

NAVIGATING THE ARAB SPRING: THE POWER OF FOOD PRICES  
AND THE STABILITY OF MONARCHIES

by

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## DEDICATION

I dedicate this to my parents, Karen and Doug, for their continued and unwavering support throughout my educational pursuits. My accomplishments, both in academics and personal aspects, are all thanks to them.

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## ABSTRACT

The Arab Spring shocked the world of political science and international relations due to the collapse of many regimes that were commonly seen as stable. This research seeks to uncover how food pricing, which acted as a “threat multiplier,” incentivized unrest. Through the study of five nations from the Arab Spring—Egypt, Syria, Libya, Tunisia, and Jordan—two things are apparent. First, the monarchy of Jordan is the only regime that remained stable. Second, food prices played an important role in the mobilization of protest. This leads to a quantitative analysis between state fragility, food prices, and monarchies in the Middle East and North Africa region. Using the time period of 1995-2014 in the MENA region, I find that food prices are determinant in the state fragility scores and that monarchies are significantly more stable than other regime types.

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## INTRODUCTION

The revolutions and regime collapses that took place in the Arab Spring shocked many international scholars, foreign policy experts, and Middle Eastern specialists. Many regional experts failed to predict that these regimes, which were largely autocratic or monarchic, would be unable to suppress an uprising by the common people. In Libya, Egypt, and Tunisia, seemingly stable regimes and leaders suddenly lost much of their power. In Syria, an armed opposition directly confronted President Assad. Interestingly, Jordan, a monarchy, was the most stable of all five countries. As uprisings exploded across the Middle East and North Africa region from 2010 to 2012, scholars began to ask the obvious question – why now? What had changed in the modern context that caused such large groups of people to rise up against their government? Individuals and collective action continued to persist even against the threat of possible imprisonment, torture, or even death, which suggests that there was a great deal motivating them and pushing for change.

My research will argue that this instability was initiated by a strong driving force, henceforth referred to as a “threat multiplier”, which consisted of an explosion in food prices throughout the region that resulted in higher issue salience among people in the nation. The general population may not constantly concern themselves with the daily workings of the regime, the present corruption, or other problems with the politics within a country, but when their basic resource access to food is heavily restricted because of price, they are far more likely to seek recourse. The region, it turns out, was not stable but

sitting on a powder keg of unrest that was awaiting ignition—an increase in food prices provided the spark. The sudden increase in food prices pushed people into the streets because it restricted basic resource access—another problem that would only compound the issues that plagued the Middle East and North Africa (MENA) region.

The idea of a “threat multiplier” is key to the research I present. The argument I make here is not that food price increases were the sole reason for the uprisings and regime change in the Arab Spring. Rather, the increase in food prices acted to multiply the already present threats of civil unrest and revolution in the region. Food prices destabilized an already fragile system and ultimately served as a major contributing factor for the Arab Spring.

Food insecurity is clearly a problem that can cause state fragility. In the MENA region, populations rely heavily on food subsidization from the government for affordable staples like wheat and other cereal products. In an IMF report on subsidies, the Middle East and North Africa region spends far more than any other geographic area on subsidies—8.6% of their GDP, with the next closest being other areas being just over 1%. (IMF 2014, 3) If food prices suddenly increase, millions of people suddenly have restricted access to a basic human need: food. Food is an essential resource for any individual. Therefore, in this thesis, I hypothesize that food price increases in the MENA region will lead to a higher level of unrest and a fragile state regimes.

In this research, I analyze five countries that were involved in the Arab Spring from the MENA region—Syria, Egypt, Libya, Tunisia, and Jordan—by using a most similar systems design in order to compare these countries and determine what factors may have influenced how their Arab Spring experience differed. I chose these countries

because of their similarity in demographics, geography, and levels of protest. Through this analysis, Jordan is identified as an outlier—experiencing the lowest increase in food prices between all of the countries, as well as being the only regime that is a monarchy. In addition, Jordan's royalty was also the most stable of all regimes measured throughout the Arab Spring, including the king being the only leader that was not removed from power out of the five countries being studied. The exceptional nature of Jordan's Arab Spring experience helps to confirm the validity of the broader argument.

This finding will lead into the second analysis portion of this paper—exploring whether or not an increase in food prices acts as a threat multiplier across all regimes during the Arab Spring. Using the Food Price Index measurements and State Fragility Index scores from 1990-2014, I conduct a GLS regression panel analysis to identify whether monarchies were significantly more stable during the Arab Spring and the correlation with food prices.

When considering the vast literature on the Arab Spring, one thing appears clear—there is not a singular explanation or reasons for why the revolutions took place. Many other arguments have been made as to why the Arab Spring took place. Social media (Lotan et al 2011), protest diffusion (Saideman 2012), and the economic climate (Malik and Awadallah 2013) are the primary explanations that have been studied as direct causes for the Arab Spring. All of these arguments present reasonable explanations for the onset of revolution in the Arab Spring. In my research, I explore how one particular threat multiplier, an increase in the price of a basic food commodity, is a vital, but overlooked, factor.

The combination of new media, protest diffusion, poor economic and social conditions, and food prices created a perfect storm for the massive uprisings across the MENA region. This article seeks to fill a gap in the literature in two ways. First, I aim to demonstrate that food prices were a strong threat multiplier for the unrest that occurred throughout the Arab Spring through both quantitative and qualitative analysis. This will establish that food prices play an important role in the unrest that took place during the Arab Spring.

Second, this research attempts to better identify the reasons that some regimes within the MENA region survived this tumultuous period. This is a major puzzle that has been visited numerous times by literature suggesting that the inconsistency of western countries and their treatment of MENA regimes, could be at fault for this. For example, western countries “supporting democracy in one Arab country, such as Egypt, while standing by as other allies, such as Bahrain, crush peaceful democratic protests.” (Cause 2011, 89) I posit that the monarchies in the MENA region are more stable throughout the Arab Spring. Many of these regimes are directly supported by Western nations and are accepted as already legitimate forms of government by their population. When these regimes are propped up by western nations, it solidifies their hold on power. Conversely, when the illiberal democratic regimes are supported by Western nations, there is always the possibility that democracy will shine through in the form of protest and revolution.

## MENA REGION PRE-ARAB SPRING

Understanding the state of the countries in this region prior to the Arab Spring is important for the context of this paper. A World Bank report preceding the Arab Spring states that the “Middle East and North Africa (MENA) region is recovering from the financial crisis” but that “high unemployment has been a problem in MENA for years, and the crisis has dimmed prospects for improvements in the near term” (World Bank 2010, VI). High unemployment means a higher possibility of resource insecurity for more people, especially making their access to basic resources even less assured. When resource access is restricted, it will hit the poor, economically vulnerable people the hardest, restricting their access to basic resources even further.

Another problem was that “standards of living in MENA have nearly stagnated as economic growth in per capita terms has been low relative to other developing regions” (World Bank 2010, 2). The income inequality gap grew prior to the Arab Spring, likely due to the corruption and clientelism that was present in many of these regimes. Tunisia’s leader, Ben Ali, built a corrupt economic hierarchy that was described as “unusually personalist and predatory in its corruption” (Anderson 2011, 2) Qaddafi’s regime in Libya “generated widespread corruption” (Anderson 2011, 6). The list continues, as every regime had corrupt practices that mainly served to enrich the elite and ignore the problems of the lower and middle classes.

This created an even larger issue for the poor—a report in 2008 detailing the wheat issues in the MENA region stated that the “poor are most vulnerable to high local food prices because they spend up to 65 percent of their income on food” (World Bank 2008, X). This means that even a small increase in food prices could severely impact a large number of people and lead to resource insecurity for them. “Based on 2011 projected fiscal balances and 2010 wheat-import and consumption data, Libya, Jordan, Yemen, Djibouti, Lebanon, Iraq, Egypt, Algeria, and Tunisia are most vulnerable to a sustained food-price shock” (World Bank 2011). The World Bank also states that Syria and Morocco have “strained fiscal balances, but their import dependence is lower due to higher levels of domestic wheat production” (World Bank 2011, 4).

On top of this, National Oceanic and Air Administration released a report in 2011 detailing that “in the last 20 years, 10 of the driest 12 winters have taken place in the lands surrounding the Mediterranean Sea” (NOAA 2011). This contributed to more difficult farming conditions, less food produced in the area, and increased water scarcity. NOAA even went so far as citing that “winter drought has emerged as a new normal that could threaten food security” (NOAA 2011). This places continued pressure on the geographic area as a whole, weakening an already stressed food and water system supplying basic resources to millions of people in these countries.

Considering this information, it is clear that all countries included in this project were subject to the concentration of power in the hands of the few, experienced massive income inequality as well as, scarce food and water resources prior to the Arab Spring. Now that I have established that the MENA region was experiencing a myriad of problems to begin with, I will take an in-depth look at countries that were heavily

affected by the Arab Spring—specifically Egypt, Syria, Tunisia, Libya, and Jordan. Once again, these states have been chosen because of their close proximity, their involvement in the Arab spring, and their demographic similarity.

Additionally, each of these states has states possesses connections to either western powers or a powerful state within the international system. These connections are important to consider because when nations like the U.S. or Russia financially support regimes or invest in a state, they have a vested interest in the stability of a nation. For this reason, the sitting regimes of these states may receive assistance of some form from their powerful allies.

Egypt and the United States have established a strong relationship in the 21<sup>st</sup> century—mainly due to the Egyptian support of the U.S. foreign policy. The United States contributed \$1.55 billion in aid in 2010 to Egypt, for goals including military development, economic aid, and democracy promotion (Sharp 2011, 17-18). This would suggest that the United States has an interest in Egypt’s stability and security. However, after Mubarak’s regime raided 17 different NGO offices receiving foreign aid in Egypt (BBC News 2011), the relationship between the U.S. and Mubarak became far more tumultuous, with the United States recommending that Mubarak pursue a peaceful course with the protesters.

Syria and Russia have had an extensive relationships including “over \$4 billion in active arms contracts with Damascus” (Amos 2011) as well as exports to Syria totaling \$1.1 billion and investment in Syria coming in at \$19.4 billion. Russia maintained these contracts to Syria during the unrest and civil war, meaning that weapons used by the Assad regime were likely sourced from Russia. In addition to this, Russia has now

intervened in the Syrian Civil War, allying with Assad's regime in an attempt to regain control of the nation.

Libya was a slightly different case because of the contentious relationship with many western countries throughout the late 20<sup>th</sup> century. However, prior to the Arab Spring, Libya was taking avenues to re-establish relationships with the west—the United States appointed the first ambassador to the country since the 1970s, Libya compensated the victims of prior terrorist acts, and Libya was seeking to establish full relations with powerful nations (Al Jazeera 2008). Once the Arab Spring began, Gaddafi fell into the same repressive and violent tactics as before, and was quickly abandoned by more powerful states. Because of Libya's previous terrorist connections, once the country fell into a violent civil war it became more likely for the United States and Europe to turn to NATO to intervene.

Tunisia has a historical relationship with France because of its colonial history—this relationship continued into the early 21<sup>st</sup> century. In fact, “between 2006 and 2010, France allocated 950 million Euros to Tunisia in loans and grants” (Jebel 2014, 12). The United States and Tunisia have “relations span over 200 years” and “October 2002, they signed a Trade and Investment Framework Agreement (TIFA), and in October 2003 held the first TIFA Council Meeting in Washington, DC (Jebel 2014, 13). Pre-Arab Spring Tunisia was a well-connected MENA region country with established ties to western nations.

Jordan has a history of deep diplomatic ties with the United States, with original relations established in 1949 (Department of State 2014, 1). Since the beginning of these relations, “U.S. aid to Jordan through FY2015 amounted to approximately \$15.833

billion” (Sharp 2016, 12). The United States also granted Jordan Major Non-NATO Ally (MNNA) status, a designation that, among other things, makes Jordan eligible to receive excess U.S. defense articles, training, and loans of equipment for cooperative research and development” (Sharp 2016, 14) The United States relies on Jordan as a vital ally in the MENA region.

All five of these nations possess valuable connections to world hegemony in one way or another—many of their economies, militaries, and trade relations were directly supported by powerful nations like the U.S. and Russia. As stated before, this suggests that these nations will be interested in maintaining stability within the country in order to both preserve their investment, as well as uphold an ally relationship in a historically unstable geographic area.

Another important distinction to consider in this region is the difference between authoritarian and monarchy legitimacy. This will come into play later in my research once focusing on the difference between monarchies and authoritarian regimes in the MENA region. In my initial case studies, Jordan is the only monarchy.

I work on the theoretical framework that monarchies possess higher legitimacy than the non-monarchies in this region because of the difference in regime structure. The citizens in a monarchy expect the leadership to be chosen by hereditary means, while citizens in the non-monarchies expect some semblance of democratic choice and representation. When this is not present, the legitimacy of these non-monarchy regimes decreases because the citizens perceive clientelism and corruption to be a motivating factor behind the selection of leadership.

This legitimacy can be interpreted as “kings and princes wield a special cultural authenticity with Arab Muslims that presidents and generals—no matter how grandiose their military uniforms or civilian titles—simply do not have” (Yom 2012, 2). The monarch of Jordan claims direct descent from the Prophet Muhammed—and comparing to a head of state like Qaddafi, will wield a level of legitimacy far greater than authoritarian leaders in the largely Muslim states.

In addition to this form of legitimacy, this also exists in the form of distance from government entities. During the Arab Spring “monarchs exercise power ‘at some institutional and symbolic distance from the political arena,’ they thus ‘had a crucial advantage over their presidential comrades: they could drape themselves in the flag of national monarchical patriotism and thus be perceived more widely as legitimate (and effective) arbiters of competing social, economic, religious, and ideological interests’” (Gause 2013, 8). This distance allowed the monarchs to instead place the blame on the sitting government and escape unscathed.

In Gause’s research he also cites a prominent Arab scholar—Saudi sociologist and political activist Khalid al-Dakhil. al-Dakhil asserts three main reasons why monarchies escaped the Arab Spring. The first is “longevity: with the exception of Jordan, the Arab monarchies have long histories in their countries” (Gause 2013, 8). Al-Dakhil states that the second is monarchies are “traditional regimes that emerged from within their traditional societies, by means and factors that are consonant with the structure of these societies” (Gause, 2013, 8). Third and finally, these two points lead to his final assertion—“that the monarchical regimes are ‘closer to the society that they govern’ than are the republics” (Gause, 2013, 8).

Another thing to consider for this framework is the lack of opposition within most monarchies—no group other than the royal family can assert a legitimate claim of leadership in a true monarchy. Additionally, many of the MENA monarchies have become quite effective at silencing critics in the media and general public with their power. In countries like Tunisia, Egypt, and Syria, there are opposition parties in some form, allowing for these groups to support the claims of lack of legitimacy in the sitting regime.

This literature demonstrates that monarchies have a history of legitimacy in the Arab world. In addition to this, I add another reason for monarchy stability: monarchies State Fragility Index scores are significantly lower than that of autocracies. This index is comprised of 8 different measurements that effectively summarize the fragility within a state.

To begin the analysis, I will present a short case study of each country. The goal of the case studies is to identify similar problems that each country faced both prior to and during the Arab Spring. Following the case studies, I present a table detailing the most similar systems data in order to present the key similarities and differences between the countries. The data presented identifies that Jordan experienced the lowest rise in food prices and the only country not to experience a regime change—in addition to being the only monarchy regime type measured. This leads to a new question—does this apply to all monarchies in the Arab Spring?

In order to answer this question, I employ a two different regressions using the State Fragility Index from 1995-2014. The State Fragility Index measures two parts of a country: effectiveness and legitimacy. Each part has 4 sub-sections made up of economic,

security, political, and social measurements. Using the State Fragility Index and a measurement of food prices, the analysis shows that the change in the Food Price Index score is a statistically significant determinant of the change in the State Fragility Index score. This establishes that there is connection between an increase in food prices and high state fragility. The second regression uses a regression and explores if monarchy has a statistically significant connection with the State Fragility Index. The statistics confirm this hypothesis that monarchies are a more stable regime during this time of strife for the MENA region.

## CASE STUDIES

### **Egypt**

Prior to the Arab spring, Egypt was a key ally of the United States and a well-connected Middle Eastern country. Of course, it still encountered problems associated with many other developing nations, such as corruption, disorganized government, and unemployment. After the Arab Spring, Egypt has experienced multiple regimes changes, large amounts of political and civil unrest, and continued unemployment.

The regime in Egypt was nominally a “representative democracy,” but there was little to no political competition present and Mubarak dominated the government from 1981 to 2011. Mubarak claimed that “Egypt enjoys ‘all kinds of democracy’” (Brownlee 2002, 6). However, since taking power, Mubarak has “acquired substantial liberty to have his opponents convicted in military trials, for example, or to shut down newspapers and professional syndicates, or to jail human rights activists” (Brownlee 2002, 6). In addition, “Mubarak has subdued Egypt’s Islamists, leftists, and human rights community to the point where little domestic impetus for reform remains” (Brownlee 2002, 11). Mubarak’s regime had a history of repressing competing ideas, political opponents, and anyone who opposed Mubarak in power.

Prior to the Arab Spring, Egypt was in a severe downward spiral. Mubarak’s regime was failing to provide basic social services to much of the population leading to widespread unemployment and poverty” which “alienated tens of millions of Egyptians”

(Anderson 2011, 4). In addition, there were “growing conspicuous consumption among a business elite connected to Mubarak's son Gamal...” (Anderson 2011, 4) which only served to increase a distrust of the Mubarak regime among the Egyptian people. This would lead to decreases in perceived legitimacy in this authoritarian system as state earlier. The perception of Mubarak favoring his family directly in a regime that was meant to be a democracy demonstrates to the people that their interests are not truly represented by the regime.

Problems like this exemplify the poor shape both the people of Egypt and the government of Egypt were truly in. This set the stage for the massive uprising that would come, all that was needed was a spark. This spark was a huge increase in their staple food commodities.

Egypt experienced a massive problem with food prices spiking during the Arab Spring. This transpired when China purchased a huge amount of wheat off the international market because the Chinese government was anticipating a large drought that would leave them with an enormous shortage. Egypt was importing huge amounts of wheat as seen in a 2011 USDA report. Egypt was importing around 7700 metric tons of wheat in 2007, which shot up to 10,300 metric tons in 2009. (USDA 2011) After this, it fell to 9800, but problems continued because “summer 2010 Russia, Egypt’s main wheat source, banned exports due to potential domestic shortages. This contributed to a 5% decrease in imports to Egypt in 2010 that stressed local supply and necessitated additional external purchases” (Sternberg 2012, 520). Egypt’s issues exemplify the possible impact of international markets on food prices and the potential for unpredictable food price increases.

The reason this presented such a large problem in the first place was the level at which the government subsidized wheat and bread in Egypt. Prior to the riots, Egypt spent “3 percent of its gross domestic product on wheat subsidies” (Sternberg 2013, 10). When the imports of wheat severely decreased and the wheat supply dwindled, the subsequent increase in wheat prices sparked the bread riots. This was an issue of perception associated with the supply of wheat from the government; although Egypt was not directly responsible for the shortage in wheat, the government heavily subsidized wheat and the soaring prices led people to fault the government. People who were already dissatisfied increased their level of dissatisfaction, and people who may have been previously unconcerned with political issues now had a focusing event that caused them to become embroiled in the eventual revolution.

When studying Egypt’s Arab Spring experience, it’s important to take notice of why Egypt was encountering the problem in the first place. According to the World Data Bank, Egypt’s production of agriculture only totaled 1% of their total GDP from 2006-2012. Compare this to somewhere like the United States, who produces around 15% of their total GDP in agriculture. Egypt’s population in 2008 was close to 75.5 million people and the household food consumption depended on bread or other wheat products. In measurements by the World Food Programme, they measured wheat-based products accounted for 42.5% of the daily calorie intake for the average person. Thinking about this in terms of prices raising, this would suggest that the product that accounted for nearly half of the diet of the entire nation was tripling in price.

This is exactly where the idea of the threat multiplier comes into play. A rise in food prices will most likely never be a singular driving force behind revolution.

However, as seen in Egypt, food prices can definitely bring people out to the streets in the form of bread riots. Many other issues had Egypt on the brink of collapse—unstable regime, corruption, etc. All of these issues worked to increase the fragility of the state of Egypt and the regime, and food prices played a major role in bringing people to the streets and working as a threat multiplier.

All of this evidence and Egypt's experience in the Arab Spring shows that Egypt is a prime example of food prices impacting and the initiation and direction of revolution in the country. As wheat prices tripled, individuals took to the streets to voice the concerns, bread riots turned into larger protests, and eventually turned into massive regime collapse and transformed the country. Food price increase can be cited as a direct threat multiplier in this situation.

### **Syria**

In line with Egypt, Syria's government under Bashar al-Assad was a disjointed and inherently unequal system that focused on concentrating power and wealth for the elite. "Political, administrative, and socio-economic progress came to a halt or was reversed... "Modernization" under Assad meant new cars, cellphones, posh restaurants and hotels for the urban new rich - not infrastructure, schools and social services for the rural poor" (Wieland 2012, 3). By disenfranchising a large portion of Syria, Assad was setting the stage for a discontent that would eventually boil over into revolution. Once again, severe constriction of resource access and skyrocketing food prices provided fuel to the brewing fire of revolution.

Much like Egypt, Syria also asserted that it was a democratic state. However, the Assad family has held power in Syria since 1971, with Bashar al-Assad's father Hafez

being the first in the family to rule Syria. It is clear that there are non-democratic forces at play when power is passed down hereditarily, as is the case in Syria. This correlates with my theoretical framework of legitimacy in these non-monarchies—a single family ruling Syria since 1971 in a supposed democracy would greatly decrease legitimacy because it would be easy for citizens to see that the Assad family was interested in maintaining power for themselves and not pursuing it through democratic channels.

Syria also has a high level of ethnic fractionalization which causes more problems. In a memo developed for a conference on the topic of Syria's civil war, Fotini Christia details that “there are multiple underlying ideological, ethnic, tribal, religious, and sectarian narratives that seem to be operating at once” (Christia 2014) and that there are multiple levels of religious and ethnic cleavages formed throughout the country that have led to large divides between Syrian citizens.

Egypt's case clearly demonstrates that food prices or general resource insecurity has the ability to act as a major threat multiplier for civil unrest or revolution. This case study of Syria demonstrates that due to a major drought, extreme resource insecurity, and mass migration that they experienced a similar threat multiplier effect. The drought mentioned before caused a major reduction in food production, “nearly 75 percent ... suffered total crop failure.” (Femia and Werrell, 2013) and in other parts of Syria, herders lost “around 85 percent of their livestock” (Femia and Werrell 2013, 25). This led to a massive exodus of people from rural land into the cities, with reports stating that “800,000 Syrians had lost their entire livelihood as a result of the droughts” (Femia and Werrell 2013, 25). Once the mass exodus of farmers and herders took place, it began to set the stage for violent civil war and the fractured country that still persists today.

This drought in the area was found to be linked to climate change in a report published by NOAA in 2011. The researchers stated that the “Mediterranean region accumulates most of its precipitation during the winter” but there was a “pattern of increasing wintertime dryness that stretched from Gibraltar to the Middle East” (NOAA 2011). After conducting their research, NOAA found that “climate change from greenhouse gases explained roughly half the increased dryness of 1902-2010” (NOAA 2011).

This direct connection between climate change and drought within the area suggests this issue only served to worsen the already dismal agriculture system in Syria. An important thing to also note here is the earlier referenced World Bank report—they stated that Syria was relatively safe because of their domestic wheat production—but after a drought that cause 75% total crop failure, the country was plunged into major food insecurity. This, coupled with the drought, would nearly completely eliminate and domestic source of food, forcing them to depend on food imports.

Resource insecurity was the major issue seen in Syria, mainly the access to agricultural products. The Assad regime in Syria was responsible for “wasteful agriculture” (IRIN 2010) which, instead of searching for drought friendly irrigation and crop production, “agricultural policies encourage water-hungry wheat and cotton cultivation, and inefficient irrigation methods mean much water is wasted” (IRIN 2010). The method used in the area was irrigation by flooding, which uses “30-40% more water” (IRIN 2010) than other more modern methods. In addition, due to the massive arrival of people in the urban areas, there is a huge stress on the water network within the city. This is exacerbated by poor infrastructure, where the “city water network leaks up to 60

percent of the water it carries, according to the local authorities. Migrants living on the outskirts are having to pay for water from tankers at an inflated price” (IRIN 2010).

In a 2008 World Bank report on Syria’s agricultural systems it was stated that Syria “has a high level of social and economic dependence on agriculture” and that “farming employs 20-25% of the population directly” (World Bank 2010, 5). Because Syria is so dependent on farming, a collapse of the system would work as a major threat multiplier for revolution. Not only does this support the food price hypothesis, but also exemplifies that general resource insecurity can contribute as a threat multiplier as well.

Egypt’s threat multiplier was focused on general lack of access to wheat products, a staple in their daily life. Syria’s threat came from a very similar source, but with compounding issues. Not only did the drought and crop failure cause 800,000 to lose their livelihood, but also severely limited food access for many Syrian people (Reach Report, 2014). This is the highlight of the food problem in Syria - food prices, coupled with the mass exodus from rural to urban area and lack of resource access, acted as a compound threat multiplier that helped throw the country into a civil war that still rages today.

Syria’s drought levels and food production show a 47% decrease in wheat production from 2007-2008 and a 77% decrease in barely production from 2007-2008. After this massive drop, Syria has never recovered to pre-2008 production in any of their agricultural sectors (Central Bureau of Statistics, Syria). This causes a major problem because of Syria’s dependence on the agricultural industry in their country for the livelihood of the people, for provision of food to their people, and for population distribution in the rural areas.

Observing Syria's descent into civil war demonstrates that food prices and resource insecurity can act as strong threat multipliers for revolution. Although technically there has not yet been a regime change from Assad in Syria, the country is still embroiled in a civil war that has left many thousands dead, many more as refugees, and could very well lead to the collapse of the state itself. For this reason, I will equate the current situation of Syria to that of regime changes in other countries observed in the analysis for the use in the most similar systems data.

### **Tunisia**

When considering the Arab Spring, Tunisia is often seen as an outlier among other countries that were involved in the events, mainly because of their successful outcome relative to other countries. Tunisia experienced the same food price crisis that every other nation in the Arab Spring also faced. The question is - why did Tunisia differ? Contrary to many of the other countries, Tunisia's Arab Spring experience is often seen as a success, with the revolution ultimately leading towards constitutional change, the deposition of the leader, and benefits for the people (Anderson 2011).

Prior to the Arab Spring, Tunisia was under the rule of Ben Ali, a regime that was characterized by strong power concentration and inequality. His government "tightly restricted free expression and political parties" and "Ben Ali's family was also unusually personalist and predatory in its corruption... more than half of Tunisia's commercial elites were personally related to Ben Ali" (Anderson 2011, 3). The government was in complete control of Tunisia—in forms of executive, legislative, and economic power. This complete control once again supports the theoretical framework of decreased legitimacy in these non-monarchy regimes that maintain a surface level appearance of

democracy. The power of the Ben Ali and his family demonstrates that democracy is not at work here and the legitimacy of their rule is decreased.

Like the other countries measured, the beginning of Tunisia's riots was largely centered on food prices. When considering food prices and their role in this, there were "demonstrators waving baguettes on the streets of Tunisia" (Johnstone and Mazo 2013, 18) and before he fled the country, Ben Ali promised to "reduce the price of staples such as sugar, milk and bread" (Cha 2011, 1). These compromises were not enough to keep him in power, and Ben Ali was deposed. This suggests a similarity between the onset of revolution between Tunisia and the other measured countries.

Tunisia also has a large grain dependence similar to other countries; a report from the FAO estimates that Tunisia imported around 2 million tons of grain in the 2010/2011 marketing year. Also included in this report is that the "the hike in international food prices has not translated into high domestic prices due to interim Government intervention aimed at maintaining subsidies on basic food items" (FAO 2011, 1). Although this was in 2011, it demonstrates the interim is willing to make concessions for the people in order to combat food price volatility.

However, the focal point of Tunisia's Arab Spring experience should be the onset of the uprisings—which were undoubtedly encouraged by the food riots and protests that took place throughout the country preceding Ben Ali fleeing the country, the constitutional changes, and ultimate success of the Tunisian revolution. Corruption was also an obvious reason for revolution as well, with "more than half of Tunisia's commercial elites...personally related to Ben Ali" (Anderson 2011, 3). As

aforementioned, Ben Ali also attempted to quell the protests and riots by subsidizing food staples in the country, but the action was too little, too late.

Tunisia's case provides good evidence for the threat multiplier theory of food price increases—demonstrating how they can act to fuel already present unrest, but also how they cause the onset of unrest. Tunisia was the first Arab country to erupt into protest, fueled by several different problems, food prices and resource access being one of them. The spike in food prices and decrease in basic access for the people worked in part to spur Tunisia's large middle class and mobile labor force to organize in protest against the current state of the country and bring about change.

Interestingly, Tunisia's successful and stable transition could also be in large part because "Tunisia has long enjoyed the Arab world's best educational system, largest middle class, and strongest organized labor movement" (Anderson 2011, 3). A system that already has institutions and strength from the people present may have made it increasingly difficult for the Ben Ali, the Tunisian President at that time, to use similar military tactics to the other countries. Another reason these tactics would have been difficult was the Tunisian military and its "refusal to support Ben Ali's regime" which "contributed to the country's revolution" (Anderson 2011, 3). The violence and repression in many of the other Arab Spring countries was a result of a strong military regime controlled by the sitting government. Revolution and change is far more difficult when the population is forced to go against the military.

When accounting for these differences in country type, it is clear that Tunisia was functioning on a different level of governance than the other countries being measured. The presence of a strong middle class and organization present from the labor movement

allowed the people to organize and effectively establish compromises with the government in order to avoid violence and violation of human rights that was present in so many Arab Spring uprisings.

### **Libya**

Libya is also somewhat of an outlier in the Arab Spring—their government structure preceding the revolution was a brutal authoritarian regime with “artificially induced scarcity” of goods, “no system of political alliances, network of economic associations, or national organizations,” and destabilized by Qaddafi’s actions that “prohibited private ownership and retail trade, banned a free press, and subverted the civil service and the military leadership” (Anderson 2011, 6). As a result of this, Libya was set for a much different revolution than other Arab Spring countries. Citizens had little to no access to the government, insufficient resource provision to begin with, and lived under a brutal and unforgiving authoritarian government.

Qaddafi’s legitimacy rests solely on his retention of military power. Unlike the other countries considered prior to this, Qaddafi put forward no effort to suggest Libya was a democracy. Instead he ruled by force and repression of the people—something that would decrease his legitimacy among the people even further.

In addition to poor structure, Libya was also plagued by resource insecurity - specifically water. In Libya, “Qaddafi used oil revenues to finance the “Great Man-Made River Project,” one of the largest water engineering projects in the world—and quite unsustainable. Libya is 93 percent arid, and the aquifers it is draining for the project are shared by Egypt, Chad, and Sudan. Moreover, climate projections estimate that Libya’s drought days per annum will rise from more than 100 to more than 200—an enormous

and potentially devastating increase” (Slaughter 2013, 3). These kind of programs only serve to stress an already fragile system and continue to increase issues related to resource access.

Qaddafi’s authoritarian rule coupled with the increase in food prices caused massive uprisings in the country, with many of the riots beginning with a fixation on food, but descending into general discontent with the government and eventually developing into all out civil war against a government that had failed the people. The interesting phenomenon of Libya in the Arab Spring is the onset of an armed civil war. Why did Libya experience a violent civil war aimed at deposing the current government instead of a clear path like Tunisia? A clear reason could be the regime difference between the two—Tunisia with a structured, institutionally based government with a strong middle class and Libya with an authoritarian government based around violent repression, control of the people, and rampant corruption.

It’s obvious that Libya had a number of issues plaguing the country as a whole before the unrest occurred—something that likely contributed to the revolution and ultimately led to the onset of violent civil war. As shown prior, the world food prices had spiked to historic levels causing people on the poverty line to experience extreme problems with food access and resource insecurity. This was no different in Libya—especially because of their major dependence on grain imports.

Like many of the other Arab Spring countries, their arable land available for farming was extremely small and they relied heavily on grain imports in order to satisfy their people’s need for basic food staples. “The country imports about 80% of its consumption requirement” with the number one import being wheat (WFP 2011, 7). In

2007 a report from the US Department of Agriculture shows that Libya's rose 58.35% - from 994 megatons to 1574 megatons and then another 7.31% in 2008. Finally, preceding the Arab Spring in 2009-2010, Libya's import rate increased to 2,091 - a rate more than double what their imports were in 2007 (WFP 2011, 7). This large increase in imports also coincides with the food price increases, meaning that Libya was not only purchasing more grain, but at a higher price.

Libya's food situation was worsened by the fact that "agricultural output is constrained by a shortage of arable land and indigenous labor. These problems were compounded by the government's push for the development of large state-owned farms, characterized by low yields and production despite the agricultural technology provided to these structures" (WFP 2011, 10). All of this demonstrates how much the people of Libya depended on food imports, making them vulnerable to the volatility of wheat prices during this time. A FAO statistic from the World Food Programme report stated that roughly 38% of the Libyan people's food intake consisted of wheat (WFP 2011, 22).

Libya's violent civil war was undoubtedly a combination of many different factors, but through this case study it is clear that food prices acted as a threat multiplier to bring people to the streets. As stated in the opening section, food is a basic need for every individual. When individuals have their most basic needs constricted, especially food, it appears to make them far more likely to be willing to rise up against the current regime, even when it is a brutal and violent authoritarian regime known for aggressive suppression tactics.

## Jordan

The Arab Spring in Jordan resulted in slow incremental change from the sitting regime that placated the protesting population and allowed the elites to avoid total collapse. The history of uprisings in Jordan give a good idea of why their Arab Spring experience proceeded the way it did. In a previous example of civil unrest, “Jordanians took to the streets of several cities in the spring of 1989 to protest the government’s decision to raise prices of several commodities” (Barari and Satkowski 2012, 44). This led to King Abdullah II opening up the political system as a compromise for the protests. This demonstrates a historical predisposition for effective compromise between the monarchy and the population.

Prior to the Arab Spring, Jordan’s regime was ruled by King Abdullah II in the form of a monarchy. He possesses strong power over the country, as exemplified by his “dismissal of the parliament and his announcement that elections would not be held until the end of 2010, as well as the security forces’ increased influence over political life” (Freedom House, 2010). King Abdullah II holds very broad executive powers and controls much of the freedoms for people in the country as well. Similar to many of the previous countries, Jordan was plagued with corruption, high power concentration, and inequality.

King Abdullah II is a descendant of the royal family in Jordan – a family that has increased relations with the United States and the West, with great benefit for the country of Jordan. His royal bloodline, coupled with Jordan’s benefit from his family over time, gave him increased legitimacy. The citizens within Jordan expect the monarch to come from the royal family since the inception of country, claiming legitimacy from their

descent from the Prophet Muhammed. This legitimacy allowed King Abdullah to use the Prime Minister and rest of the government as a scapegoat for this issues, retain his power, and weather the Arab Spring successfully.

Jordan also similarly experienced the events of a food price increase correlated with the uprisings. A New York Times report in February of 2011 details that “Banners decried high food and fuel prices and demanded the resignation of the prime minister, appointed by the king” (Kadri and Bronner 2011, 1). These commodity prices added fuel to the fire of the protests and continued to bring people onto the streets. However, compared to examples like Syria and Egypt, Jordan’s Arab Spring resulted in a favorable outcome for the incumbent regime.

The more favorable outcome for Jordan might be attributed to fact that the King of Jordan “established National Dialogue Committee, a 52-member body comprised of leaders from Jordan’s political and societal groups” and “he set up a royal committee to revise the constitution and suggest the required amendments to bring about the desired political reform” (Barari and Satkowski 2012, 50-51). The monarch used the government officials as the scapegoats for the problems within the country—placing the blame on them and removing them from power in order to appease the protesters. The regime then “continued the old strategy of unveiling incremental reforms to placate protesters while at the same time pursuing a new strategy of slowly pushing the state towards a more meaningful, systematic reform” (Barari and Satkowski 2012, 53).

These incremental responses, combined with the historical examples of the Jordanian monarchy compromising with the people, provides key insight into why the Arab Spring in Jordan may have resulted in government reform, rather than overthrow or

regime collapse. Jordan is also a valuable U.S. ally who helps solidify United States interest in the region. Jordan has a history of relying on aid—“To survive and prosper, [Jordan] must have dependable sources of foreign aid. The traditional source of such aid has generally been the United States, the United Kingdom, and Western Europe. In recent years, Saudi Arabia and the Gulf states have also been an important source of foreign investment and aid for specific projects” (Terrill 2011, 10). As mentioned in the prior section, this would also indicate that these countries have a vested interest in ensuring that Jordan remains stable in order to both solidify their own interests, as well as their foreign aid investments.

As observed in the other case studies, food prices were once again seen as a driving force for protests, putting people into the streets. The increase in food prices acted as a direct threat multiplier and caused uprising against the sitting regime of Jordan. Because of the historical context of Jordan’s regime, vested interest from western countries, and the sacrifice of the current government instead of the royalty, Jordan experienced a much more peaceful Arab Spring than many other Arab countries.

## MOST SIMILAR SYSTEMS

**Table 1** Most Similar Systems Design

	Freedom House Rating (2010)	HDI Score (2010)	Urbanization (2010)	Regime Type	Food Price Increase from Jan 2008-Dec 2010	Outcome
<b>Egypt</b>	5.5	0.681	43%	Autocratic	43%	Leader Change; Instability
<b>Syria</b>	6.5	0.639	56%	Autocratic	11%	Civil War
<b>Jordan</b>	5.5	0.743	82%	Monarchy	8%	Stable Regime
<b>Tunisia</b>	6	0.714	66%	Autocratic	12%	Regime Change
<b>Libya</b>	7	0.756	78%	Autocratic	17%	Civil War

Highlighted in yellow are the three major outliers in the most similar systems design. First, Egypt experienced a far greater rise in food prices than the other countries, with a 43% overall increase from January 2008 to December 2010. The next closest large rise in prices is Libya, with a 17% increase in food prices during this time. As stated earlier, the poor spend up to 65% of their income on food, which would make even an overall 8% increase in prices in Jordan a huge impact for them (World Bank 2010, X).

Second, it is observed that Jordan is the only monarchy in the system—all other countries are some form of autocratic system with leaders that have been in power for long lengths of time without many checks on their power, if any at all. This is an

extremely important observation—not only did Jordan experience the lowest rise in food prices, but they were also the singular monarchy system. Additionally, as stated in their case study, the royal family in Jordan escaped the Arab Spring unscathed. This was not the case for every remaining country—all other leaders were removed from power.

From observing the most similar systems comparison and the events in each country, we can hypothesize that food prices cause increase the likelihood of state fragility and collapse, especially in autocratic regimes. The outlier here is Jordan—which did not have total regime collapse from food prices. This develops the secondary hypothesis to explore—are monarchies in the MENA region more stable than autocracies? Additionally, Jordan experienced the lowest increase in food prices and Egypt experienced the greatest. By all accounts of the Arab Spring, Egypt had the most intense protests, the largest level of unrest, and the most difficult transition to a new government system. This only lends more evidence to hypothesis one—Egypt experienced the highest food price increase by far.

Jordan's monarchy system stayed in place in spite of the protests, while every other state in the analysis experienced major collapse and regime change. This could be attributed to the legitimacy of singular rule in a monarchy system. In Jordan, the people exist under a monarchy system of government and accept the King as the leader of their country. When the unrest in Jordan occurred, the royalty avoided responsibility by placing responsibility on the lower government officials and replacing them with new representatives. This allowed the royalty to remain above the blame and shift the country towards another functional government system.

These should be the two main takeaways from the most similar systems design. First, food prices appear to play a major role in influencing the stability of states in the MENA region during the time of the Arab Spring. Second, as the only monarchy in the research, Jordan's leadership remained stable and escaped the Arab Spring unscathed. Based on this, I will now explore two hypotheses through regression analysis to attempt to find more evidence for each.

## HYPOTHESES

**H<sub>1</sub>:** Monarchies will experience lower State Fragility scores in this region during the time measured.

**H<sub>2</sub>:** An increase in the Food Price Index score will be associated with a rise in the State Fragility Index score.

## Methodology

I used three separate indices to capture the concepts of state fragility and food prices: the State Fragility Index, the Food Price Index, and the Human Development Index. I analyze relationships between these indices through two separate regression models. The method for H<sub>1</sub> is a first difference GLS regression measuring the relationship between monarchies and state fragility and the second method is a GLS regression measuring the impact of the change in the food price index on the state fragility. Both models measure a total of 13 different nations throughout the Middle East and North Africa from 1995-2014. The states included in the analysis are Qatar, United Arab Emirates, Oman, Jordan, Algeria, Libya, Tunisia, Egypt, Iraq, Morocco, Saudi Arabia, Syrian Arab Republic, and Yemen. I chose these states because of their close proximity, their involvement in the Arab spring, and their demographic similarity. I include data from 1995-2014 because this period both covers a wide range of time and includes the Arab Spring, a period where stability and political control was unsure for every country measured.

Each of these indices were chosen because of their relevant measurements. The State Fragility Index State is a combined measurement of Security Effectiveness, Political Effectiveness, Economic Effectiveness, and Social Effectiveness combined with a measure of Security Legitimacy, Political Legitimacy, Economic Legitimacy, and Social Legitimacy. All of these measurements combine to give insight into how the government is viewed and how effectively it operates.

The Food Price Index is an index comprised of basket measurements of food commodities that effectively summarizes the pricing climate of food and food related goods within the nation. This index score converts the combined prices of numerous goods into a numerical measurement that will be used as a proxy for how expensive basic food access is within the respective country.

The Human Development Index is included as a control variable in both regressions in order to create a level playing field between all countries in the analysis. This is due to its inclusion of measurements of life expectancy, income per capita, and education. Without this index included, the results may be skewed because of the gap that is present between oil rich states within the MENA region and states that are not endowed with valuable natural resources.

Hypothesis 1 is the first of two central hypotheses for this data analysis. This hypothesis emphasizes the link between monarchy regime types and the connection with state fragility. I use SFI as the measurement for state fragility. Monarchies in this region are defined as any nation that has a monarchy system, as well as a leader that is in place either because of divine right or hereditary rights and possesses significant decision-making power. There is a stark difference between these monarchies and the other

monarchies within the world. Take Britain as an example—the Queen functions as a figurehead, but retains little, if any, true power of rule over the nation. In these regimes the monarch acts as the head of state, as well as the head of government and retain a high concentration of power. All of these monarchy nations are coded as a “1” in the data, while all other regime types in the MENA region are coded as “0”. The analysis seeks to test the hypothesis that monarchies in the MENA region are a more stable regime type throughout this time of trouble for the region.

Hypothesis 2 examines how international food prices may affect State Fragility. The food prices will be represented by the monthly scores of the Food Price Index, which compiles a score based of a basket of different food commodities. This will be explored through a first difference GLS regression that compares FPI and SFI from 1995-2014 to measure the statistical significance between the variable SFI and the variable FPI, while once again controlling for the variable HDI. Because of these measures of effectiveness and legitimacy, H<sub>2</sub> posits that the change in food prices is a statistically significant determinant in the shift in state fragility. This demonstrates that the government is failing to provide essential services to their people.

H<sub>2</sub> reflects an argument for how food prices may act as a threat multiplier for civil unrest, violent civil conflict, and eventual state collapse. This is especially likely in countries where the Human Development Index is lower. When a country is less developed, it is far more susceptible to shocks to its system. In this case, the exogenous shock would be an increase in food prices that it is unable to deal with and that will lead to issues from the individuals within the state.

## HYPOTHESIS 1

These results provide direct support for my argument that monarchies are more stable in the MENA region from 1995-2014, as well as the presented argument of higher legitimacy within monarchies. The stability of monarchies during the Arab Spring specifically has been attributed to several different reasons. First, all monarchies in the MENA region “wield near-absolute power” where they “name cabinets, dictate major, domestic and foreign policies, control the state’s coercive apparatus” (Yom and Gause 2012, 75). This demonstrates a difference from many of the autocratic regimes within the MENA region—many of the leaders held large amounts of power in the country, but were forced to deal with other quasi-democratic institutions where their people expected some sort of representation and a functional government. Second, MENA monarchies “have historically mobilized cross-cutting coalitions of popular support” and “reaped ample rents from oil or foreign aid, allowing them to pay for welfare and development programs meant to alleviate public discord” (Yom and Gause 2012, 75). Situations like this allow the monarchs in these countries to weather storms like the Arab Spring—while autocratic leaders do not enjoy the same level of stability.

This could be attributed to the individual citizen’s perception within the two respective governments. As stated before, the illiberal democracies and autocracies present in the MENA region still maintained skeletons of democracy—basic, essentially non-functional institutions that were supposed to serve the common good. These were

corrupted by the interests of their autocratic leaders, which breeds discontent among the ignored population within the country. In the monarchies, leaders receive their power from either divine right or hereditary bloodlines that are seen as royalty. This increases their legitimacy on a basic level because the people are more receptive to them as leaders with total encompassing power, rather than autocratic leaders who seized power that was not theirs to take.

**Table 2 Hypothesis 1**

Variable	Random-effects GLS Regression Hypothesis 1 without regtype variable	
	Coefficient	Robust Standard Error
Constant	35.57933	3.747381
FPI	.0091763***	.0039829
HDI	-38.90988***	6.030533
No. of Observations	250	
Wald Chi <sup>2</sup>	42	

Referring to Table 3.1 above, this shows that HDI is statistically significant in a negative direction with the State Fragility Index. This is predictable—countries with higher provision of human development necessities would obviously be less fragile than those with lower HDI scores. The country would be able to provide more effectively for the citizens and would have a higher quality of life, leading towards less fragility in the nation. After comparing the two tables for hypothesis one, it's clear that monarchies play a large role in determining state fragility in the MENA region because of the statistical

significance it absorbs even with the Human Development index included in the measurements.

**Table 3 Hypothesis 1**

Variable	Random-effects GLS Regression Group Variable: country1	
	Coefficient	Robust Standard Error
Constant	14.949	1.5271
HDI	-.03658	.038364
Regtype	-7.36735***	1.6973
FPI	-.00852	.00498
No. of Observations	260	
Wald Chi <sup>2</sup>	94.73	

The statistical analysis for  $H_1$  yields results showing that for every one unit increase in the regime type variable, there is a 7.4 point decrease in the State Fragility Index score. To put that in context, moving from no monarchy to monarchy results in an estimated decrease in SFI equivalent to moving from Kenya, Bolivia, Gabon, or Azerbaijan, countries which score 10s on the SFI, to the United States, a country which scores a 3. These results mean that in the observed data, the difference from non-monarchies to monarchies could be roughly compared to the difference in stability between a country like the United States and these other countries—obviously a very stark difference.

Due to these observed differences, as well as the statistically significant results from the regression, it is clear that monarchies are less fragile than non-monarchy regimes in the MENA region. This has been observed before, but this research contributes to the literature by using the State Fragility Index. SFI gives a better indicator of how monarchies weather the storm, mainly because it uses eight effective indicators for the current climate of both effectiveness and legitimacy within the measured country. In order to understand how monarchies stabilize, the SFI needs to be partially dissected.

As mentioned above, the SFI includes eight measurements for state effectiveness and legitimacy. These measures fall into four categories—security, political, economic, and social. Each measurement uses a proxy from another data source to indicate the level of state performance in each sub-category. Several important proxies become apparent—gross domestic product (used for economic effectiveness), human development index (used for social effectiveness), and infant mortality rate (used for social legitimacy). These all would connect directly with the observation that most monarchies in the MENA region have reaped the benefits from their oil resources, allowing them to spend more on social programs and increase their economy. This would lead to significantly higher scores for all of these categories in SFI and suggest a more stable regime.

Monarchies in the MENA region are able to provide basic services and essential provision of benefits to most, if not all, citizens. This, combined with a high concentration of power, repressive media tactics, and control over law making bodies allows the monarchs to effectively control the country, even in times of unrest like the Arab Spring. This differs from the illiberal democracies and autocracies in the region because they are not perceived as having complete and total country control—although

they may have high power concentration, the underlying mechanism of democracy still exist and the people in these countries expect some level of accountability, especially when their basic needs like resource access are not being met.

Many of the autocracies that collapsed during the Arab Spring were relatively undeveloped compared to large scale economies like the United Arab Emirates and Saudi Arabia. The outlier is Libya, but the Gaddafi regime's close connections with terrorism and mismanagement of resources meant they were far less effective at working for the people—the oil in Libya served solely to enrich the elite. This means less provision for their people in terms of social and welfare programs. Although many of the monarchies in the region may be equally as repressive and politically exclusive as the autocracies, their oil riches would allow them to provide more effective social programs in order to provide for the poor at some level. The statistically significant relationship between monarchies in the region and SFI scores gives quantitative support to the observations by Yom and Gause (2012).

## HYPOTHESIS 2

**Table 4 Hypothesis 2**

Variable	Random-effects GLS Regression with First Difference	
	Group Variable: country1	
	Coefficient	Robust Standard Error
Constant	-.111065	.0465447
HDI D1	.0016889***	.010634
Regtype	Omitted	Omitted
FPI D1	.0074559***	.0028691
No. of Observations	247	
Wald Chi <sup>2</sup>	16.45	

Using a first difference measurement, the results of analysis demonstrate that the change in the Food Price Index score is a statistically significant determinant of the change in the State Fragility Index score. Due to these results, I reject the null hypothesis in favor of the alternative hypothesis of H<sub>2</sub>. This demonstrates food prices in the MENA region play a role in determining state fragility. More specifically, this lends credence to the idea of the “threat multiplier” that I presented regarding food prices. *As food prices increase, so will state fragility.* Food prices may not be the singular reason for the

fragility of a state, but based on the statistically significant results of the regression, it can be hypothesized that they act as a threat multiplier for regime collapse.

In terms of statistical analysis, the results show a one unit increase in FPI corresponds to an estimated .007 increase in SFI. At first glance, this may seem negligible, but considering the wide range of FPI scores, this can have a significant impact.

**Table 5**      **Summary Statistics**

Variable	Valid Observations	Mean	Standard Deviation	Min.	Max.
SFI	260	10.31154	5.001068	2	21
Regtype	260	.4615385	.49948	0	1
FPI	260	143.765	46.37167	89.6	229.9
HDI	260	.3086692	1.868173	-9	.85

As shown in the summary statistics above, the standard deviation of FPI is roughly 46. Therefore, moving from one standard deviation below mean FPI to one standard deviation above mean FPI would result in roughly a one unit increase in the SFI score. Again, to put this in context, a one unit change in the SFI score is comparable to moving from the United States, with a score of 3, to El Salvador, which has a score of 4. Countries like Mexico, Cuba, and Brazil receive scores of 5 on the State Fragility Index. This clearly shows that dramatic changes in food prices can have a very real and measured effect on state fragility.

As previously shown, the State Fragility Index is an excellent representation of the fragility of a state at any given time. The food price index is also an effective indicator regarding how food prices will affect all most nations. The rise in the index

represents a rising price for all nations, whether it be a higher burden on the government in terms of subsidization, or directly burdening the population in direct sales of food commodities.

It is also important to differentiate the effect of food prices on stability in different types of nations. Arezki et al (2011) surveyed food prices from 1970-2007, finding that in high income countries “variations in the international food prices have no significant effects on democratic institutions and measures of intra-state conflict” while their analysis points to “significant externality of variations in international food prices on Low Income Countries' social and political stability” (Arezki et al 2011, 1). Arezki and his allies also found that it increased the “likelihood of civil conflict and other forms of civil strife, such as anti-government demonstrations and riots” in these low income countries as well (Arezki et al 2011, 10). The MENA region has a large number of low income countries, which would be heavily affected by these food prices. This first difference measurement demonstrates, on a smaller scale, that food prices do increase the fragility of a state, specifically in the MENA region.

### WHAT DOES THIS MEAN FOR THE MENA REGION?

There are several important takeaways after this analysis of five countries heavily involved in the Arab Spring as well as the evaluation of the validity H<sub>1</sub> and H<sub>2</sub> through quantitative analysis. First and foremost, *an increase in food prices causes state fragility to increase*. In a region where arable land and farming is scarce, countries are heavily dependent on food imports. When prices of food staples drastically increase, it will restrict basic food access for people within these nations in the MENA region. As seen through the case studies and data analysis, food prices have a direct negative impact on state fragility, which can be interpreted as the stability of a nation. This lends strong support for my original hypothesis—that food prices work as a threat multiplier for civil unrest and state collapse in the MENA region.

This result is important for the future of many nations in the MENA region. If states want to remain as stable as possible and the current regime wants to maintain power, it is in their best interest to mitigate food price increases as much as possible. Whether this be through subsidies, emergency funds and preparation, or organization of aid from IGOs and NGOs, the regime should pursue every option available to prevent the threat multiplying effect that food price increases can have. As seen in Israel, the key may becoming innovators in food production—but this requires a government with a high level of function.

However, any attempt to better independently produce food and water resources may become increasingly difficult for nations in this region. According to a report from the IPCC “most of the MENA region is expected to become hotter and drier...higher temperatures and reduced precipitation will increase the occurrence of droughts” (World Bank 2013, 1). In addition, “according to IPCC computer modeling, an estimated additional 80 million to 100 million people will be exposed to water stress by 2025” (World Bank 2013, 1). This will continue to produce problems like Syria experienced pre-Arab Spring – massive crop failure and severe drought, which resulted in huge migration of rural populations into urban areas. This can further stress resource provision systems meant to mitigate these issues.

Not only will climate change in the region complicate future food security for MENA, but global climate change will also enhance the problem. As demonstrated in Egypt’s wheat price problem, China and Russia played an integral role in increasing the price of wheat because of climate change events that took place in their farming regions. In a 2015 report by the USDA, the research finds that “high population growth, and low economic growth imply that the number of people at risk of undernourishment would increase by as much as 175 million above today’s level by 2080” (USDA 2015, 3). This report also states that “food-price increases are most likely to affect segments of the growing population with lesser capacities to absorb food shortages, even over short periods of time” (USDA, 81). These type of global impacts will hit the MENA region heavily because of their dependence on imports, lack of arable land, and concentration of lower income countries.

The second important finding in this research is that monarchy regime types in the MENA region are significantly more stable than other non-monarchy regime types. This was demonstrated first through the case study analysis, with the Jordanian monarchy being the only regime still in total power after the conclusion of the Arab Spring. This led to H<sub>1</sub>, Monarchies will experience lower State Fragility scores in this region during the time measured, which after being tested, resulted in a confirmed correlation between the monarchy regime type and lower state fragility in the MENA region. This could have both large determinants for regimes in the region, as well as IGOs, state foreign policy, and private foreign direct investment.

If monarchies are more stable, it would be beneficial for countries like the United States to establish strong relationships with the current monarch in order to more effectively represent their foreign policy interests in the region, if stability is the principal concern. Fortunately for the United States, this is already a reality, with strong ties in Jordan and Saudi Arabia. Stability in the MENA region is extremely important because historically, the states in this region have been unstable. Stability is also important for preserving monetary and trade interests. Foreign direct investment would be more secure in countries with higher regime stability, meaning that monarchies could be a better point for monetary investment for both states and private interests.

## IMPLICATIONS

Throughout this paper I have emphasized the importance of food prices as a threat multiplier, as well as provided ample evidence that they act as such in the MENA region. Due to the evidence presented that supports the connection between state fragility and food price increases in this paper, I would suggest that food prices be added to future predictive indices for civil unrest, state fragility, and regime collapse. This should be specifically applied to the MENA region because of the scope of my research, but this could provide an effective predictor for future problems in this region.

I would suggest that the Food Price Index score for each country act as the proxy measurement and that there is a specific rate set at which unrest occurs. This could be used in two different ways—first is factoring how fast prices have increased, because as seen in Egypt, the sharpest spike in prices led to the highest rate of protest. Second, there could be a specific threshold—an FPI score of over 220. In research from 2011, Lagi et al “identify a specific food price threshold above which protests become likely” and that “protests may reflect not only long-standing political failings of governments, but also the sudden desperate straits of vulnerable populations” (Lagi et al 2011, 1). From their research, the protest levels jumps up at over a FPI score of 220. For this reason, it would be effective to include a multi-tiered ranking for the MENA region—there should be more research done to explore exactly which levels unrest starts to increase at, but it is clear that a sustained score of over 220 should mean increased possibility of unrest.

This research also highlights the importance of international cooperation and for future policy options and mitigation efforts with food security and resource allocation in the MENA region. This region could face dire straits if the climate and resource security continue on the same path. For the sake of argument, I'm ignoring the obvious moral and political obligations that may be argued for transfers to democracy for nations in this region and instead focusing on the interest of promoting stability.

Consider the major threats this region already faces: possible failings of new regimes, international disputes among countries, the resource curse of oil, huge refugee populations, and the massive threat of ISIS and the war on terrorism. Food and resource insecurity in the region that would increase state fragility would enhance all of these problems—especially that of ISIS and refugees. ISIS recruitment feeds on people in need and areas where the government is failing. The refugee crisis has already reached critical mass and the international system would have an extremely difficult time handling climate refugees as well. For this reason, it should be made a priority for IGOs, NGOs, western nations, and MENA states to pursue plans that would prepare for future problems associated with resource scarcity and regime collapse.

As far as policy recommendations, this would depend on what the primary interest is. If the primary interest is immediate stability, implementing a food bailout fund through the IMF, United Nations, or World Bank could possibly go a long way to promoting stability in the future. If the interest is future prevention of these issues, collective action in the MENA region is important. Pursuing new farming technologies, innovative food alternatives, and effective resource distribution throughout the region could lessen dependence on food imports and allow the countries to become more self-

sufficient, therefore decreasing the influence of the international food prices on their own food markets.

## RESEARCH LIMITATIONS

This research faces limitations because of several different issues. First and foremost is the availability and feasibility of data collection. Ideally, I would have daily food price data that could coincide with daily protest numbers in each country. Daily data would allow for more specific conclusions to be drawn—measuring the exact spikes in protest to see if they coincide with the spikes in food prices would shed more light on the connection between the two. Using the averages over time obscures some of the relationship that I would like to delve deeper into.

I would also like the opportunity to work in other variables such as twitter traffic, food subsidy rates, and arable land within the country to better test each hypothesis. This was outside the limitations of this research because of deadlines and available resources. For future research, these should be considered in order to find better support for each hypothesis.

In addition to this, the endogenous nature of the food price and fragility hypothesis needs to be addressed. The endogeneity in this sense is that the spike in food prices are internally caused by government system in these countries. This is a completely legitimate concern because it could influence both sides of the regression. Certain countries within this region could be predisposed to unrest and volatile food prices—something that needs further research in this area. However, because most, if not all, countries in the MENA region depend heavily on food imports for their main food

staples, I would argue that all MENA countries are predisposed to volatile food prices and are at the mercy of the international food market. The exception in the past could have been Syria, but because of their drought that lead to crop and livestock failure, their reliance increased a great deal.

For this reason, the problem of endogeneity could be overlooked because of the similar nature of food access in each MENA country. This too needs further research—I would suggest measuring food import dependence, food subsidies, and domestic food production across this region in order to find out how the predisposition to issues in the MENA region is distributed.

Considering all of these limitations, it is clear that the Arab Spring is a difficult time for data availability and measurements. Despite all of these limitations, my research provides a useful point of departure for understanding why protests emerged in some Arab Spring countries, as well as why they didn't in others. Future research should focus on expanding on some of these initial discoveries and better explaining the causes for the Arab Spring.

## CONCLUSION

The research in this paper, both through methods of qualitative case studies of countries involved and quantitative analysis of data, finds support for the argument that food prices act as a threat multiplier for civil unrest and state fragility in the MENA region. In addition to this finding, the quantitative analysis of monarchies shows strong support for the hypothesis that monarchies are significantly more stable than non-monarchies in the MENA region.

These implications of my research demonstrate that monarchies could potentially be a more viable regime type than non-monarchies, at least when stability is the primary concern. Historically, slow and measured transfers from monarchy to democracy is possible, as seen in the United Kingdom. This may differ in the Middle East, but it is certainly something to consider for the future.

Secondly, food prices act as a direct threat multiplier in the face of rising potential for unrest, regime collapse, and state fragility. This could be used in predictive indices for the MENA region, lead to conflict mitigating policy, and help stabilize a historically unstable region. Food and resource security could play a key role in ensuring that the people of the MENA region are sufficiently provided for—leaving less reason for mass exodus and decreasing the number of refugees.

Based on this outcome, my paper opens up multiple avenues for future research. As previously stated, I would suggest that Food Price Index scores, when above a certain

level of increase, should be included in predictive indices for state failure or fragility.

There should be more research done in this area to identify the different types of effects in different areas of the world. This research could also include similar studies of state fragility and food price increases in other geographic areas.

Another important avenue for future research should be associated with the finding that monarchies are significantly more stable than non-monarchies in the MENA region. For future predictive research, as well as regime stability research, this is important. My paper gives specific quantitative support for the stability of monarchies throughout the MENA region during the Arab Spring. This could also have applications in fragility and failed states indices—at least in the MENA region. Additionally, this leads to a future research question—why are monarchies more stable? This would require extensive future research but would be extremely helpful in future study regarding regime stability in the Middle East.

The Arab Spring redefined how political science as a discipline views stability in the MENA region—especially because of the collapse of regimes that were once seen as stable. My research has demonstrated that food prices acted as a threat multiplier to increase the fragility of these states, leading to instability and eventual collapse of many regimes. In addition, I have identified that monarchies were significantly more stable than the other regime types in the MENA region, opening the door for scholars to conduct future research in this area.

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