alone on political and economic stability is difficult since so many other factors may influence these indicators at the same time. For example, when we look at a case study we cannot tell whether an increase in political stability score is due to the stabilizing influence of US troops, an increasingly stable government, or both. Using regression analysis, we can look at the effect of one of these factors while holding other factors constant.

Regardless of the influence of other factors, there is likely to be two-way causation between political stability and crisis response, as well as between economic stability and crisis response. We cannot say in most instances whether changes in the risk ratings are the result or the cause of military response. When there are variables that depend on

20. Regression analysis is not the perfect solution. Econometric models cannot account for every factor that may affect the dependent variable. Especially in this case, where there are multitudes of interrelated forces, one cannot say that there are no factors missing from the model that would affect both the dependent and independent variables that might change the results. However, by isolating a few of the influences on political stability, we add more to our understanding of the nature of the relationships between these variables than we would with simple correlation analysis.

each other in this way, we have an endogeneity problem that must be taken into account when developing the regression model. We structure the regression models to take these endogeneity issues into account.[21]

We analyzed the results of several models—one set explains the determinants of political and economic risk scores by geographic region, and one set looks at the same factors, but divides the data by country income levels. We discuss this analysis in the following section.

Regression models

What are the relationships between political stability scores, economic stability scores, and military crisis response operations? Obviously, many factors may influence the perception of risk associated with a country, including the strength of its institutional structure, the type of government, relations with neighboring countries, and historical tensions within various groups in the country. No regression model can incorporate every factor that may influence risk ratings. Further complicating the question is that many of these same factors may influence military crisis response at the same time that they influence political or economic risk. These issues must be considered when developing the models and interpreting their results.

We used two models: one describes political stability and one describes economic stability.

Political stability

We developed a regression model that includes several important potential determinants of political risk. The first task was to determine how to model crisis response operations. Ideally, we would like to account for the purpose, length, and magnitude of the operation. However, our data is not detailed enough to be able to accurately measure all of these factors. Given the limitations of the available data, we chose a dummy variable approach, focused on the existence

21. "Endogeneity," in this context, is another word to describe two-way causation.

and length of the operation. We created a variable that equals one if US forces were involved in a short (three months or shorter) crisis response operation during that month, and zero otherwise. Similarly, we created a variable that equals one if US forces were involved in a long (four months or longer) crisis response operation during that month, and zero otherwise. We chose three months as the break point after testing various possibilities.[22]

In addition to our two variables of interest, short and long crisis response operations, we included several other potential determinants of political risk in the model: past levels of political risk, past GDP growth rates, time, geography, and country-specific effects. The model is as follows:

$$Pol_t = \beta_1 + \beta_2 Pol_{t-1} + \beta_3 SMil_{t-1} + \beta_4 SMil_{t-2} + \beta_5 SMil_{t-3}$$

$$+ \beta_6 SMil_{t-4} + \beta_7 SMil_{t-5} + \beta_8 SMil_{t-6} + \beta_9 SMil_{t-7} + \beta_{10} SMil_{t-8}$$

$$+\beta_{11} LMil_{t-1} + \beta_{12} LMil_{t-2} + \beta_{13} LMil_{t-3} + \beta_{14} LMil_{t-4}$$

$$+ \beta_{15} LMil_{t-5} + \beta_{16} LMil_{t-6} + \beta_{17} LMil_{t-7} + \beta_{18} LMil_{t-8}$$

$$+ \beta_{19} GDP_{t-1} + \beta_{20} Time_{84-88} + \beta_{21} Time_{93-00} + \beta_{22} Time_{01-02}$$

$$+\beta_{23} Dist + Countries + \varepsilon_t$$

The dependent variable, Pol_t, is the political risk rating in month *t*. The previous month's rating, Pol_{t-1}, is included to account for the trend in ratings. $SMil_{t-1}$, $SMil_{t-2}$ $SMil_{t-3}$, $SMil_{t-4}$, $SMil_{t-5}$ $SMil_{t-6}$, $SMil_{t-7}$, and $SMil_{t-8}$ are dummy variables for the existence of a short crisis response operation. $LMil_{t-1}$, $LMil_{t-2}$, $LMil_{t-3}$, $LMil_{t-4}$, $LMil_{t-5}$, $LMil_{t-6}$, $LMil_{t-7}$, and $LMil_{t-8}$ are dummy variables for the existence of a long crisis response operation. These variables equal one if the US military was involved in a crisis response operation in that month in that particular country and zero otherwise. Due to the possible endogeneity

22. We also tested other specifications, using different definitions for "short" and "long" operations. We found a natural break in the data at the three-month point.

between present political risk ratings and present crisis response, we used only past values of crisis response in our model.[23]

The rest of the explanatory variables control for other factors that may influence political risk ratings. GDP_{t-1} is the previous month's GDP growth rate, which is a general indicator of the country's macroeconomic health. $Time_{84-88}$, $Time_{93-00}$, and $Time_{01-02}$ are dummy variables for the Reagan, Clinton, and George W. Bush administrations.[24] We chose these time periods because, given the influence of US foreign policy decisions on global issues, the political climate during different administrations could have made a difference in the political risk levels of other countries.

Dist is a variable that attempts to capture the effects on the political risk rating of being near a hub of military activity. A country that is located next to, for example, Iraq, may be perceived as more risky than a country with similar internal characteristics that is located near a country such as Australia. This variable is the distance from the capital of the country to the closest of four military areas of interest: Japan, Germany, the Persian Gulf, and Cuba.[25]

For clarity, rather than writing out all the country dummy variables in the above equation, *Countries* represents all of the country dummy variables included in the regression. These take the same form as the other variables ($b*Country_t$). There is one country dummy for each country in which there was a crisis response operation.

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23. To avoid endogeneity problems, we used past military involvement only, rather than including military involvement during the same time period as the dependent variable.

24. We omit the years 1989-92, the first Bush administration, to prevent multicollinearity. Therefore, the results for the Reagan, Clinton, and George W. Bush administrations are relative to the first Bush administration.

25. These four choices are obviously not the only options for military areas of interest. However, they do represent areas of substantial military activity. (See [2] for the reasoning behind the choice of these particular areas.)

Economic stability

This model is similar to the political stability model discussed above, with only a few changes. The dependent variable is the ICRG economic stability score, $Econ_t$. Instead of including the previous month's political risk score, we include the previous month's economic risk score, $Econ_{t-1}$. We also include a variable to account for the general worldwide economic environment in the previous month, the US three-month treasury bill rate, $Tbill_{t-1}$. We include this particular variable because other studies have found that the changes in international interest rates, such as the three-month US treasury bill rate, are good indicators of changes in capital flows into developing countries. (See [20] and its references.) Capital flows can indicate investor confidence in economic conditions in these countries. The model is as follows:

$$Econ_t = \beta_1 + \beta_2 Econ_{t-1} + \beta_3 SMil_{t-1} + \beta_4 SMil_{t-2} + \beta_5 SMil_{t-3}$$

$$+ \beta_6 SMil_{t-4} + \beta_7 SMil_{t-5} + \beta_8 SMil_{t-6} + \beta_9 SMil_{t-7} + \beta_{10} SMil_{t-8}$$

$$+\beta_{11} LMil_{t-1} + \beta_{12} LMil_{t-2} + \beta_{13} LMil_{t-3} + \beta_{14} LMil_{t-4}$$

$$+ \beta_{15} LMil_{t-5} + \beta_{16} LMil_{t-6} + \beta_{17} LMil_{t-7} + \beta_{18} LMil_{t-8}$$

$$+ \beta_{19} Tbill_{t-1} + \beta_{20} Time_{84-88} + \beta_{21} Time_{93-00} + \beta_{22} Time_{01-02}$$

$$+\beta_{23} Dist + Countries + \varepsilon_t$$

Regression results

We tested these regression models with several datasets. We divided the data by geographic region and tested the set of African countries and the set of Middle Eastern countries. We also divided the data by GDP per capita and tested the set of low-income countries and the set of middle-income countries. We included all countries for which we had complete data that fell into the appropriate set—not just countries where there had been crisis response operations. In this way, we

used countries where the US military did not intervene as a set of controls.[26]

The main results are as follows:

- Short operations tend to affect political stability scores for several months after the completion of the operation. However, we did not find evidence of effects on economic stability.
- Long operations affect both political and economic stability scores over the long term. We see much stronger patterns in the relationships between political stability and military operations than in those between economic stability and military operations.
- Crisis response operations affect African and low-income countries substantially more than Middle Eastern or middle-income countries.

Each dataset tested provided some insights into the effects of crisis response operations on political and economic stability. We see that the effects of military involvement vary across length of operation, geographic region, and level of economic development.

In the next sections, we show not only the regression results, but also charts showing the direct effects of military involvement on the ICRG scores. To isolate these direct effects of military involvement, we show the effects of military involvement on the ICRG political or economic stability score, holding other explanatory variables constant. These effects represent the predicted change in the political or economic

26. Again, the operations we look at in this analysis are only those involving the Navy or the Marine Corps. The Army or Air Force could have been involved in operations in some of these "control" countries, meaning that all of the control countries are not necessarily completely free of US military involvement. Given the timeframe for this study, we could not separate the countries in which there was involvement from another service; thus, in effect we are controlling for "non-Navy/Marine Corps" involvement, not for all US military involvement. A future study could include operations from all services and analyze whether the effects change depending on which service is involved.

stability score from a change in military involvement for that month alone.[27]

We discuss each of the major findings in turn:

- The effects of short operations on political stability
- The effects of long operations on political and economic stability
- Differences by geographic area and by level of economic development.

Short operations

We first discuss in general terms the results of short operations on political stability. Results for each group (Africa, Middle East, low income, and middle income) will be discussed separately in later sections.[28]

We see significant effects on political stability due to short operations for several months after the operation is complete.[29] In most cases, we see an initial drop in political stability, followed by increased levels of political stability over time. This result implies that, even though involvement in crisis response operations may initially increase political risk in the affected country, in the longer term US military crisis response may provide beneficial effects in terms of political stability.

Figure 5 shows the effects of military operations on political stability for several groups: worldwide, African countries, and low-income

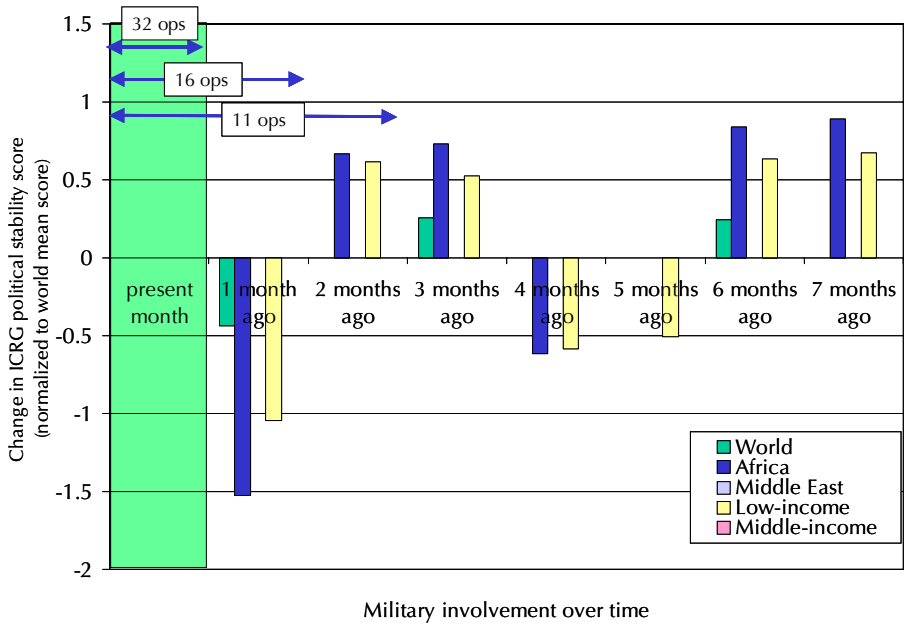
27. Each of the country groupings has a different mean score for the ICRG ratings. To facilitate comparisons across groups, the charts show effects after normalization to the world mean score.

28. Regression results, including the standard errors for the parameter estimates, are provided in the appendix for all the models tested.

29. "Significant" refers to parameter estimates that are statistically significant at least at the 90% level.

countries.[30] We also tested Middle Eastern and middle-income countries, but we did not find significant effects on political stability due to short operations in those groups; thus, they are not included in the figure. One possible reason for this result is that the short operations in these areas tend to be associated with longer operations, whereas in Africa they tend to be stand-alone operations. Therefore, it is difficult to separate the effects of embedded shorter operations from the effects of the overall long operation.

Figure 5. Effects of short military operations on political stability scores



Short operations can have long-term effects

30. Many African countries where there have been crisis response operations are in the low-income group as well, so the similar results make sense. However, the low-income group also includes non-African countries: Bangladesh, Haiti, Indonesia, Myanmar, and Nicaragua are also low-income countries where there have been crisis response operations.

For groups where we do see significant effects, these effects last much longer than the operation. What this result tells us is that crisis response operations can have prolonged effects on political stability, even if the actual operation is over quickly. For example, US forces performed Operation Stabilize in East Timor for three months in late 1999. Specifically, US forces provided logistical support, including transportation, communications, intelligence, and sustainment for troops, in support of the overall United Nations effort to resolve the crisis resulting from the East Timor independence referendum.[31] The political stability scores rose from 42 in July 1999 to 48 in January 2000, reflecting the work of the UN peacekeeping operation.[32]

Figure 5 shows the direct effect of the presence of US forces, after controlling for all the other explanatory variables in the regression equation. This figure shows the number of ICRG political stability points that can be directly associated with a change in the presence of military forces.[33] Using Africa as an example, suppose we see what this month's political risk score would be in each of two scenarios: in one scenario, US forces were involved in a crisis response operation in the previous month, and in the other, they were not. Holding all else constant, the predicted current month's political risk score would be 1.53 points lower if there was military involvement in the previous month than it would be if there was no military involvement.

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31. See [18] for details.

32. This case is an example of a crisis in which not only US forces, but also forces from many other countries, participated. The US had only a supporting role, with the Australians taking the lead. The models used in this paper do not allow us to separate the effects of the multinational force from the effect of the American force. A future study could develop a model to examine the effects of the overall United Nations forces compared to the effects of the US forces.

33. To allow for cross-comparisons, the number of points has been normalized across groupings to account for differences in the mean score for each group. Therefore these numbers do not correspond exactly to the estimated regression coefficients.

Similarly, the present month's political risk score is predicted to be 0.67 points higher if the US military was involved in a crisis response operation in that country two months ago, and 0.73 points higher if the US military was involved in a crisis response operation three months ago, than if there were no military involvement at that time.[34] (In all of the following charts, time periods where we did not find significant effects of military operations on political or economic stability are left blank.)

The initial drop in stability that is due to military involvement may be the result of the uncertainty that surrounds the beginning of an operation. Once the uncertainty is resolved, we see an increase in stability. A similar amount of uncertainty exists at the end of an operation, which may be one reason why we see a drop in stability in the fourth and fifth months after the beginning of the operation. At that point, in a short operation, military forces will have left the country and it may take some time to return to a more stable pattern.

Since the scale of the political risk rating runs from 0 to 100 points, at first glance this change seems insubstantial. However, the change from month to month in the political risk score from one month to the next tends to be quite small. Ninety percent of changes in the

34. Note that each of these effects is calculated assuming that all the other explanatory variables are held constant, including the two other periods of military involvement. That is, we look at only the change in the present month's political risk score that results from military involvement in one time period— not in, for example, both months two and three. If we could, the cumulative increase in the present month's political risk rating would be 1.40 points (0.67 points from month two and 0.73 points from month three). We can do this sort of calculation for the first three months. However, calculating net effects becomes more difficult as time goes on. It is tempting to add up all the effects for the full seven months to see whether the total net effect of military involvement is positive or negative. However, these operations (by definition) last a maximum of three months. By adding all the effects across seven months, what we are saying is that, if there were military involvement in all seven months, compared to there not being military involvement in all seven months, we are calculating the total effect. Since by definition there will not be military involvement in all seven months, this calculation is a bit misleading.

political risk rating are less than two points in either direction. The DR Congo has some of the largest short-term fluctuations in the political risk ratings in the dataset. However, even the largest change in the DR Congo's score is only 25 points over two months (May - July 1997), or 12.5 points per month. Therefore, in comparison, military involvement does appear to have a substantial effect on the risk rating.

Long operations

A long operation may not change political stability scores much from month to month, even if it affects the overall level of the stability score, since its presence is not a shock to the system. Therefore, since we measure the change in stability scores from month to month, with a long operation we may not see much of an effect on political stability scores during the course of the operation.[35]

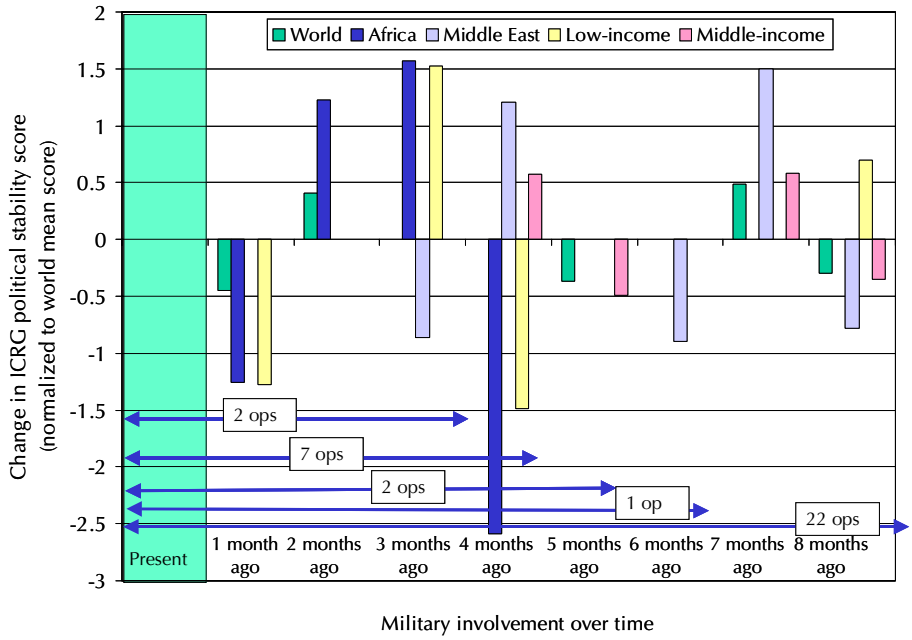
However, unlike short operations, long operations affect economic stability as well as political stability. The same operation may have a long-term effect on economic stability due to the injection of money needed to support troops as they stay for a long period of time. Military forces who stay in a country for a long period may also boost economic growth and stabilize the economy. For example, a firm that is not afraid that of being put out of business during a war will likely produce more goods, stimulating the economy. Service providers, such as restaurants, may be more likely to remain open if they feel more secure. In addition, forces themselves may make purchases while in country, further assisting economic growth.

Political stability

Figure 6 shows the effects of long military operations on political stability scores. The figure shows the predicted change in the political stability score when we have military involvement compared to when there is no military involvement in a given month, after controlling for the other factors in the regression model. It is difficult to tell from the results what the magnitude of the effect is; we only see that there is an effect.

35. Future research could examine the effects on stability at the beginning and end of long operations, rather than throughout the course of the operation.

Figure 6. Effects of long military operations on political stability scores



Long operations appear to affect political stability, but no clear pattern

These results may be due to several factors:

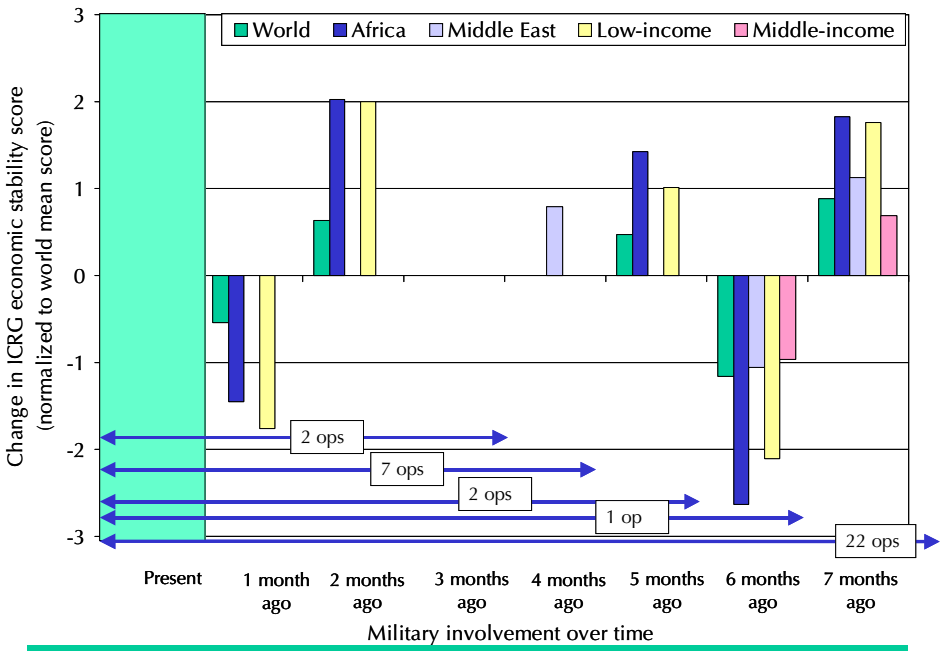
- We have 34 long operations, many of which are related. This number of data points is small enough that a few outliers may have large effects on the overall results.
- We are measuring the change in stability scores from month to month. As stated earlier, when military forces have been involved in a country for a long period of time, the scores may not change substantially from month to month.

Despite these caveats, we do see some quantitative effects on stability from long operations. Additional research is needed in this area in order to understand more fully the effects of long operations on affected countries' stability scores.

Economic stability

Figure 7 shows the effects of military operations on economic stability scores. The figure shows the predicted change in the economic stability score when we have military involvement compared to when there is no military involvement in a given month.[36] We see a more consistent pattern here than in the results for political stability.

Figure 7. Effects of long military operations on economic stability scores



Greatest effect on African and low-income countries

As with the results for short operations and political stability, we see an initial drop in economic stability after forces arrive, indicating the uncertainty in investors' minds regrading the effects of the military action, followed by positive effects as time passes.[37]

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36. Again, we have normalized the effects for comparability.

37. The drop in stability we see in the sixth month is likely associated with the uncertainty surrounding the departure of forces after the four - to six - month operations.

Geography

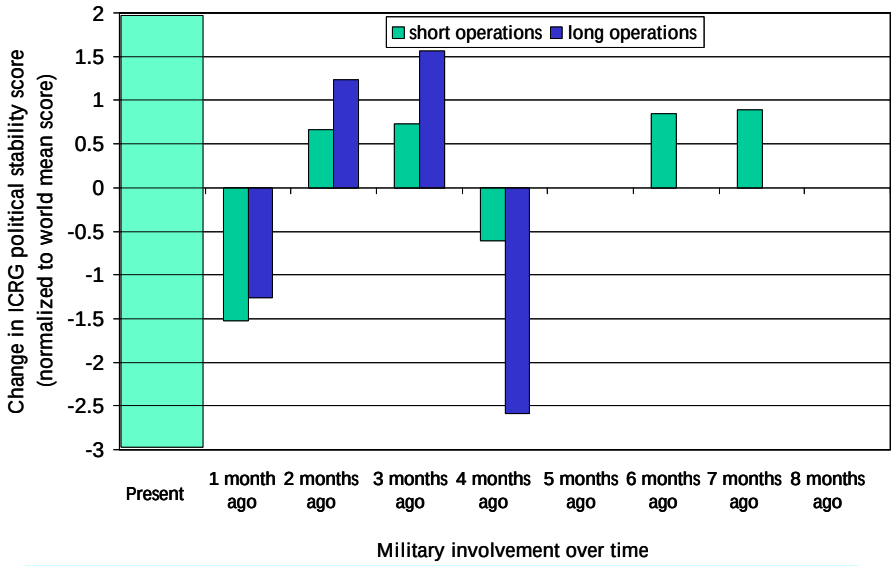
We looked at two geographic regions: Africa (excluding Egypt) and the Middle East (including Egypt). Most operations in our dataset occurred in these two regions. The African operations tend to be isolated events, occurring in only one or two countries (crisis in Somalia, flooding in Mozambique and South Africa) The Middle Eastern operations tend to be more regional events, many of which occurred over a long time period (Desert Shield/Storm, for example).[38]

We found that military operations had a much greater effect on political and economic stability in Africa than in the Middle East. (Figures 8 through 11 show these effects.) Crisis response operations in Africa have significant effects for an extended period of time. One reason may be that many of the operations in Africa involve forces responding to a specific contained crisis (flooding in Mozambique, refugees in the Democratic Republic of Congo) and can have a quantifiable effect on political and economic stability fairly quickly.

In the Middle East, on the other hand, even the short operations tend to be part of a larger pattern of forces remaining in the region for an extended period of time. (Desert Fox, for example, can be related to the larger effort of containing Iraq over a long period.) Therefore, it is not possible to separate the effects of these short operations from those of the extended operation. The operations that we can analyze separately include engagements during the Iran-Iraq war, as well as those during the war in Lebanon. In the larger context of these wars, US operations played only a small role; this may explain why we see little direct effect from them.

38. African countries also tend to be low-income economies, while most Middle Eastern countries fall into the middle- or high- income groups. We will discuss these differences in the following section.

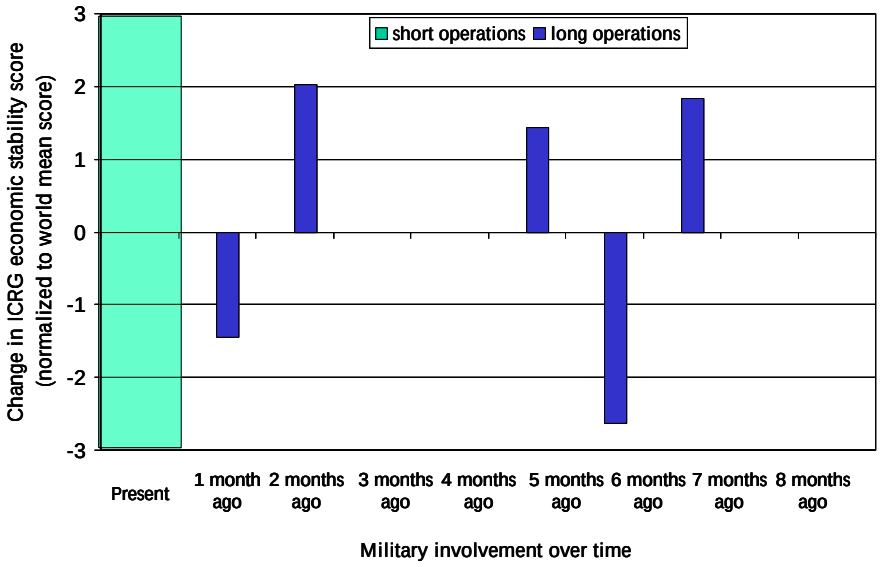
Figure 8. Effects of crisis response operations on political stability - Africa



Short operations have a positive effect on political stability over time

Effects of short operations on political stability last longer than effects of long

Figure 9. Effects of crisis response operations on economic stability - Africa



Long operations affect economic stability scores, but short operations do not have any significant effect

Figure 10. Effects of crisis response operations on political stability - Middle East

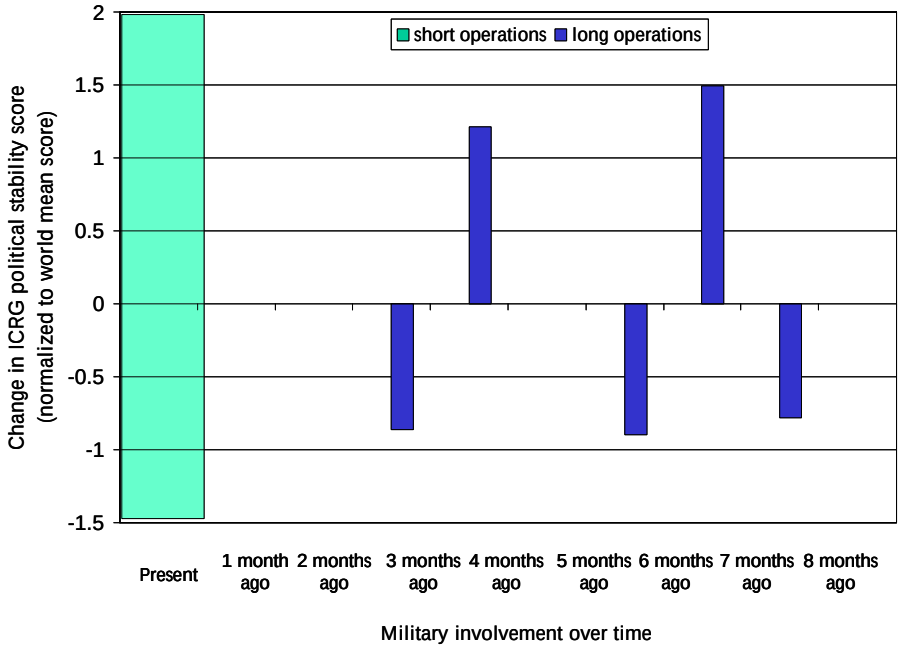
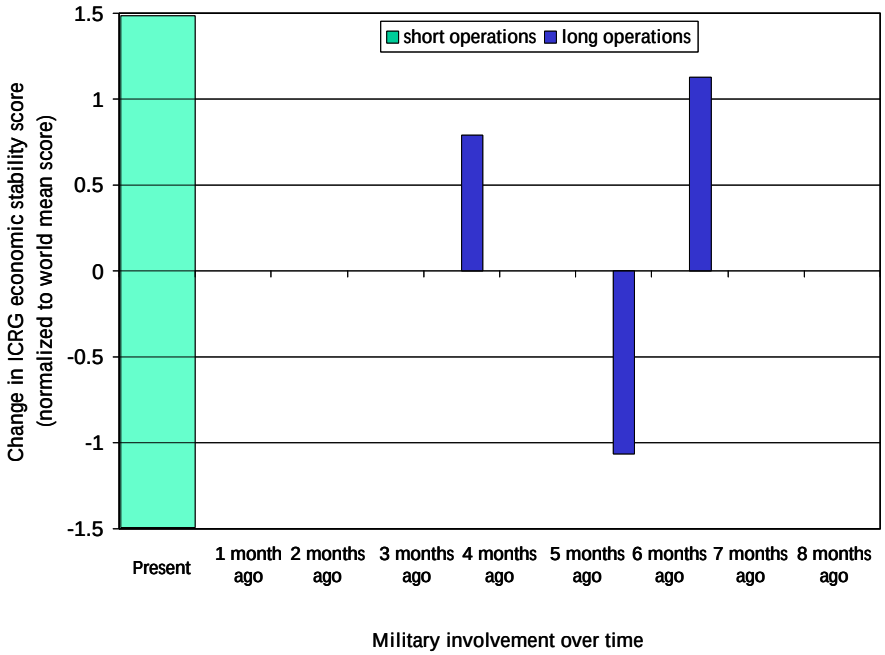


Figure 11. Effects of crisis response operations on economic stability - Middle East



Implications

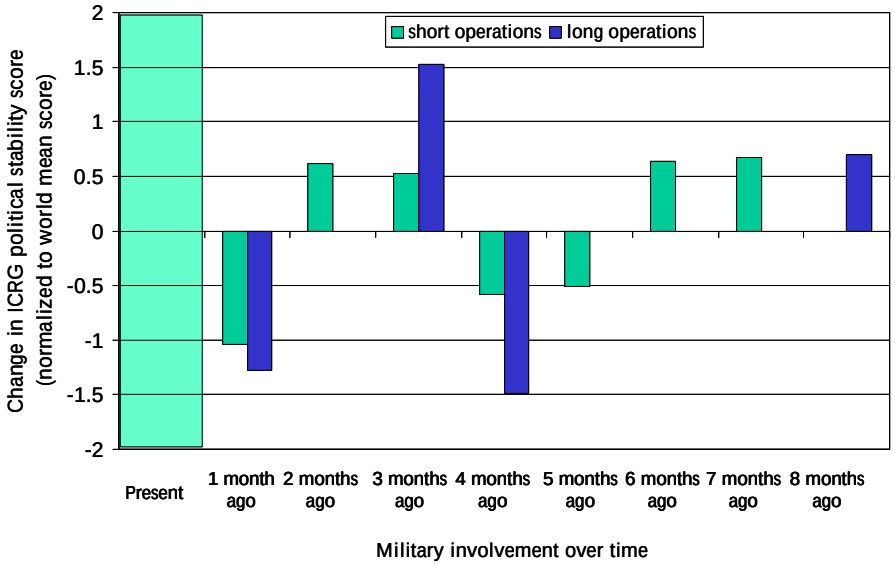
These results imply that military operations similar to those undertaken in Africa will likely have significant effects on political stability, and possibly economic stability, in those countries. Short operations in Africa tend to be those where the US assists with refugees or natural disasters, as opposed to those in the Middle East that are a part of a larger conflict. Even short operations appear to have long-term effects on political stability in these cases. However, these results also imply that individual short operations that are a part of a larger or longer group of operations may not themselves have much effect on stability.

Long-term operations in Africa include many NEOs, as well as activities in Somalia. In the Middle East, long-term operations are dominated by multi-year activities that blur the line between crisis response and long-term presence in the region. Even the long operations in Africa tend to be much shorter than those in the Middle East: the longest operation in Africa lasted 22 months, while some of those in the Middle East have spanned many years. The length of those Middle Eastern operations may make it more difficult to determine a direct effect on political and economic stability using this type of analysis, since forces that have been absorbed into the overall environment may not change stability scores on a month-to-month basis.

Economic development

We see much more significant effects on low-income countries than on middle-income countries. (See figures 12 through 15.) Low-income countries may be more likely to react strongly to the introduction of foreign military forces. An injection of highly trained and well-equipped forces into a country with very few resources of its own may have more of an effect than those same foreign forces in a country that has a well-equipped military of its own. In addition, the same amount of money spent by US troops may have a much greater effect in a low-income economy than in a middle-income economy.

Figure 12. Effects of crisis response operations on political stability - low-income countries



Short operations have long term effects on political stability

Figure 13. Effects of crisis response operations on economic stability - low-income countries

Figure 14. Effects of crisis response operations on political stability - middle-income countries

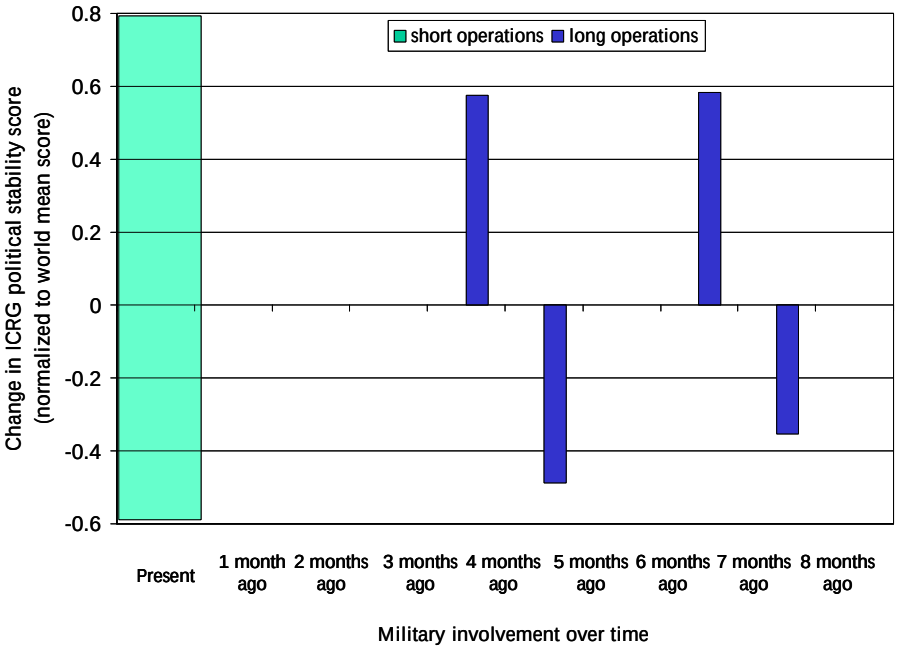
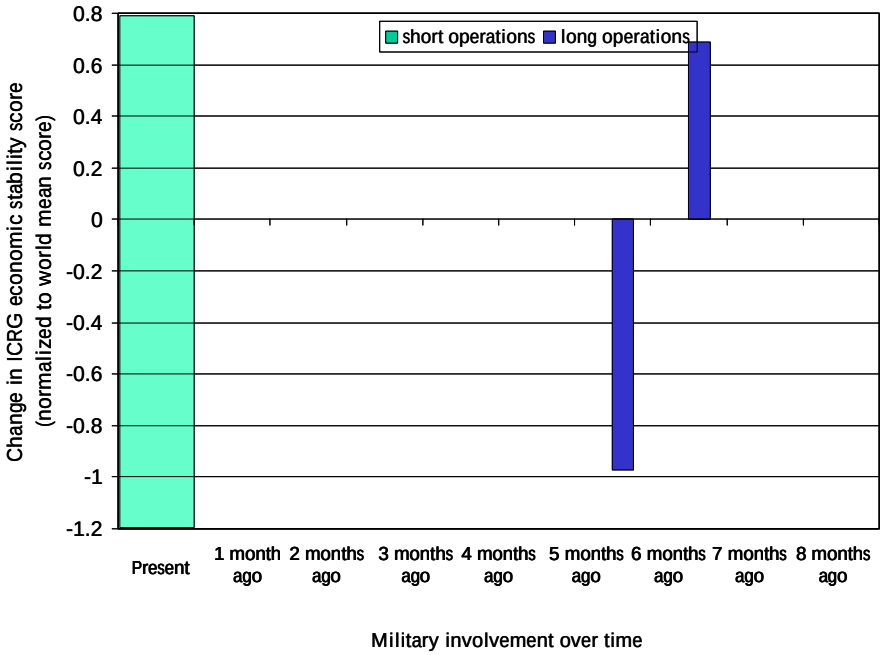


Figure 15. Effects of crisis response operations on economic stability - middle-income countries



For example, Cyclone Marian caused severe damage to Bangladesh in April 1991, killing almost 140,000 people, and over a million head of livestock, and causing massive damage to cropland and infrastructure. Such a disaster has an even greater effect on a low-income country than on one at a higher level of economic development, because the low-income one does not have the resources to rebuild. In the Bangladeshi case, the cyclone hit only two months after a civilian government had taken office, after many years of military governments. Without outside help, there was a potential for serious instability in the country because the inexperienced and under-resourced government might not have been able to provide relief for its people.

Operation Sea Angel, the disaster relief force assembled to help Bangladesh, involved over 7,000 US military personnel, along with others in a multinational force.[39] The Navy and Marines Corps which contributed both labor and supplies, likely had a large effect on the stability of the country. In a country with a better developed infrastructure, outside help might not have as dramatic an effect.

Implications

Operations in countries where US military involvement is a large shock to the system—such as a poor country without resources to react to a natural disaster—can have large effects on both political and economic stability. On the other hand, we may not see much of an effect on stability in a more highly developed country that has its own resources to cope with disasters. This result does not mean that forces in middle-income countries do not affect stability in those countries, but those effects may be more subtle and a more detailed classification may be needed to bring out specific effects on different types of economies. Further research is needed to explore this area.[40]

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39. For details, see [21].

40. For example, one could look at more detailed classifications of countries, such as those in Sachs [19]. Sachs divides the world by patterns of development, which may or may not correspond to income levels.

Conclusions

This analysis focused on the effects of military crisis response on political and economic stability. By separating crisis response operations by length, and countries by geographic region and by level of economic development, we came to the following main conclusions:

- Short operations have a positive effect on political stability for several months after completion of the operation, particularly in Africa and low-income countries. This result may be due more to the types of operations the US military has undertaken in Africa, than to anything particular about that geographic region. Short operations in Africa, for example, tend to be those where the US assists with refugees or natural disaster response, whereas short operations in the Middle East tend to be part of a larger conflict.
- Longer operations can affect both political and economic stability over the long term, but the extent of the effect is unclear. This result may be due to the way in which the ICRG risk scores are calculated. After a certain amount of time, the scorers may fold the presence of US military forces into their general assessment of the political environment. On the other hand, the economic effects may linger, as US forces continue to support economic growth by purchases for their own use, as well as by providing a stable economic environment for other investors.

This analysis provides quantitative evidence that crisis response operations do affect future political and economic stability. Given the nature of the data, it is difficult to know the exact magnitude of these effects, but it appears that there is some kind of linkage between crisis response operations and political and economic stability.

There are still many unanswered questions, however. Issues that should be addressed in future research include the following:

- In many of these operations, other types of support are also involved in resolving the crisis—financial help, political intervention, or actions by other countries along with the United States. How do these other types of aid affect stability in the crisis countries?
- How is stability affected by the beginning and end of long operations? Do we see a net positive or negative effect from the intervention in the years after an operation is completed?
- This analysis looked only at Navy and Marine Corps crisis response operations. How do Army and Air Force operations affect stability? Are there different effects depending on the service involved or the types of operations performed by each service?
- Are there regional effects on stability? If an operation takes place in one country, do we see effects on its surrounding countries or are the effects contained by national borders?

Appendix: Data and regression results

This appendix provides information on the data we used in the cross-country regression models.

- Table 1 provides definitions of variables. Tables 2 and 3 show some basic statistics for political and economic stability, by group.
- The next six tables show the results from the regression models discussed in the text. Tables 4 and 5 show the results for the determinants of political and economic stability for the world as a whole. Tables 6 and 7 show the results for the determinants of political and economic stability by region (Africa and the Middle East), and tables 8 and 9 show the results for the determinants of political and economic stability by income level (low and middle income).

Table 1. Definitions of variables

Variable	Definition
Political risk (t)	Overall ICRG political risk rating (0 to 100) for month t
Economic risk (t)	Overall ICRG economic risk rating (0 to 100) for month t
GDP growth (t)	Monthly GDP growth rate (%) for month t. Estimate based on the score for the monthly GDP growth rate reported in the ICRG
T-bill rate (t)	3-month U.S. Treasury Bill rate in month t
Short military crisis response (t)	Equals 1 if there were US forces involved in a crisis response operation whose total length was 1-3 months in month t in that country; 0 otherwise
Long military crisis response (t)	Equals 1 if there were US forces involved in a crisis response operation whose total length was 4 months or longer in month t in that country; 0 otherwise
Distance	Distance of the capital city from the closest of the four military areas of interest (1,000 km)
Time (1984-88)	Equals 1 if the date falls in the period 1984-88; 0 otherwise
Time (1993-2000)	Equals 1 if the date falls in the period 1993-2000; 0 otherwise
Time (2001-2002)	Equals 1 if the date falls in the period 2001-2002; 0 otherwise

Table 2. Political stability scores

	World	Africa	Middle East	Low income	Middle income
N	28,566	7,533	3,349	8,726	11,711
Minimum	7	7	7	7	7
Maximum	97	82	80.5	76	88
Mean	61.93	51.54	56.09	50.06	60.09
Standard deviation	16.43	13.12	14.53	12.29	13.11

Table 3. Economic stability scores

	World	Africa	Middle East	Low income	Middle income
N	25,250	6,502	3,136	7,225	10,773
Minimum	1	1	3.3	1	3.3
Maximum	50	45.174	46	43.34	46
Mean	28.43	25.01	28.01	24.06	27.01
Standard deviation	8.59	7.89	8.64	7.89	7.59

Table 4. Regression results: dependent variable, political stability score, world[a]

Independent variable	Parameter estimate	Standard error	Independent variable	Parameter estimate	Standard error
Intercept	0.36***	0.05	Bahamas	0.07	0.09
POL_{t-1}	0.99***	0.00	Bangladesh	-0.09	0.08
GDP_{t-1}	-0.03***	0.00	China	-0.03	0.08
DIST	-0.01**	0.00	DR Congo	-0.20**	0.09
TIME_RR	-0.04*	0.02	Ethiopia	-0.11	0.09
TIME_BC	0.14***	0.02	Greece	0.02	0.08
TIME_GWB	0.18***	0.03	Haiti	-0.23***	0.09
$Smil_{t-1}$	-0.44***	0.14	Indonesia	-0.09	0.08
$Smil_{t-2}$	0.12	0.15	Iran	0.01	0.08
$Smil_{t-3}$	0.25*	0.15	Iraq	-0.23**	0.09
$Smil_{t-4}$	-0.17	0.15	Israel	-0.04	0.08
$Smil_{t-5}$	-0.20	0.15	Italy	0.02	0.08
$Smil_{t-6}$	0.24*	0.15	Japan	0.02	0.08
$Smil_{t-7}$	0.19	0.15	Jordan	0.02	0.08
$Smil_{t-8}$	0.11	0.14	Kenya	-0.06	0.08
$Lmil_{t-1}$	-0.47***	0.16	Lebanon	-0.03	0.09
$Lmil_{t-2}$	0.40*	0.22	Liberia	-0.29***	0.09
$Lmil_{t-3}$	0.31	0.22	Mozambique	-0.05	0.09
$Lmil_{t-4}$	0.14	0.22	Myanmar	-0.17**	0.08
$Lmil_{t-5}$	-0.37*	0.22	Panama	-0.01	0.08
$Lmil_{t-6}$	-0.14	0.22	Philippines	0.02	0.08
$Lmil_{t-7}$	0.49**	0.22	Qatar	0.02	0.09
$Lmil_{t-8}$	-0.32**	0.16	Saudi Arabia	-0.03	0.09
			Sierra Leone	-0.20**	0.09
			Somalia	-0.47***	0.09
			South Africa	0.00	0.08
			South Korea	0.04	0.08
			Sudan	-0.23***	0.09
			Taiwan	0.07	0.08
			Tunisia	0.07	0.08
N	28040				
Adj. R^2	.99				

a. *** significant at the 99 percent level; **significant at the 95 percent level; *significant at the 90 percent level.

Table 5. Regression results: dependent variable, economic stability score, world[a]

Independent variable	Parameter estimate	Standard error	Independent variable	Parameter estimate	Standard error
Intercept	0.23***	0.08	Bahamas	0.07	0.10
$ECON_{t-1}$	0.98***	0.00	Bangladesh	-0.10	0.10
$TBILL_{t-1}$	0.05***	0.01	China	0.03	0.10
TIME_RR	-0.07*	0.04	DR Congo	-0.29***	0.11
TIME_BC	0.36***	0.04	Ethiopia	-0.11	0.11
TIME_GWB	0.48***	0.06	Greece	0.01	0.10
DIST	-0.01**	0.01	Haiti	-0.22**	0.10
$Smil_{t-1}$	-0.30*	0.17	Indonesia	0.11	0.10
$Smil_{t-2}$	0.06	0.18	Iran	-0.06	0.10
$Smil_{t-3}$	0.21	0.18	Iraq	-0.19*	0.11
$Smil_{t-4}$	0.07	0.18	Israel	-0.02	0.10
$Smil_{t-5}$	0.02	0.18	Italy	0.11	0.10
$Smil_{t-6}$	0.11	0.18	Japan	0.09	0.10
$Smil_{t-7}$	0.13	0.18	Jordan	-0.10	0.10
$Smil_{t-8}$	0.04	0.17	Kenya	0.02	0.10
$Lmil_{t-1}$	-0.53***	0.19	Lebanon	-0.32***	0.10
$Lmil_{t-2}$	0.64**	0.27	Liberia	-0.25**	0.10
$Lmil_{t-3}$	-0.39	0.27	Mozambique	-0.11	0.17
$Lmil_{t-4}$	0.26	0.26	Myanmar	-0.14	0.10
$Lmil_{t-5}$	0.47*	0.26	Panama	-0.02	0.10
$Lmil_{t-6}$	-1.16***	0.26	Philippines	-0.05	0.10
$Lmil_{t-7}$	0.88***	0.26	Qatar	0.08	0.10
$Lmil_{t-8}$	-0.24	0.19	Saudi Arabia	0.10	0.11
			Sierra Leone	-0.22**	0.11
			Somalia	-0.33***	0.11
			South Africa	0.05	0.12
			South Korea	0.12	0.10
			Sudan	-0.26**	0.10
			Taiwan	0.21**	0.10
			Tunisia	0.05	0.10
N	20977				
Adj. R^2	.97				

a. *** significant at the 99 percent level; **significant at the 95 percent level; *significant at the 90 percent level.

Table 6. Regression results: dependent variable: political stability score, by geographic area[a]

	Africa		Middle East	
Independent variable	Parameter estimate	Standard error	Parameter estimate	Standard error
Intercept	0.38***	0.12	1.63***	0.23
POL_{t-1}	0.99***	0.00	0.97***	0.00
GDP_{t-1}	-0.02**	0.01	-0.02	0.02
DIST3	0.02	0.02	-0.06	0.05
TIME_RR	0.10**	0.05	-0.19**	0.08
TIME_BC	0.29***	0.04	0.43***	0.11
TIME_GWB	0.28***	0.08	0.49***	0.15
$Smil_{t-1}$	-1.26***	0.26	-0.41	0.29
$Smil_{t-2}$	0.55*	0.29	-0.27	0.32
$Smil_{t-3}$	0.60**	0.29	-0.09	0.32
$Smil_{t-4}$	-0.51*	0.29	0.20	0.32
$Smil_{t-5}$	-0.44	0.29	-0.27	0.32
$Smil_{t-6}$	0.69**	0.29	0.07	0.32
$Smil_{t-7}$	0.74**	0.29	-0.22	0.32
$Smil_{t-8}$	0.07	0.26	-0.01	0.29
$Lmil_{t-1}$	-1.04**	0.43	-0.14	0.33
$Lmil_{t-2}$	1.01*	0.59	0.72	0.46
$Lmil_{t-3}$	1.29**	0.59	-0.86*	0.46
$Lmil_{t-4}$	-2.13***	0.59	1.22***	0.46
$Lmil_{t-5}$	0.94	0.59	-0.72	0.46
$Lmil_{t-6}$	-0.11	0.59	-0.90*	0.46
$Lmil_{t-7}$	-0.21	0.59	1.49***	0.46
$Lmil_{t-8}$	0.53	0.43	-0.77**	0.33
CONGO, DEM. REP.	-0.31***	0.10		
ETHIOPIA	-0.05	0.10		
KENYA	0.02	0.10		
LIBERIA	-0.42***	0.10		
MOZAMBIQUE	-0.08	0.10		
SIERRA LEONE	-0.28***	0.10		
SOMALIA	-0.52***	0.11		
SOUTH AFRICA	0.04	0.09		
SUDAN	-0.28***	0.11		
TUNISIA	0.24**	0.10		
EGYPT			-0.13	0.14

Table 6. Regression results: dependent variable: political stability score, by geographic area[a]

	Africa		Middle East	
Independent variable	Parameter estimate	Standard error	Parameter estimate	Standard error
IRAN			-0.18	0.11
IRAQ			-0.83***	0.16
ISRAEL			-0.09	0.11
JORDAN			0.00	0.11
KUWAIT			-0.06	0.13
LEBANON			-0.39***	0.14
QATAR			-0.01	0.12
SAUDI ARABIA			-0.08	0.13
N	7494		3331	
Adj. R^2	.99		.99	

a. *** significant at the 99 percent level; **significant at the 95 percent level; *significant at the 90 percent level.

Table 7. Regression results: dependent variable: economic stability score, by geographic area[a]

Independent variable	Parameter estimate	Standard error	Parameter estimate	Standard error
	Africa		Middle east	
Intercept	0.32	0.20	0.68***	0.24
$ECON_{t-1}$	0.97***	0.00	0.97***	0.01
$TBILL_{t-1}$	0.07***	0.02	0.03	0.03
TIME_RR	-0.10	0.10	-0.05	0.10
TIME_BC	0.30***	0.08	0.42***	0.12
TIME_GWB	0.50***	0.12	0.51***	0.18
DIST	-0.02	0.02	-0.15**	0.06
$Smil_{t-1}$	-0.27	0.31	-0.13	0.33
$Smil_{t-1}$	0.24	0.34	-0.31	0.35
$Smil_{t-1}$	0.24	0.34	0.09	0.35
$Smil_{t-1}$	-0.02	0.34	-0.19	0.36
$Smil_{t-1}$	0.00	0.34	-0.07	0.36
$Smil_{t-1}$	0.32	0.34	-0.04	0.36
$Smil_{t-1}$	-0.10	0.35	0.09	0.36
$Smil_{t-1}$	-0.22	0.31	0.18	0.32
$Lmil_{t-1}$	-1.19**	0.54	-0.21	0.36
$Lmil_{t-2}$	1.67**	0.74	0.49	0.50
$Lmil_{t-3}$	-0.95	0.73	-0.81	0.50

Table 7. Regression results: dependent variable: economic stability score, by geographic area[a]

Independent variable	Parameter estimate	Standard error	Parameter estimate	Standard error
	Africa		Middle east	
$Lmil_{t-4}$	-0.17	0.71	0.82*	0.49
$Lmil_{t-5}$	1.18*	0.69	0.04	0.48
$Lmil_{t-6}$	-2.17***	0.70	-1.16**	0.48
$Lmil_{t-7}$	1.51**	0.70	1.24***	0.48
$Lmil_{t-8}$	-0.42	0.51	-0.43	0.34
CONGO, DEM. REP.	-0.27**	0.12		
ETHIOPIA	-0.13	0.13		
KENYA	0.05	0.12		
LIBERIA	-0.25**	0.12		
MOZAMBIQUE	-0.08	0.19		
SIERRA LEONE	-0.24*	0.12		
SOMALIA	-0.33**	0.13		
SOUTH AFRICA	0.11	0.14		
SUDAN	-0.30**	0.13		
TUNISIA	0.08	0.13		
EGYPT			0.06	0.15
IRAN			-0.13	0.12
IRAQ			-0.37**	0.15
ISRAEL			0.02	0.12
JORDAN			-0.08	0.12
KUWAIT			-0.05	0.14
LEBANON			-0.33**	0.14
QATAR			-0.13	0.14
SAUDI ARABIA			-0.02	0.14
N	5353		2888	
Adj. R^2	.97		.97	

a. *** significant at the 99 percent level; **significant at the 95 percent level; *significant at the 90 percent level.

Table 8. Regression results: dependent variable, political stability score, by income level[a]

	Low income		Middle income	
Independent variable	Parameter estimate	Standard error	Parameter estimate	Standard error
Intercept	0.58***	0.12	0.77***	0.09
POL_{t-1}	0.99***	0.00	0.99***	0.00
GDP_{t-1}	-0.02***	0.01	-0.02***	0.01
DIST3	0.00	0.02	0.00	0.01
TIME_RR	0.06	0.05	-0.16***	0.04
TIME_BC	0.31***	0.04	0.13***	0.04
TIME_GWB	0.31***	0.07	0.17***	0.06
$Smil_{t-1}$	-0.97***	0.24	-0.31	0.21
$Smil_{t-2}$	0.57**	0.26	-0.05	0.23
$Smil_{t-3}$	0.49*	0.26	-0.11	0.23
$Smil_{t-4}$	-0.54**	0.26	0.17	0.23
$Smil_{t-5}$	-0.47*	0.26	-0.05	0.23
$Smil_{t-6}$	0.59**	0.26	-0.08	0.23
$Smil_{t-7}$	0.62**	0.26	-0.13	0.23
$Smil_{t-8}$	-0.09	0.24	0.22	0.21
$Lmil_{t-1}$	-1.18***	0.37	-0.21	0.19
$Lmil_{t-2}$	0.79	0.51	0.02	0.27
$Lmil_{t-3}$	1.42***	0.50	0.22	0.27
$Lmil_{t-4}$	-1.38***	0.50	0.64**	0.27
$Lmil_{t-5}$	0.42	0.50	-0.54**	0.27
$Lmil_{t-6}$	-0.05	0.51	-0.30	0.27
$Lmil_{t-7}$	-0.26	0.51	0.65**	0.27
$Lmil_{t-8}$	0.65*	0.37	-0.40**	0.19
BANGLADESH	-0.09	0.09		
CONGO, DEM. REP.	-0.32***	0.10		
ETHIOPIA	-0.10	0.10		
HAITI	-0.28***	0.11		
INDONESIA	-0.06	0.09		
KENYA	0.04	0.09		
LIBERIA	-0.45***	0.10		
MOZAMBIQUE	-0.02	0.10		
MYANMAR	-0.20**	0.09		
NICARAGUA	0.02	0.11		
SIERRA LEONE	-0.26***	0.10		
SOMALIA	-0.61***	0.11		
SUDAN	-0.36***	0.11		
ALBANIA			-0.09	0.09

Table 8. Regression results: dependent variable, political stability score, by income level[a]

	Low income		Middle income	
Independent variable	Parameter estimate	Standard error	Parameter estimate	Standard error
CHINA			-0.02	0.09
ECUADOR			-0.17*	0.09
EGYPT			-0.15	0.11
EL SALVADOR			-0.06	0.09
GUATEMALA			-0.08	0.09
HONDURAS			-0.12	0.09
IRAN			-0.04	0.09
IRAQ			-0.43***	0.11
JORDAN			0.00	0.09
LEBANON			-0.15	0.09
LIBYA			-0.06	0.09
PANAMA			-0.04	0.09
PERU			-0.15*	0.09
PHILIPPINES			-0.03	0.09
SAUDI ARABIA			-0.05	0.10
SOUTH AFRICA			-0.04	0.09
TUNISIA			0.07	0.09
TURKEY			-0.18*	0.09
VENEZUELA			-0.09	0.09
YUGOSLAVIA			-0.31***	0.10
N	8468		11650	
Adj. R^2	.99		.99	

a. *** significant at the 99 percent level; **significant at the 95 percent level; *significant at the 90 percent level.

Table 9. Regression results: dependent variable: economic stability score, by income level[a]

	Low-income		Middle-income	
Independent variable	Parameter estimate	Standard error	Parameter estimate	Standard error
Intercept	0.23	0.18	0.47***	0.12
$ECON_{t-1}$	0.97***	0.00	0.96***	0.00
$TBILL_{t-1}$	0.08***	0.02	0.06***	0.01
TIME_RR	-0.10	0.08	-0.13*	0.06
TIME_BC	0.39***	0.07	0.41***	0.06
TIME_GWB	0.64***	0.11	0.61***	0.10
DIST	-0.03	0.02	0.01	0.01
$Smil_{t-1}$	-0.76***	0.29	-0.22	0.27
$Smil_{t-2}$	0.62**	0.31	-0.20	0.28
$Smil_{t-3}$	0.41	0.30	0.13	0.29
$Smil_{t-4}$	0.18	0.30	-0.04	0.29
$Smil_{t-5}$	-0.07	0.30	0.25	0.29
$Smil_{t-6}$	0.40	0.31	0.08	0.30
$Smil_{t-7}$	-0.14	0.32	0.15	0.29
$Smil_{t-8}$	-0.38	0.28	0.38	0.27
$Lmil_{t-1}$	-1.65***	0.42	-0.26	0.24
$Lmil_{t-2}$	1.88***	0.57	0.38	0.33
$Lmil_{t-3}$	-0.27	0.57	-0.54	0.33
$Lmil_{t-4}$	-0.49	0.57	0.49	0.33
$Lmil_{t-5}$	0.95*	0.57	0.36	0.32
$Lmil_{t-6}$	-1.97***	0.57	-1.02***	0.32
$Lmil_{t-7}$	1.65***	0.57	0.73**	0.32
$Lmil_{t-8}$	-0.59	0.42	-0.15	0.23
BANGLADESH	-0.07	0.11		
CONGO, DEM. REP.	-0.29**	0.12		
ETHIOPIA	-0.12	0.12		
HAITI	-0.23*	0.13		
INDONESIA	0.20*	0.11		
KENYA	0.07	0.11		
LIBERIA	-0.23*	0.12		
MOZAMBIQUE	-0.08	0.18		
MYANMAR	-0.13	0.11		
NICARAGUA	-0.26**	0.13		
SIERRA LEONE	-0.22*	0.12		
SOMALIA	-0.34***	0.13		
SUDAN	-0.30**	0.12		
ALBANIA			-0.16	0.18

Table 9. Regression results: dependent variable: economic stability score, by income level[a]

	Low-income		Middle-income	
Independent variable	Parameter estimate	Standard error	Parameter estimate	Standard error
CHINA			0.09	0.11
ECUADOR			-0.18	0.11
EGYPT			0.02	0.13
EL SALVADOR			-0.07	0.11
GUATEMALA			-0.02	0.11
HONDURAS			-0.05	0.12
IRAN			-0.05	0.11
IRAQ			-0.31**	0.13
JORDAN			-0.06	0.11
LEBANON			-0.42***	0.11
LIBYA			0.00	0.11
PANAMA			0.02	0.11
PERU			-0.08	0.11
PHILIPPINES			-0.06	0.11
SAUDI ARABIA			0.19	0.13
SOUTH AFRICA			0.01	0.13
TUNISIA			0.11	0.11
TURKEY			-0.25**	0.11
VENEZUELA			-0.10	0.11
YUGOSLAVIA			-0.32***	0.12
N	6092		9188	
Adj. R^2	.97		.96	

a. *** significant at the 99 percent level; **significant at the 95 percent level; *significant at the 90 percent level.

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