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The Climate-Conflict Nexus: Urban Migration and Methodological Innovations

Elisa D'Amico
Loyola University of Chicago Graduate School

LOYOLA UNIVERSITY CHICAGO

THE CLIMATE-CONFLICT NEXUS:
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ELISA A. D'AMICO

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To the displaced souls worldwide,
May your journeys find safe havens,
May your hopes find fulfillment,
This dissertation is dedicated to you.

Climate change knows no borders, and it will affect us all. So, it's vital that we work together to address this global challenge.

— Ban Ki-moon

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ABSTRACT

The link between climate change and conflict has become a topic of great concern in politics and academia. While existing literature has suggested a relationship between resource scarcity and conflict, innovative methods offer an opportunity to clarify causal paths. This study aims to build on the existing literature and parse integral components of the causal pathway linking climate events to conflict, with a particular focus on economic scarcity. Using a mixed-method approach, I investigate the mechanisms underlying the climate-conflict relationship through eight within-country analyses, exploring how varying levels of climate and migration contribute to conflict onset and examining other confounding factors. Importantly, this study emphasizes the significant role of economic scarcity in shaping the climate-conflict pathway, particularly in the form of urban migration and its impact on the distribution of economic resources. I test this relationship through a natural experiment in Bangladesh, providing causal inference.

As climate events are expected to increase in frequency and severity, urban migration shocks leading to unrest are likely to become more common. This study has significant policy implications, as it provides insights for policymakers on conflict prevention policies and strategies to mitigate the negative consequences of climate-induced scarcity and migration. Overall, this study offers critical insights into the climate-conflict nexus, highlighting the importance of economic scarcity in shaping this relationship. This study enhances our understanding of the link between climate events, conflict, and economic scarcity, offering valuable guidance for policymakers.

CHAPTER 1

INTRODUCTION

In an era defined by the urgent threat of climate change, its profound implications resonate throughout every aspect of our lives, extending their reach into the realms of political science and international relations. For instance, rising global temperatures have led to more frequent and severe natural disasters, resulting in increased economic costs and displacement of communities. As the field grapples with the escalating crisis of climate change, scholars and policymakers have come to acknowledge the potential interplay between climate events and conflict (Bergholt & Lujala, 2012; M. Burke et al., 2015; Hsiang et al., 2011; Raleigh & Kniveton, 2012). The realization that climate change has the propensity to escalate existing tensions, resource scarcity, and foster social and political instability has come to global attention. Yet, amidst the growing body of literature on the climate-conflict nexus, a definitive understanding of the relationship between climate and conflict has not yet been reached, leaving crucial gaps in our knowledge. For example, there is no consensus in the literature regarding the degree to which climate change directly influences conflicts. Furthermore, uncertainty persists regarding the specific types of conflict events influenced by climate and the mechanisms through which this influence occurs. As is specified in Chapter 2 of this dissertation, the type of conflict which I address is urban unrest, consisting of protests and riots.

The relationship between climate events and social unrest outcomes has long presented a perplexing puzzle, with existing scholarship marked by varying measurements, levels of analysis, and contradictory findings. As the effects of climate change continue to intensify, there

is an increasingly urgent need to unravel this complex nexus and address the climate-conflict relationship. This dissertation seeks to fill these critical gaps through theory-building that elucidates the climate-migration-unrest pathway, with a specific focus on the intricate channels of economic scarcity. To achieve this goal, this dissertation employs a meticulous mixed methods analysis, incorporating in-depth case studies and a quasi-experimental analysis.

Acknowledging the confusion and lack of consensus surrounding the climate-conflict nexus, this dissertation sets out to remedy these challenges by carefully examining causal mechanisms, measurement complexities, and alternative explanations. By integrating qualitative and quantitative research methods, this dissertation offers a nuanced analysis that bridges gaps in the current literature and contributes to the scholarly discourse. At the forefront of the call for mixed methods analysis in assessing the climate-unrest relationship, this interdisciplinary dissertation emphasizes the importance of embracing diverse perspectives and employing multiple research approaches to capture the inherent complexities of this nexus. By incorporating qualitative insights alongside quantitative data, the dissertation provides a more holistic and robust understanding of the climate-conflict relationship.

At the crux of this study lies a pivotal inquiry: Does climate change indeed lead to conflicts, and if so, what pathways underlie this relationship? This question is timely, considering the extensive consequences that climate change can have on societal dynamics. Despite its prominence and significance, the existing body of literature grapples with inconclusive findings in deciphering the interplay between climate change and conflicts.

Scholars and researchers have undertaken different routes in their journey to answer this pivotal question. They have engaged in case and regional studies and have delved into various measurements of both climate variables and conflict occurrences. Yet, their collective efforts

have yet to yield a unified conclusion. The insights gathered from case-level analyses, while invaluable in revealing specific contextual intricacies, tend to falter in presenting a complete picture of the multifaceted relationship between climate and conflict across diverse contexts. Furthermore, the shortage of a robust theoretical framework has led to vague measurements and imprecise research methodologies, contributing to the lingering ambiguity in the field. Such methodological pitfalls erode the validity and pervasiveness of the findings, hampering the formulation of coherent policy recommendations and a holistic understanding of the dilemma.

This research advances with a novel and discerning methodology, directed towards addressing the identified inadequacies present in the current academic discourse. It extensively explores the theoretical foundations explaining the relationship between climate and urban unrest, aiming to clarify the mechanisms by which climate change affects unrest dynamics. The foundational premise of this study revolves around the establishment of a robust theoretical framework focusing on how economic scarcity contributes to both migration and unrest in the context of climate change. This framework serves as a guideline throughout the research endeavor.

Furthermore, this research ascends the methodological ladder by introducing innovative measurements for both climate variables and social unrest outcomes. To ensure the viability of the proposed theory, this study conducts a qualitative case study analysis. This approach carefully examines different dimensions of the proposed causal pathway and, notably, offers evidence supporting the prevalence of an indirect rather than a direct relationship between climate and conflict. The examination of cases with varying levels of climate, migration, and unrest not only verifies the practical applicability of the theoretical framework but also solidifies its foundation in real-world contexts. Moreover, this methodological approach serves to unearth

latent complexities that may have escaped prior observation, thereby enhancing the depth and authenticity of the investigation. Concurrently, it introduces novel measurements and causal methodologies that bolster the capacity to examine the proposed theory, competently addressing the methodological fragilities of the past. By providing an analysis that spans different regions and incorporates innovative methodologies, this research aims to facilitate informed decision-making, promote sustainable development, and contribute to global efforts to address the challenges posed by climate change.

The importance of understanding the relationship between climate events and conflict is underscored by the real-world examples observed in different countries. Bangladesh, for instance, stands as a vivid example of a nation highly susceptible to climate disasters. The country has experienced a staggering number of over 18 million displaced persons as a direct result of climate-related events (Rojas, 2021). These climate migrants often find themselves residing in overcrowded urban slums, straining the limited resources and infrastructure of Bangladeshi cities. The resulting high population density has led to government discontent, social tensions, and various forms of conflict. On the other hand, countries like Guyana, facing similar climate challenges, have managed to mitigate the effects of climate events to a significant extent, resulting in lower levels of climate migration and subsequent conflict. By examining these and more diverse cases, this study seeks to uncover the underlying mechanisms that determine the varying outcomes of climate-related events and their potential to incite conflict.

As mentioned, existing literature has explored the implications of sudden climate events for public policy and conflict studies, yet there is still considerable debate and limited consensus on the precise nature of the relationship between climate events and conflict. Scholars such as Buhaug (2010) and Theisen (2008) have found no significant cross-national evidence linking

climate events to war, while others like Gleick (2014) argue that climate events contribute to the conditions conducive to conflict, as observed in the case of Syria. Raleigh et al. (2012) demonstrate how climate events in Sub-Saharan Africa can escalate into communal conflicts. However, the current scholarship suffers from methodological challenges, insufficient measurements, and causal arguments that lack robustness.

This dissertation makes significant contributions to the existing literature on the climate-conflict nexus, migration, and policy responses. It addresses the current gaps in knowledge by critically assessing existing literature and theories, clarifying the state of the nexus, introducing a more refined measurement of conflict as urban unrest, and identifying areas for further exploration. By integrating diverse theoretical frameworks, the theory presented in Chapter 2 establishes a solid theoretical foundation for the subsequent empirical investigations conducted in this dissertation.

A key contribution of this research is its reevaluation of the theoretical interplay between climate, migration, and conflict. By examining eight countries with varying levels of climate, migration, and conflict, this study highlights the mediating role of migration in the climate-unrest relationship (see Chapters 3 and 4). The qualitative case study analyses provide in-depth insights into specific contexts, shedding light on the nuances of the climate-migration-unrest relationship and contributing to a broader understanding of this phenomenon.

To capture the causal effects within the climate-unrest relationship, a quasi-experimental design is employed in Bangladesh in Chapter 5. Through rigorous quantitative analyses, this chapter investigates the impact of economic scarcity on migration and its subsequent influence on social unrest. The quantitative methods provide empirical evidence to clarify the connections

between climate-related factors, migration patterns, and urban unrest outcomes, highlighting the important role of economic scarcity.

This dissertation fills critical gaps in our understanding of the relationship between climate change, migration, and conflict. It offers a comprehensive analysis through mixed methods research, bridging gaps in the literature and providing valuable insights for scholars, policymakers, practitioners, students, educators, NGOs, and international organizations. By clarifying the climate-conflict nexus and offering practical solutions, it contributes to informed decision-making and global efforts to address the challenges of climate-induced migration and promote sustainable outcomes. This dissertation seeks to enhances our understanding of this relationship and its implications for various stakeholders.

Dissertation Layout

This dissertation reexamines the relationship between climate events, migration, and conflict. The chapters are organized to systematically explore different aspects of this relationship and draw meaningful conclusions. Chapter 2 delves into a thorough literature review and theory, examining existing frameworks and theories related to climate events and conflict. It emphasizes economic scarcity as the primary driver linking climate events, migration, and conflict, while also considering the role of governance and institutions. Chapter 3 focuses on case studies from countries with high levels of migration, highlighting the importance of economic factors and industries impacted by climate change as key drivers of migration and conflict. The within-case analyses in Chapter 4 deepens the understanding of the relationship between climate events and unrest by examining specific cases from countries with low levels of migration. Chapter 5 presents a quasi-experimental analysis in Bangladesh, investigating the relationship between urban migration, economic scarcity, and urban unrest in the context of the

ready-made garment industry. Finally, Chapter 6 synthesizes the findings from the previous chapters, discussing the empirical evidence and implications for policymakers. Overall, this dissertation contributes to the understanding of climate-induced migration and conflict, emphasizing the significance of economic scarcity and the need for proactive policies to ensure social stability and resilience in the face of climate change.

Chapter 2: Literature Review and Theory

The relationship between climate events and conflict has been widely but inconsistently explored in the literature, employing various theoretical frameworks. This chapter delves into a comprehensive literature review and theory that primarily focuses on the causal pathway between water-related sudden climate events and conflict in the form of urban unrest. It examines the potential direct and indirect relationships between climate events and conflict, distinguishing between sudden and gradual climate drivers of conflict. The chapter begins by reviewing existing theories and conceptual frameworks related to climate events and conflict, including the resource scarcity model. It critically assesses the strengths and limitations of existing frameworks in explaining the dynamics between climate events, migration, and conflict. A key finding of the literature review is the identification of economic scarcity as the primary driver linking climate events, migration, and conflict. Economic scarcity may arise when climate change reduces economic opportunities, pushing people to migrate to urban areas for better prospects. However, this migration influx can strain urban resources, fueling competition for jobs and services, thereby linking economic scarcity, migration, and unrest in climate-affected settings. The chapter underscores the significance of economic factors, like resource availability, employment opportunities, and income disparities, in mediating the relationship between climate events and conflict.

Furthermore, the literature review examines the role of governance and institutions in mitigating or exacerbating the effects of climate events on conflict. It explores how government responses, policies, and institutions can either alleviate or amplify the discontent stemming from climate-induced economic scarcity and migration. The constructed causal pathway serves as a framework for comprehending the relationship between climate events and conflict. It provides insights for policymakers to mitigate the negative effects of climate change on conflict. The chapter also highlights the need to consider economic drivers of social outcomes, such as migration and unrest, in climate change adaptation and related policy efforts.

Chapter 3: Case Studies for Countries with High Levels of Migration

In this chapter and the next, a qualitative case comparison approach is employed to analyze case studies that offer valuable insights into the relationship between climate and conflict, with a focus on both direct and indirect links. The selection of cases is based on the three dimensions of level of urban migration, climate change-related events, and conflict. The chapters selects cases from middle-income countries with mid-range levels of government, considering their potential economic draw and attractiveness for urban migration. This chapter explores cases from different countries that represent high levels of urban migration, diverse climate change impacts, and varying conflict dynamics with a particular focus on unrest. It aims to identify common patterns, causal mechanisms, and contextual factors that contribute to or mitigate unrest in the context of climate-induced urban migration. By examining cases across different countries, the chapter highlights the importance of economic factors and industries impacted by climate change as key drivers of migration. It analyzes the relationship between economic opportunities, resource scarcity, and migration patterns in specific contexts. The case studies provide insights into how economic drivers, combined with climate impacts, shape

population movements and contribute to conflict. They also reveal the role of governance and policy interventions in addressing the challenges arising from climate-induced migration and conflict.

This chapter examines case studies from countries with high levels of migration, including Benin, Guatemala, Lebanon, and Bangladesh, to gain insights into the relationship between climate and conflict. The selection of cases considers the degree of urban migration, climate change-related events, and conflict dynamics. The chapter aims to identify patterns, causal mechanisms, and contextual factors that contribute to or mitigate unrest in the context of climate-induced urban migration.

Case analyses from Benin, Guatemala, Lebanon, and Bangladesh highlight the multifaceted nature of the climate-migration-unrest linkage and underscore the role of economic factors, governance, and policy interventions. In Benin and Lebanon, government service delivery plays a crucial role in mitigating urban unrest even as migrants arrive in urban areas, increasing competition for jobs and resources. Industrialization and improved services in Benin reduce urban unrest despite climate-related challenges. In Lebanon, where urban population growth exacerbates economic scarcity, government policies reinforce discontent and unrest. In Guatemala, climate-induced scarcity drives migration, but urban unrest is primarily suppressed by violence and corruption, overshadowing climate-related factors. On the other hand, in Bangladesh, climate-related issues provide rationales for protests, but government discontent and economic scarcity play significant roles in sparking unrest. This highlights the potential for climate change to amplify government discontent and unrest in the context of climate-induced migration.

The case studies further reveal that industries heavily impacted by climate change, such as tourism or agriculture, play a significant role in driving migration. Economic factors and the availability of economic opportunities are important drivers of migration and contribute to conflict. The case analyses also highlight the role of governance and policy interventions in addressing the challenges arising from climate-induced migration and conflict.

Chapter 4: Case Studies for Countries with Low Levels of Migration

Like in Chapter 3, this chapter also focuses on within-case analyses to further investigate the causal mechanisms and alternative pathways within the broader causal pathway outlined in Chapter 2. It aims to deepen the understanding of the relationship between climate events, migration, and unrest by examining specific cases in detail in the absence of high levels of urban migration. These cases allow for a detailed exploration of the causal mechanisms underlying the relationship of concern.

This chapter focuses on countries with low migration levels, including Tunisia, Guyana, Peru, and Croatia, to delve into the climate-event-migration-unrest relationship. In Croatia, effective government responses to climate risks have reduced urban migration, highlighting the intertwined nature of economic and climate policies. Similarly, in Peru, successful climate adaptation and awareness campaigns have curbed migration and unrest, showcasing the potential of climate policies in addressing these issues. Tunisia's low climate risk and urban migration focus underline the importance of considering urban unrest drivers, such as economic scarcity and discontent with the government's economic situation. Conversely, in Guyana, robust climate resilience measures have reversed migration trends, fostering agricultural production and economic prosperity. This underscores how climate resilience, coupled with economic measures, can mitigate migration and unrest. Collectively, these case studies emphasize the need for

integrated policies addressing economic and climate factors to tackle the multifaceted challenges of climate-induced migration and conflict. They reveal that climate-related adaptation policies can play a pivotal role in mitigating migration and unrest, offering valuable lessons for global policymakers. The cases also show that economic scarcity and government discontent are significant urban unrest drivers, even without climate-induced migration. Effective government responses to climate events, including adaptation measures and resilience-promoting policies, can reduce urban migration and unrest. Additionally, the cases highlight the importance of economic stability and the role of climate-affected industries in shaping migration and urban unrest dynamics.

The case studies presented in Chapters 3 and 4 offer valuable insights into the connections among climate, migration, and conflict. They emphasize the significance of addressing economic scarcity and implementing effective adaptation measures to mitigate migration and prevent social unrest. Understanding these dynamics enables governments to foster social stability and build resilience in the face of climate change. Through in-depth analyses of each case, the chapters uncover alternative mechanisms, contextual factors, and interactions that either contribute to or alleviate urban unrest within the context of urban migration. They examine the interplay between economic factors, governance structures, social dynamics, and climate-related events. In this examination, the case studies shed light on the climate-conflict relationship, revealing both direct and indirect links. Economic factors and climate-impacted industries, such as agriculture in Guatemala and tourism in Croatia, drive migration, mediating the climate-unrest connection. Government actions, exemplified by Guyana, shape migration patterns and unrest outcomes. Climate-induced migration can worsen urban unrest, as seen in Lebanon and Tunisia. In summary, these cases emphasize the role of

specific economic factors, migration patterns, and government responses in shaping the climate-conflict relationship. Migration often serves as a crucial mediator in the climate-unrest relationship. The within-case analyses further supports the empirical relationships discovered in Chapter 5 and enhances the overall comprehension of the causal pathways connecting climate events, migration, and conflict.

Chapter 5: Migration Dynamics, Economic Scarcity, and Urban Unrest: A Quasi-Experimental Analysis in Bangladesh

In light of the high levels of climate change and climate displacement in Bangladesh, and with Bangladesh and the RMG industry offering a perfect opportunity to analyze economic drivers, this chapter highlights how the RMG industry's growth and demand for labor have served as draws for rural migrants to urban areas. It delves into the relationship between economic opportunities, urban migration, and potential conflicts stemming from economic shocks.

The quasi-experimental analyses conducted in Bangladesh provide valuable insights into the causal mechanisms underlying the relationship between urban migration and urban unrest. By comparing areas with high levels of urban migration to control areas with lower migration rates, the chapter assesses the impact of migration on social stability and social unrest dynamics. The findings shed light on how economic factors, triggered by climate events, influence migration patterns and contribute to the emergence of urban unrest. It highlights the importance of proactive policies aimed at climate resilience, economic diversification, and redistribution to mitigate the potential negative consequences of climate-induced migration and prevent urban unrest.

Chapter 6: Discussion and Conclusions

In the final chapter, the results from the previous chapters are synthesized to provide a deeper discussion and draw meaningful conclusions. The chapter highlights the empirical evidence supporting the relationship between climate events, economic factors, migration, and conflict. It emphasizes the role of economic scarcity as a central driver linking climate events and conflict, and the significance of economic draws in driving migration. The discussion incorporates the insights from the qualitative case comparisons and the quasi-experiment in Bangladesh to provide a nuanced understanding of the interplay between climate, migration, and conflict. It explores the implications of the findings for policymakers and emphasizes the urgency of implementing adaptation policies to address climate-induced economic scarcity and prevent migration shocks that can lead to urban unrest. The chapter also identifies avenues for future research, such as examining the role of rural to rural and trans-national migration patterns and conflict dynamics.

In this broader context, it becomes evident that transnational mechanisms are at play. For instance, government service provision and climate mitigation policies' effectiveness in Benin and Croatia serve as transnational examples of climate resilience strategies applicable beyond their borders. These instances showcase how governments navigate climate risks to curtail urban migration and conflict, offering valuable insights for nations grappling with similar challenges. Conversely, cases like Guatemala, characterized by government failure and climate devastation, spotlight the global ramifications of weak governance and climate vulnerability, potentially prompting emigration in response. This aligns with the broader international relations discourse on migration driven by environmental and political factors. This analysis contributes to the international relations field by spotlighting transnational policy mechanisms and their

implications for climate-induced migration and conflict, enriching the theoretical framework in this domain.

In conclusion, this dissertation makes a significant contribution to the existing literature by providing a comprehensive analysis of the relationship between climate events, migration, and conflict. It emphasizes the pivotal role played by economic drivers and scarcity in shaping migration patterns and the potential for conflict. The findings underscore the pressing need for proactive policies that address both climate resilience and economic diversification, crucial for mitigating the adverse consequences of climate change and ensuring social stability. By presenting compelling empirical evidence and robust theoretical frameworks, this work offers a holistic understanding of the subject matter, bridging disciplines such as environmental science, economics, and political science. It stands as a valuable resource for scholars, policymakers, and stakeholders alike. Furthermore, this dissertation extends beyond its academic significance; it serves as an urgent plea for action. It underscores the urgency of implementing policies that transcend disciplinary boundaries and confront the intertwined challenges of climate change, adaptation, and economic diversification. Recognizing that responding to climate change requires significant attention and funding, it highlights the importance of collective efforts under the umbrella of the international climate regime. Through this dissertation's rigorous scholarship, insightful analysis, and compelling narratives, it promises to broaden understanding of the complex relationship between climate change, migration, and conflict. By inspiring transformative approaches, this work has the potential to shape policies and foster collaborations that contribute to a more resilient future for all.

CHAPTER 2

LITERATURE REVIEW AND THEORY

The relationship between climate events and conflict is a complex issue that has been explored in the literature through various theoretical frameworks. Within the purview of this comprehensive literature review and theory chapter, the aim is to forge a synthesis that not only consolidates prior theories but also advances a more precise understanding of these dynamics. This literature review and theory chapter primarily addresses the causal pathway of water-related sudden climate events and their indirect link to conflict, in the form of urban unrest. The first section explores the direct and indirect relationship potential between climate events and conflict, and the distinctions between sudden and gradual climate drivers of conflict. Additionally, the following identifies economic scarcity as the primary driver linking climate events, migration, and conflict. The literature suggests that following a sudden water-related climate event that depletes resources, the government has a critical role in mitigating the effects of subsequent scarcity. However, governments often struggle to effectively address such scarcity, leading to discontent towards the government that cause urban migration. The primary contribution of this causal pathway is to provide a more accurate depiction of the relationship between climate events, migration, and conflict. While the resource scarcity model often includes discussions of economic scarcity, it fails to recognize that economic scarcity is the primary driver of societal outcomes, including migration and unrest. By incorporating economic scarcity as a central tenet, this pathway remedies this oversight and offers a more comprehensive and interdisciplinary understanding of the causal link between climate events, economic scarcity,

migration. Upon urban population influx following migration, competition for resources may arise, and if the government fails to mitigate the negative effects of competition, this will lead to the second phase of grievances. The increased burden of grievances among migrant populations is further intensified by economic concerns that also arise within the host population. Consequently, this situation may lead to urban unrest, taking the form of actions directed against the government. The constructed causal pathway serves as a framework to better understand the complex relationship between climate events and conflict and provides insights for policymakers to mitigate the negative effects of climate change on conflict.

Literature Review

Water-Related Sudden Climate Events and an Indirect Link

Climate change is a global phenomenon that has a substantive impact on the environment and society. Sudden water-related climate events in particular, such as droughts, floods, and storms, can have severe and negative consequences for human life, particularly in industrializing countries. The worse climate gets, the more it will affect all countries, with forced displacement being a particular concern. Therefore, it is crucial to examine the relationship between climate events and conflict, including the direct and indirect ways in which climate change can contribute to conflict. It is first and foremost of use to consider the types of climate events which the climate-conflict nexus can be expected to manifest.

The Substantive Impact of Water-Related Climate Events

The distinction between sudden and gradual climate events is essential to understand the ability of populations to adapt to the negative consequences of climate change. In cases of sudden climate events, such as major storms or floods, adaptation is less possible due to the

abruptness and lack of preparedness . As such, it is crucial to consider the types of unexpected climate events that are most likely to deplete resources and lead to conflict.

One of the primary areas of consensus in the literature is that water-related climate events are most likely to deplete resources, leading to scarcity and conflict (Gleditsch, 2012; Hendrix & Salehyan, 2012; Hsiang et al., 2011; Raleigh & Kniveton, 2012). Water-related climate events, such as rainfall, water availability, runoff, drought, flooding, and storms, are particularly relevant in this context (Ash & Obradovich, 2020; Gleick, 2014; Hsiang & Burke, 2014; Raleigh & Kniveton, 2012; Reuveny, 2007; Theisen et al., 2012).

Reuveny (2007) reviews many studies that have produced evidence of the climate-conflict nexus and found that "water-related land degradation is present in 27 cases, droughts are present in 19, deforestation is present in 17, water scarcity is present in 15, floods are present in 9, storms are present in 7, and famines are present in 5 (p. 662)." This shows that water-related events make up the majority of cases of conflict. While events such as drought and runoff may lead directly to water scarcity, flooding and storms cause agricultural scarcity and degradation (M. B. Burke et al., 2009; Gleick, 2014). Though the role of resource scarcity in the climate-conflict nexus will be parsed in subsequent sections, I will now provide a more comprehensive review of how the literature has come to a consensus regarding the mechanistic importance of water-related climate events.

Direct vs. Indirect Relationship between Climate Events and Conflict

There is a distinction in the climate-conflict literature between the direct and indirect relationship between climate events and conflict. The direct relationship refers to the immediate impact of climate events on the emergence of conflict. This effect can be observed in the case of Peru in Chapter 3, where the climate-affected population are at odds with the powerful mining

sector. In contrast, the indirect relationship refers to the ways in which climate events contribute to the exacerbation of pre-existing vulnerabilities and tensions that eventually lead to conflict. This is observed in many cases such as Lebanon and Bangladesh where economic scarcity following migration spikes contributes to urban unrest (see Chapter 3).

Several studies have demonstrated the direct relationship between water-related climate events and conflict (Hsiang et al., 2013; Hsiang & Burke, 2014). For example, Hsiang et al. (2013) assessed 60 studies using 45 different conflict datasets and found that precipitation and temperature deviations fostered conflict in different spatial and temporal domains. Specifically, rainfall excess, drought, and rising temperatures are the most empirically supported determinants of conflict. In recent years, climate-induced water scarcity has led to mass protests in cities like Chennai, India, where residents took to the streets to demand adequate water supply during drought conditions (Bahadur & Tanner, 2021). In Cape Town, South Africa, a prolonged drought resulted in the declaration of a state of emergency, causing significant unrest, with communities protesting over water access (Visser, 2018). These examples illustrate how climate-related events can directly contribute to urban unrest, and it is essential to recognize the link between climate change and social unrest.

However, climate-conflict scholarship has increasingly focused on the indirect relationship between climate events and conflict. This is because climate tends to exacerbate existing conditions that may lead to conflict, rather than directly causing it (Scheffran & Battaglini, 2011). For example, sudden climate events such as drought, flooding, and storms can trigger migration, which is a key variable in the indirect relationship between climate events and conflict (Black et al., 2011). In many cases, migration due to sudden climate events can exacerbate existing tensions in areas with already scarce resources and high levels of political

and economic instability (Abebe, 2014). The scarcity that follows such events is integral to understanding the link to conflict (M. B. Burke et al., 2009; Gleick, 2014). Water-related climate events are particularly relevant in this regard because they can account for both water- and agriculture-related scarcity.

Thus, a comprehensive understanding of the relationship between climate events and conflict requires an examination of both the direct and indirect relationships, with a focus on how sudden climate events can exacerbate existing conditions, including resource scarcity, population displacement, and political instability, that may ultimately lead to conflict.

Sudden Versus Gradual Climate Drivers of Conflict

Sudden events such as floods, hurricanes, or severe droughts can indeed lead to largescale displacement, forcing populations to migrate to other areas, often urban centers (Adger et al., 2018; McLeman & Hunter, 2010). In some cases, these events can also cause immediate urban unrest, such as protests or riots, as people struggle to access basic resources like water or food (Hendrix & Brinkman, 2013).

On the other hand, gradual water-related climate events, such as long-term drought or rising sea levels, can also lead to migration as people seek more livable environments (Adger et al., 2013). These events may not cause immediate unrest, but they can contribute to existing social and economic pressures that may lead to conflict over climate-related resources, such as water or economic-related resources, such as employment (Hsiang & Burke, 2014).

It's worth noting that migration itself can also contribute to urban unrest, particularly when large numbers of people move into already densely populated areas with limited resources. This can create competition for resources and exacerbate existing tensions between different groups, leading to protests or other forms of conflict (Brzoska & Fröhlich, 2016). In Chapter 5,

the quasi-experiment in Bangladesh shows that both gradual and sudden climate events impact migration and urban unrest, with sudden events having a more pronounced effect due to negative economic conditions in post-migration contexts. Therefore, it is important to consider both the direct and indirect impacts of water-related climate events on migration and urban unrest, and to take steps to address the underlying drivers of conflict, including resource scarcity, economic scarcity, and government capacity (Gleick, 2014).

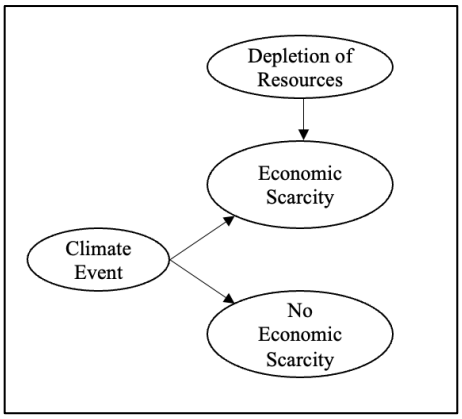
Overall, sudden climate events, particularly water-related events, have a substantive impact on the ability of populations to adapt to the negative consequences of climate change. Understanding the types of climate events that contribute to conflict is critical, as is the distinction between the direct and indirect relationships between climate events and conflict. While the direct relationship has been anecdotally documented in the literature, the indirect relationship is increasingly recognized as a critical factor in understanding the climate-conflict nexus.

Stage 1: Economic Scarcity and Income Drivers

Understanding the indirect link between climate events and conflict requires an examination of the interconnected nature of resource and economic scarcity. Malthus's theory that population growth depletes resources and leads to competition and violence forms the basis of the resource scarcity model. Neo-Malthusians have expanded on this theory by incorporating climate-relevant factors. However, while the depletion of resources is a necessary condition for the onset of conflict, it is not sufficient. Economic scarcity, such as high levels of poverty, unemployment, and inequality, can also lead to unrest and conflict within a society. Therefore, it is important to consider both absolute and relative measures of resource scarcity, as well as the

nature of economic scarcity, in fully comprehending the implications of resource scarcity on conflict. This encompasses the first stage in the causal pathway, as seen in Figure 1.

Figure 1. Stage 1: Depletion of resources and economic scarcity



The Interconnected Nature of Resource and Economic Scarcity. The nexus between economic scarcity and resource scarcity is a crucial element in understanding the resource scarcity model, which is the most prominent theoretical explanation for the link between climate events and conflict. Scholars have identified water scarcity as a key factor in population deprivation, which in turn increases the likelihood of violence and conflict. (Furlong & Gleditsch, 2003; Gizelis & Wooden, 2010; Hauge & Ellingsen, 2001; Hensel et al., 2006; Midlarsky, 1998; Toset et al., 2000). As depicted in Figure 1, the causal chain linking climate events to the depletion of resources plays a central role in the resource scarcity model.

The resource scarcity model draws on Malthus's theory that population growth depletes resources and leads to competition and violence. Neo-Malthusians have expanded on Malthus's theory by incorporating climate-relevant factors. As population growth outstrips subsistence production, scarcity becomes more acute, leading to conflict. This is because as resources become increasingly scarce, destitution increases, and this in turn leads to violence as an attempt to moderate population growth (Verhoeven, 2011).

The literature offers several Malthusian narratives that emphasize resource scarcity as the causal pathway in the climate-conflict nexus. For instance, Black et al. (2011) argue that if environmental factors lead to resource scarcity, competition for water resources is likely to induce migration to cities, which can then lead to conflict due to the population increase of migrants. Brancati (2007) contends that earthquakes can trigger conflict by depleting resources, leading to resource scarcity and competition, and ultimately, conflict. Theisen (2008) posits that resource scarcity leads to conflict by increasing frustration, which can then turn into discontent with the government and lead to civil conflict.

Neo-Malthusians link climate and conflict more directly than Malthusians, arguing that ecological events historically have been drivers of civilization modifications and survival (Diamond, 2006). Neo-Malthusians argue that the sum of resource scarcity and population growth increases violence, while ecological events can perpetuate state fragility, which in turn increases the likelihood of violent conflict (Verhoeven, 2011).

A key concept that highlights the nexus between economic scarcity and resource scarcity is David Ricardo's (1815) main principle of rent (Ricardo, 1815). This principle states that the rent of a land site is equal to the economic advantage obtained by allocating the site to its most productive use, relative to the advantage obtained by using marginal land for the same purpose, given the same inputs of labor and capital (Lambin, 2012, p. 84). When production costs increase during a time of scarcity or destitution, the population may be unable to afford goods, leading to competition and ultimately violent conflict as a means of survival (Lambin, 2012).

Economic scarcity and income-related concerns are significant drivers of migration and unrest (Lambin, 2012). Economic scarcity, such as high levels of poverty, unemployment, and inequality, can force individuals and families to leave their homes and migrate in search of better

economic opportunities (Lambin, 2012). This type of migration is often driven by a desire to escape poverty and improve one's economic status (Delgado Wise & Veltmeyer, 2016). However, economic scarcity can also lead to unrest and conflict within a society. As the costs of living increase and economic opportunities become scarce, individuals and groups may resort to violence as a means of survival. This violence can take many forms, including riots, protests, and even armed conflict (Lambin, 2012). Moreover, economic scarcity can also exacerbate resource scarcity. As economic opportunities decline, people may turn to unsustainable practices, such as overfishing or deforestation, to meet their basic needs. This can lead to environmental degradation, further exacerbating resource scarcity and potentially triggering violent conflict (Lambin, 2012).

While the depletion of resources is necessary for the onset of conflict, it is not sufficient. A population increase component is also necessary as a mediating variable. Migration plays a significant role in this causal pathway, as it can act as a mediating variable between resource scarcity and conflict. However, other confounding factors may also play a role in this complex relationship.

In summary, the resource scarcity model highlights the nexus between economic scarcity and resource scarcity in understanding the link between climate events and conflict. It draws on Malthus's theory that population growth depletes resources and leads to competition and violence, and neo-Malthusians have expanded on this theory by incorporating climate-relevant factors. Ricardo's principle of rent provides a crucial concept that highlights the nexus between economic scarcity and resource scarcity. While the depletion of resources matters for societal outcomes associated with climate events, it is the economic provisions and distribution and government capacity that creates conditions for outcomes like migration and unrest.

Absolute and Relative Resource Scarcity. Resource scarcity is a multifaceted concept that necessitates the disentanglement of its various components to fully comprehend its implications. While the literature has primarily focused on absolute scarcity, it neglects the fact that resources are distributed unevenly within populations. This is where relative scarcity comes into play, as it considers the distribution of resources within a population and the government's ability to reallocate resources from more resource-abundant regions to mitigate depletion in others.

However, relative scarcity does not account for the finite nature of resources, which can create tension and discontent among resource-depleted populations. Therefore, it is important to consider the nature of economic scarcity in addition to absolute and relative measures of resource scarcity. Economic scarcity refers to the mismatch between the unlimited wants of a society and the limited resources available to fulfill those wants. Climate change can exacerbate economic scarcity by affecting the availability of resources and, in turn, the livelihoods of people dependent on those resources. As exemplified in Chapter 3 with reference to cases in Bangladesh and Guatemala, rural agricultural workers have experienced significant declines in their livelihoods due to diminished profits following climate events, amplifying the conditions that lead to migration. Subsequent economic scarcity then contributed to urban unrest in Bangladesh. This reinforces the argument that economic factors play a crucial role in driving migration and unrest, as highlighted in Chapter 4.

To develop a comprehensive understanding of the societal implications of climate change, both the finite nature of resources and the government's ability must be considered to manage their distribution effectively. Scholars such as Theisen (2008) argue that considering both absolute and relative measures of scarcity is crucial to developing an ideal resource scarcity

measure. Furthermore, Daoud (2010) highlights the importance of government capacity in managing resource scarcity, emphasizing that effective resource reallocation can mitigate the effects of scarcity and prevent conflict.

Resource scarcity, including both absolute and relative measures, can lead to economic scarcity, which is a significant driver of migration and unrest among climate-affected populations (Brzoska & Fröhlich, 2016). When resources become scarce, economic activities that rely on those resources are adversely affected, leading to decreased productivity, reduced incomes, and limited economic opportunities (UNDP, 2016). This results in increased poverty, reduced access to basic needs, and decreased social cohesion, which can contribute to migration and unrest (Rahman & Farin, 2019). Additionally, relative scarcity can exacerbate economic inequality and create discontent among marginalized groups, leading to social tensions and potential conflict (Adger et al., 2018). Thus, while absolute and relative measures of resource scarcity are crucial to understanding the phenomenon, the ultimate impact of resource scarcity on migration and unrest lies in the economic effects on affected populations, highlighting the importance of addressing economic scarcity in efforts to mitigate the negative impacts of climate change.

Building on Resource Scarcity. The literature on resource scarcity has generated mixed findings, largely due to the diverse measurements used to operationalize scarcity. However, understanding the nature of resource scarcity is crucial in order to appropriately measure it. By identifying different conceptualizations of scarcity, the measures can be refined to suit the model appropriately. Resource scarcity and water-related climate events are closely intertwined, as major water deviations lead to water depletion or drought, followed by agricultural scarcity due

to surplus or flooding. While various forms of scarcity exist, water scarcity is the most commonly conceptualized and operationalized means of measuring resource scarcity.

The measure of water scarcity most frequently used in literature is "internally renewable freshwater resources per capita," which includes the average annual flow of rivers and recharge of groundwater generated from precipitation within a country's borders. The variable of a shared water basin is also a common way to measure water resources in literature. However, the literature is insufficient in exploring the confounds of resource depletion factors that are present.

Ghosh and Bandyopadhyay (2009) introduce the concept of a "scarcity value," which measures the degree of deprivation, specifically focusing on water scarcity. Water scarcity is a crucial resource, as it restricts land use and is as valuable as its financial yields. Ecosystem resource scarcity is defined by Adger et al. (2018) as the presence of shared water resources and migration of fish stock, which lead to violence when resource-dependent livelihoods experience scarcity. Gleick (2014) uses water efficiency and productivity, groundwater resource management, and shared river agreements as indicators of water scarcity, while Gleditsch et al. (2006) and Gleditsch (2012) focus on shared river dyads and aquifers as resources that, if scarce, lead to conflict.

While measuring resource scarcity is important for many research questions, it is important to recognize that this isolated measure may not be the sole or even primary driver of societal outcomes such as migration and unrest. Instead, these outcomes are likely influenced by a complex set of factors, including economic considerations. As seen in scholarship, there is evidence which suggests that economic scarcity may be a stronger driver of migration and unrest than resource scarcity (Collier, 2003; Gleditsch et al., 2006; Raleigh et al., 2010). Therefore, it is important for future research to consider a broader range of factors when examining the

relationship between resource scarcity and societal outcomes, including economic considerations and more promising drivers of migration and unrest. By doing so, a more comprehensive understanding of the complex relationship between resource scarcity and societal outcomes can be gained.

GDP as a Proxy. While there are a variety of measures of resource scarcity present in the literature, it is important to consider the limitations of using GDP as a proxy for resource or economic scarcity. Some scholars use GDP as a proxy to resource scarcity, but it fails to capture the theoretical mechanism of climate-related events causing resource depletion in an absolute sense. While GDP can account for some of the consequences of resource depletion, it is too broad and exclusive.

For instance, Brancati (2007) proxies for resource scarcity by using GDP per capita, arguing that this is a representation of state deprivation. Buhaug (2010) identifies freshwater, pasture, and crops as subsistence resources but again, merely accounts for GDP per capita as a proxy. Warner et al. (2010) focus theoretically on agricultural and water resource degradation but do not delineate its potential operationalization. explain how rainfall deviations induce scarcity in crops, livestock, and human consumption but only measure GDP per capita. They do so to attempt to proxy for depleted resources by measuring the national economic state which they presume to be reflective of crops and livestock scarcity as these are major sources of commerce in such economies. For example, a country may have a high GDP per capita but still experience water scarcity, which can severely limit agricultural production and lead to food insecurity. Therefore, while GDP per capita can provide some insight into a country's economic well-being, it is not a sufficient measure of resource scarcity and should be used with caution in policy-making decisions.

While GDP is not an ideal measure for resource or economic scarcity itself, GDP instead measures something along the lines of state capacity, which may reflect the ability to mitigate resource and economic scarcity problems, a vital variable in this pathway. The government's ability to manage the distribution of resources effectively and mitigate the effects of scarcity is a crucial aspect to consider (Daoud, 2010). By considering the nature of economic scarcity, as well as government capacity, a better understanding of the societal implications of climate change in exacerbating conditions for conflict can be achieved.

Stage 2: Government Capacity and Mitigation of Scarcity

The second stage of the causal pathway involves the role of resource governance, government adaptive capacity (GAC), corruption, and institutions in mitigating the negative effects of climate events and economic scarcity on affected populations. Good resource governance can help distribute resources equitably, thereby reducing the likelihood discontent. GAC refers to the government's ability to adapt to post-disaster conditions, which can be hindered by factors such as corruption and weak institutions. Corruption can interfere with the government's ability to mitigate the negative effects of climate events and scarcity, while effective institutions can facilitate the implementation of redistributive policies. Overall, effective governance and, often times, external funding are needed to successfully implement redistributive policies and mitigate government discontent.

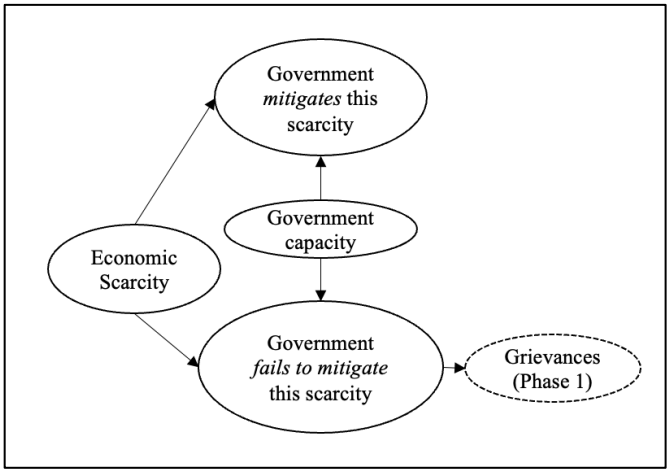
Resource Governance. Resource governance refers to the way in which a country allocates its resources. Good resource governance can play a crucial role in mitigating the negative effects of climate events, while poor governance can lead to grievances in the affected population. In certain cases, effective resource governance can go beyond equitable resource allocation to include the implementation of targeted adaptation policies in climate-affected

communities. For instance, in Peru, the government implemented a series of adaptation measures in local communities facing climate challenges (see Chapter 4). These policies aimed to reduce vulnerability and mitigate the need for migration among affected populations. While these efforts showcased the potential of proactive government action in reducing migration, it's worth noting that continual contentions with the mining industry in some regions contributed to climate-related unrest nevertheless. Mildner et al. (2011) explore the concept of resource governance in the context of the climate-conflict nexus. They cite Franke et al. (2007) to show how resource governance can be measured by several factors, including democratic oversight, transparent revenue-sharing, corruption control, a stable investment environment, and the implementation of international control regimes. These pillars of resource governance have been found to decrease the likelihood of violent conflict in resource-dependent countries.

One significant impact of good resource governance is the potential to mitigate economic scarcity, which in turn can help reduce migration. In resource-dependent countries, a lack of access to resources such as water can lead to economic scarcity and poverty, which can in turn trigger migration. However, when resources are managed effectively, the benefits can be more widely distributed and help create more stable rural economies. In summary, resource governance plays a crucial role in mitigating the negative effects of climate events and economic scarcity, which in turn can reduce migration flows. Effective resource governance can lead to more equitable distribution of benefits, while poor governance can exacerbate economic scarcity and lead to grievances[1] and migration (see Figure 2 for a visualization of this stage of the causal pathway).

[1] In this discourse, the term "grievances" has been employed in a manner that may appear synonymous with the broader concept of "government discontent." However, it is important to clarify that this usage does not imply the conventional "greed versus grievance" dichotomy often associated with ethnic or religious conflicts (Ballentine & Sherman, 2003; Collier et al., 2009; Collier & Hoeffler, 2004). Instead, it is meant to convey discontent primarily

Figure 2. Stage 2: Government inability to mitigate resource depletion and discontent



Government Adaptive Capacity. When climate shocks affect resource availability, violence is likely to occur only in states that lack the *capacity* to combat the onset of resource scarcity (Koubi et al., 2012). GAC is the extent to which the government affected by the disaster can adapt post-disaster. Adger and Vincent (2005) explain how GAC involves how the country can absorb the financial costs of the disaster. They go on to explain how this ability is related to the distribution of resources among the population and how the resource distribution is contingent on the strength of institutions. Yohe and Tol (2002) provide a framework of eight pillars that outline the GAC including,

> The range of available technological options for adaptation, the availability of resources and their distribution, the structure of critical institutions, the stocks of human and social capital, access to risk spreading mechanisms, the ability of decision-makers to manage risks and information and the public's perceived

stemming from government failures, encompassing issues like government ineffectiveness, service delivery problems, and policy shortcomings. This terminology is chosen to reflect the specific nature of the countries in Africa, Central Asia, and Latin America under consideration, where ethnic and religious factors are not the primary drivers of unrest. Therefore, "discontent" due to government and policy failures is a more accurate characterization of "grievances" for the context of this analysis.

> attribution of the source of the stress and the significance of exposure to its local manifestations (p. 27).

That said, they explain how many of these variables can only be investigated qualitatively which research has yet to initiate. The level of corruption in the government, along with weak political institutions, appear to interdependently be the most important variables of GAC as outlined in the literature.

Because GAC can be hindered by factors such as political instability, corruption, and weak institutions, redistributing resources in a way that mitigates grievances and addresses economic scarcity can be challenging. In some cases, governments may lack the necessary resources or political interest to implement redistributive policies. Ultimately, addressing economic scarcity and mitigating grievances requires effective governance and, in many cases, external funding, to successfully implement redistributive policy.

Corruption. Corruption affects post-climate disaster populations because it interferes with the government's ability to mitigate the negative implications of the climate event and scarcity (Betzold & Weiler, 2017; Lewis, 2011; M. A. Rahman, 2018). Betzold and Weiler (2017) explain that when international organizations are considering providing aid to disaster-afflicted countries, they are less likely to provide aid to countries with higher levels of governmental corruption, as they assume the aid will be squandered. Lewis (2011) takes a different approach to the effect of corruption on disaster-afflicted populations by perpetuating weakness and vulnerability pre-disaster that climate disasters merely exacerbate. This is because the government will presumably be corrupt with financial aid to mitigate the resource depletion from the disaster. This would certainly cause grievances in a population. Finally, Rahman (2018) looks at the case of Bangladesh and argues that corruption is widely predictive of a country

failing to respond to a climate catastrophe and emphasizes that this is a critical and under-studied piece of the climate-conflict nexus.

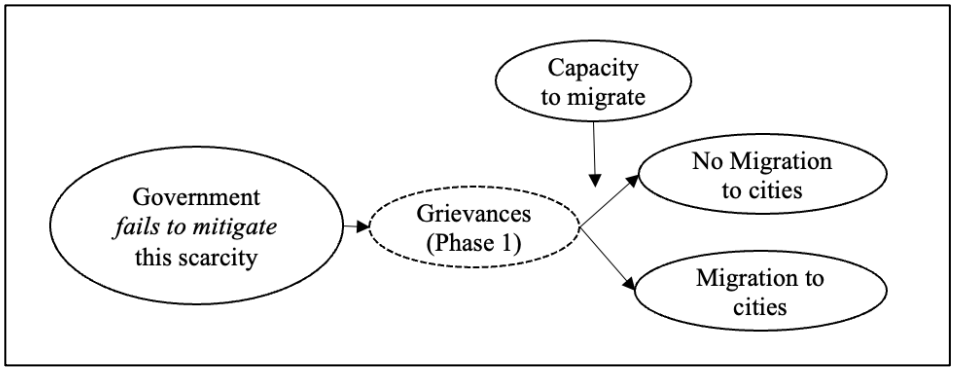
Institutions. Institutions are integral for mitigating resource depletion and even corruption because effective institutions can facilitate the government's ability to implement mitigation policies (Evans, 2010; Gizelis & Wooden, 2010; Linnerooth-Bayer & Hochrainer-Stigler, 2015). Even when considering international aid, Evans (2011) points to a potential for international mediating institutions to combat the effects of resource scarcity lessening the likelihood of conflict but in these cases, the government still has to properly allocate the funding provided. Linnerooth-Bayer and Hochrainer-Stigler (2015) explain how a lack of competent regulatory institutions is conducive to mistrust in the government. This is because there is a lack of accountability. Finally, Gizelis and Wooden (2010) suggest that weak institutions are unable to address resource scarcity and are therefore unable to mitigate the potential for violence as a result. This speaks to the importance of government capacity by means of strong institutions in the resource scarcity model.

In summary, effective resource governance and government adaptive capacity play crucial roles in mitigating the negative effects of climate events, economic scarcity, and corruption. When resources are managed effectively, this can foster more stable rural economies can be created, which in turn can reduce potentiality for grievances. However, corruption and weak political institutions can hinder government's ability to mitigate the negative implications of climate events and scarcity, perpetuating weakness and vulnerability in populations. Such problems are particularly of concern in the most climate vulnerable countries, as these countries are generally of lower global economic status. Thus, effective governance and external funding are necessary to successfully implement redistributive policies.

Stage 3: Grievances, Urban Economic Draws, and Migration

Grievances against the government have been considered a significant factor in driving migration in response to climate events. However, recent research suggests that other factors, such as economic opportunities, family ties, and personal safety, can also play a role in migration decisions. Moreover, the decision to migrate involves several intervening obstacles and facilitators beyond the government's ability to mitigate the consequences of climate events. In this dissertation, I argue that migration is a key mediating variable in the relationship between resource scarcity, migration, and conflict. The capacity to migrate is also important in this pathway, which exists on a continuum, where individuals and communities have varying levels of resources and support to undertake migration (see Figure 3 for this stage in the causal pathway).

Figure 3. Stage 3: Grievances against the government and migration



Grievances and Migration Decisions. While grievances against the government have been considered an important factor in driving migration in response to climate events, recent research suggests that it is only a part of what compels people to migrate and is largely an implication of government capacity rather than a driver itself. Nevertheless, it is an important part of the causal pathway. The literature shows that resource depletion following a climate event can lead to urban migration, and that grievances can arise when the government fails to mitigate

the consequences of such depletion (Ash & Obradovich, 2020; Black et al., 2011; Gleick, 2014; Koubi et al., 2012; Raleigh & Urdal, 2007; Reuveny, 2007).

Government discontent prompting migration is a recurring theme in the case studies discussed throughout this research. In Chapter 3, referencing the case study on Bangladesh, a compelling example of this phenomenon is observed. Here, climate-affected populations are driven to migrate from their rural communities in search of better economic opportunities. However, once they arrive in urban centers, may find themselves engaging in unrest. Climate-related factors play a significant role in their discontent, serving as a partial rationale for the unrest that ensues. However, other factors, such as economic opportunities, family ties, and personal safety, can also play a role in the decision to migrate, beyond mere government discontent (Bettini & Gioli, 2016).

Moreover, the decision to migrate involves several intervening obstacles and facilitators beyond the government's ability to mitigate the consequences of climate events. These include the political framework, the cost of the movement, the social networks available to facilitate the movement, and technology (Black et al., 2011). Depending on the feasibility of migration in a resource-depleted area, the individual will migrate. When the migrant reaches the host-location, they are faced with a new set of ethnic, political, and socio-economic challenges.

Reuveny (2007) argues that the effects of climate events on migration can be inferred by looking at the effects of other environmental problems on migration. He finds that people experiencing climate crises in developing countries are more likely to migrate than in developed countries, and that their ability to combat the costs of resource scarcity is integral to whether they will stay and combat the costs or flee. The magnitude of the environmental problem, as measured

by resource scarcity, and the government's capacity to mitigate such problems are also factors that influence migration decisions.

While discontent with the government may be a part of the decision to migrate, other contributing factors such as household level capacity and economic drivers can provide greater explanation for the decision to migrate following climate events. If the government aids the population in mitigating the costs of the climate event, migration may not be necessary, and grievances may not arise. On the other hand, if the government is unable to alleviate the resource scarcity dilemma that has ensued because of the climate event, the population may be forced to migrate while harboring grievances towards the government (Bettini & Gioli, 2016). Thus, while discontent with the government may be important in understanding the pathway between climate and conflict, they should be considered alongside other factors that influence migration decisions such as personal capacity and economic drivers.

Urban Migration and the Capacity to Migrate. Although grievances with the government's ability to mitigate scarcity may contribute to migration, the decision to migrate is a multifaceted process that also involves individual-level capacity and other drivers. While resource depletion and related economic scarcity can sometimes be directly linked to conflict, it is not always sufficient to elicit conflict. However, scarcity and resource depletion can create the conditions that make conflict more likely. In this dissertation, I argue that migration is a key mediating variable in this process.[2] According to Neo-Malthusian principles, population growth exacerbates resource scarcity, which can lead to conflict. Particularly if governments fail to

[2] It is important to note that while climate and economic factors can be drivers of migration, they often lead to internal or within-country migration to urban areas, rather than international or out-of-country migration. This is the UNHCR does not provide asylum to refugees of this sort so they may instead choose to move to urban areas within their own country in search of better economic opportunities or to escape the impacts of climate change.

mitigate scarcity, migration can be a way for people to seek out resources that are becoming scarce in their own communities (Burrows & Kinney, 2016). However, following migration, if governments fail to mitigate the negative effects of resource scarcity, migration can lead to competition and violence in urban areas. Therefore, understanding the relationship between resource scarcity, migration, and conflict is crucial for policymakers seeking to address these issues.

Resource depletion and government capacity are crucial factors in domestic urban migration following a climate event, but the capacity to migrate is also important in this pathway. According to Black et al. (2011), there are economic, social, political, demographic, and environmental drivers of forced migration that make the decision to migrate complex. The capacity to migrate varies across individuals and circumstances, and factors such as financial resources, education, family ties, and social networks can all influence the decision to migrate.

Moreover, the capacity to migrate is not a binary characteristic. Rather, it exists on a continuum, where individuals and communities have varying levels of resources and support to undertake migration. For example, some individuals may have the financial means to migrate, but lack the social networks and information to make an informed decision. Others may have strong social networks and information but lack the financial resources to undertake migration. Therefore, it is essential to consider the urban economic/income draws when analyzing the capacity to migrate.

As Black et al. (2011) argue, exposure to environment-induced hazards are key predictors of forced migration. However, these factors are more likely to be paired with other categories of drivers, such as economic and social factors. For example, individuals who have access to employment opportunities and higher income levels in urban areas may be more likely to

migrate, to mediate levels of scarcity in their rural communities. Overall, the capacity to migrate is a complex and multidimensional phenomenon that requires consideration of a range of factors. By examining the urban economic- and income-related draws in addition to environmental factors, a more nuanced understanding of how migration patterns are shaped following a climate event can be gained.

Economic Draw of Migration. Considering the economic drivers of climate-related migration is grounded in the existing literature on the role of resource scarcity as a driver of migration (Black et al., 2011; Reuveny, 2007). Economic factors are also recognized as a major driver of migration, which has been formalized in theoretical accounts (Lall & Selod, 2006; Tacoli et al., 2015). While climate events can make the decision to migrate more necessary due to damage or resource scarcity, promising economic prospects ultimately push the decision to migrate (Martin et al., 2014). However, the costs associated with uprooting one's livelihood and starting anew in an urban community can be significant, and if post-migration income-related needs are not met, these costs can contribute to individuals' discontent, often prompting unrest (Bauman, 2013).

The case of Bangladesh in Chapter 5 provides a notable example isolating the effect of income as a major driver of migration. Bangladesh, a country also facing high levels of climate displacement, underscores the significance of economic drivers alongside climate factors. Here, economic and income-driven urban migration plays a pivotal role as people seek improved economic opportunities and higher incomes in cities that are less affected by climate events.

Neoclassical migration theory, including the new economics of labor migration theory, acknowledges the complex and nuanced nature of migration decisions, which are often made at the household level (Porumbescu, 2015; Stark & Bloom, 1985). The theory suggests that

migration decisions are driven by differences in economic opportunities and income across regions (Massey et al., 1999). This theory can be applied to post-climate migration as well. Following climate events, economic and income-driven urban migration may increase as people seek better economic opportunities and higher incomes in cities that are less affected by the climate event. As noted by McLeman (2013), climate events can disrupt local economies, reducing economic opportunities and incomes, which can prompt migration to urban areas where economic opportunities are more abundant. In this way, the new economics of labor migration theory is relevant for understanding the economic and income-driven migration patterns that may emerge following climate events.

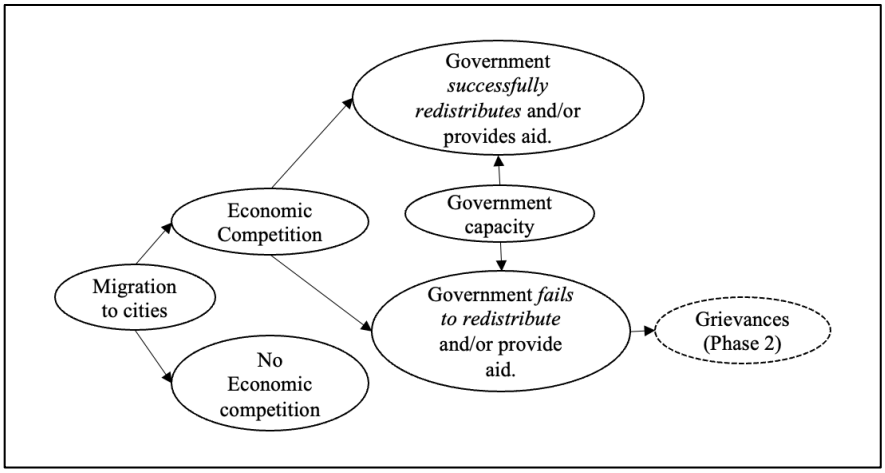
Overall, the decision to migrate following a climate event is a complex and multifaceted process that involves individual-level capacity and various drivers, including economic, social, political, demographic, and environmental factors. While grievances against the government important in understanding the relationship between climate and conflict, they should be considered alongside other factors that influence migration decisions such as personal capacity and economic drivers. The capacity to migrate is a complex and multidimensional phenomenon that requires consideration of a range of factors, including the economic and income-related draws of urban areas. Policymakers seeking to address these issues need to understand the relationship between resource scarcity, migration, and conflict and consider the various factors that influence migration decisions.

Stage 4: Theoretical Argument: Malthus, Competition, and Double Grievances

This stage in the causal pathway specifically connects the full causal pathway with urban unrest by highlighting how urban economic scarcity makes the type of conflict following migration most likely to be urban unrest rather than other types of conflict. The argument posits

that when individuals migrate to cities following resource depletion and the government fails to mitigate the resulting competition and scarcity, both the climate-afflicted population and the original urban population will harbor grievances toward the government. Buhaug and Urdal (2013) discuss conditions for when to migrate, focusing on weak institutional settings that foster violence during urban population spikes. This explanation aligns with the second grievance component of the resource scarcity model of the climate-conflict nexus (see Figure 4). Reuveny (2007) explains how competition among host and migrant populations in the urban region, exacerbated by the government's inability to mediate, fosters conflict and grievances. Burrows and Kinney (2016) also speak to the role of competition among migrants and host-populations in cities to foster conflict due to limited positions in the urban market. Ultimately, effective resource allocation and redistribution by the government could prevent these grievances and subsequent urban unrest.

Figure 4. Stage 4: Government failure to mitigate scarcity post-migration, competition, and discontent



Conditions for and Mitigation of Economic Scarcity. Climate events, such as droughts and extreme weather, can disrupt agricultural production and access to natural resources, leading to economic scarcity. In regions with extractive institutions, where power is often concentrated

among an elite few, these disruptions can exacerbate economic inequalities. Acemoglu and Robinson (2013) theorize that economic prosperity depends mostly on the inclusiveness of economic and political institutions. In settings that do not have such institutions, a population may be more vulnerable to economic shocks and harbor discontent with the government as a result. Furthermore**,** economic scarcity resulting from climate events drives migration in cases where the affected population seeks areas with more inclusive economic structures and better prospects for prosperity (Davis et al., 2010; Gibson et al., 2020).

Furthermore, economic scarcity resulting from climate events and migration can create grievances among both host and migrant populations. These grievances, if left unaddressed, can escalate into conflict. Bazzi and Blattman's (2014) research on income and conflict dynamics provides insights into the role of economic scarcity in conflict. While economic scarcities and grievances may contribute to conflict onset, several factors influence the duration and intensity of conflicts.

Blattman (2023) emphasizes the importance of governance structures in conflict dynamics. Governance characterized by checks and balances, which distribute power among various centers, reduces the risk of conflict. This polycentric governance includes features like the separation of powers, local authorities with taxing and regulatory powers, and the presence of organizations outside the government that lobby and organize. Moreover, effective rules and enforcement mechanisms, even rudimentary ones, help keep peace by facilitating credible commitments and deterring harmful actions. Such governance arrangements can play a pivotal role in mitigating tensions and fostering social cohesion, ultimately reducing the likelihood of urban unrest.

In terms of combatting economic scarcity, Thomson's (2017) work highlights how authoritarian regimes employ redistributive policies to mitigate economic grievances and impede mass mobilization. To complement this perspective, Sen's (1982) work on the failure of exchange entitlements offers valuable insights into the repercussions of economic scarcity. [3] Sen argues that famines are not solely attributable to food availability but also stem from the inability to exchange entitlements for essential resources. This perspective highlights the critical importance of preventing economic scarcity from culminating in the breakdown of exchange entitlements, as such failures can exacerbate grievances and contribute to conflicts. Relatedly, Miguel et al. (2004) reveal that a negative economic shock increases the likelihood of conflict. These analyses serve as a reminder of the consequences that can emerge when efforts to mitigate scarcity fail (Miguel et al., 2004; Sen, 1982).

Incorporating insights from the economics literature enriches our comprehension of the intricate climate-migration-unrest relationship (Acemoglu & Robinson, 2013; Bazzi & Blattman, 2014; Blattman, 2023; Sen, 1982; Thomson, 2017). This interdisciplinary exploration significantly enhances our clarity on this complex nexus, shedding light on the connections between climate events, economic scarcity, migration, and conflict.

The Double Grievance Argument. This is the second round of grievances for climate migrants, which exacerbates the initial grievances further leading to unrest, but the urban group participating in unrest includes more than just the migrants because resources are stretched for everyone. The double grievance argument presents a new perspective on the climate-migrant conflict relationship. The argument claims that the grievances stem from the climate-afflicted

[3] Amartya Sen's concept of 'entitlements' refers to an individual's legitimate claims or rights to essential resources such as food, which are influenced by their socioeconomic status and access to various entitlement sources.

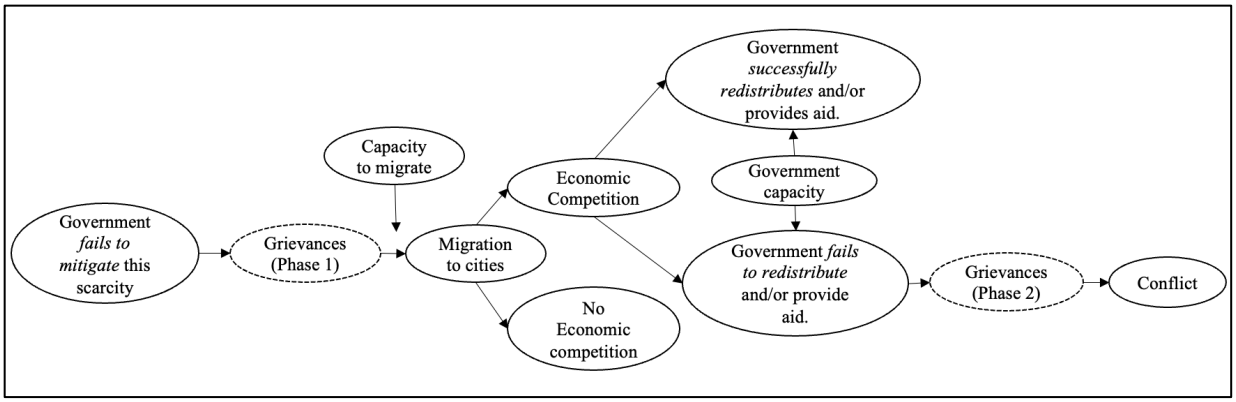
population and are towards the government for not mitigating the negative implications of the event and failing to provide economic resources in their new urban setting. The population that harbors this second stage of grievances towards the government includes both the climate-afflicted population and the original urban population as the presence of migrants stretches resources for both parties. The pathway up until this point goes as follows. If the government fails to provide resources to the resource-depleted population, they will likely flee to urban areas to find resources and livelihood. Once they arrive in the city, competition due to the population increase may also create forms of scarcity. If at this point the government again is ineffective, then conflict will likely arise due to the grievances harbored by the population.

Chapter 4 discusses Croatia's successful approach to climate vulnerability, emphasizing the safeguarding of its tourism industry and the integration of urban, economic, and climate policies. This approach effectively reduces urban migration, alleviates economic discontent, and safeguards the national economy. This exemplifies successful mitigation of the first stage of grievances. In contrast, Lebanon, as discussed in Chapter 3, serves as a case study where government failure to alleviate economic grievances led to unrest, exemplifying the failure to mitigate the second stage of grievances.

The double grievances experienced by migrant populations stem from the fact that their decision to migrate was often driven by economic-related concerns. They leave their home communities in search of better economic opportunities, hoping to escape scarcity that has occurred. However, if their economic situation is not significantly improved after the costly migration, grievances will be quite high. This is because they have invested time, money, and effort into their migration, and their expectations of greater economic stability have not been met. This double-grievances situation will often lead to organized unrest. Resources stretched

thin by the migrant influx will foster the added element of grievances with the urban population, which will exacerbate the conditions for unrest already posed by the double grievances of the migrant population (see Figure 5).

Figure 5. Double Grievances: Government failure to mitigate scarcity before and after urban migration



Several scholars have identified the relationship between grievances and conflict, with finding that poverty and unstable institutions are strongly supported in leading to conflict. Theisen et al. (2012) speak to the role of the government specifically in eliciting grievances among the public, with Koubi et al. (2018) further emphasizing the government's inability to mitigate the negative effects of the climate event in relation to migration, prompting the initial phase of grievances. For the second phase, Forsythe (1980) explains how the presence of migrants in a city can put pressure on a variety of facets of the economy, and Raleigh and Urdal (2007) further make this link that urban migration is the intermediary variable between resource scarcity and conflict, with related grievances as a major contributing factor. Gleick (2014) explains how the influx of people in cities due to climate-migration not only increases employment competition, but also has been shown to increase ethnic, religious, and political tensions in urban areas, fostering social unrest.

In light of these conflict-related dynamics, certain types of economies, such as agricultural and tourist economies, are intricately tied to the climate-migration-unrest theory of this dissertation due to their profound dependence on climate stability. In regions where the agriculture sector is a main contributor to the economy, climate events such as prolonged droughts or extreme weather can disrupt agricultural production and access to essential resources. ^This has been the case in Peru, Guatemala, Bangladesh, and similar economies. These disruptions often lead to economic scarcity, as livelihoods and income sources are compromised (Davis et al., 2010; N. Huq et al., 2015; Kennan & Walker, 2011). In response, populations in these areas may be driven to migrate in search of more stable and economically viable environments, which can subsequently contribute to urbanization and possibly increased competition for resources in destination areas, potentially fostering unrest. Similarly, tourist economies, such as in Croatia, rely heavily on favorable climate conditions to attract visitors and sustain economic growth. In both agricultural and tourist-dependent regions, the vulnerability of these economies to climate variations underscores the critical role of climate stability in shaping migration patterns and the conditions conducive to social unrest.

In such circumstances, the government's role in mitigating competition becomes paramount. If the government fails to address resource scarcity, grievances rise, and the potential for conflict escalates. What distinguishes climate-related urban migration from other forms in the pathway to unrest is the double grievance argument. The government's inability to alleviate resource scarcity following a climate event leads to the population harboring one set of grievances. Furthermore, upon urban migration, the government's failure to provide economic resources results in a second round of grievances. This double-grievance scenario further exacerbates conditions for organized conflict, particularly in urban settings.

Type of Conflict. The type of conflict that should be expected from climate-induced scarcity and migration is of a specific nature. While studies vary widely in their measurements of conflict in this literature, there is evidence pointing to a lack of a relationship between climate events and the onset of war (1000+ battle deaths). A Neo-Malthusian narrative of resource scarcity, that population growth will lead to resource scarcity and subsequently conflict, is quite common in the literature. Causally, as population growth exceeds both absolute and relative resource availability, conflict due to scarcity will ensue. This is because when resources become increasingly scarce, destitution increases. Destitution is said to lead to violence as an attempt to naturally mitigate population growth (Verhoeven, 2011).

Another reason why the literature has thus far been inconclusive regarding the climate-conflict nexus is the focus on armed conflict. While in some cases, armed conflict is clearly assessed in terms of climate-induced scarcity and migration (Brancati, 2007; M. B. Burke et al., 2009; Raleigh & Urdal, 2007), it is more intuitive to assess this relationship with lower-level organized movements and conflict. Because of the urban nature of the second phase of grievances, the conflict should be expected to be related to organized conflict, violence, protest, or other acts against the government. For example, Ash and Obradovich (2020) look at protests instead of other forms of conflict because protests are more likely to be affected by external stimuli than actual civil conflict, which is, in turn, more likely to be due to long-standing contentions between civilian groups and the state. Aylett (2010) explains how social movements are likely to occur in urban settings because the aggrieved population is more easily organized and mobilized. speak to the literature on climate change and conflict by assessing rainfall patterns in Africa. The authors provide an expanded concept of conflict, including demonstrations, riots, strikes, communal conflict, anti-government violence, and organized

rebellion. In sum, demonstrations, movements, lower-level conflict, and protests are the most likely venues in which both climate migrants' and the urban population's grievances are most likely to develop. Therefore, this is the most suitable measure of conflict for the causal pathway presented in this work.

In sum, the double grievance argument proposes that urban migration, particularly when following climate events, causes a specific type of conflict: urban unrest. This argument posits that migrant populations experience double grievances due to the economic-related factors that drive their decision to migrate. They leave their home communities in search of better economic opportunities, hoping to escape scarcity that has occurred. However, if their economic situation is not significantly improved after the costly migration, grievances will be quite high. This is because they have invested time, money, and effort into their migration, and their expectations of greater economic stability have not been met. This double-grievances situation will often lead to organized unrest. The scarcity of urban economic resources, strained even further by the influx of migrants, exacerbates the conditions for unrest already posed by the double grievances of the migrant population. As a result, urban economic scarcity makes the type of conflict following migration most likely to be urban unrest rather than other types of conflict.

Theory and Causal Pathway

Drawing on the literature, a causal pathway can be constructed to understand the relationship between climate events and conflict. The literature suggests that there is little evidence of a direct relationship between climate events and urban unrest (Ash & Obradovich, 2020; Black et al., 2011; Gleick, 2014; Raleigh & Urdal, 2007). However, there is evidence of an indirect relationship between the two through migration as a key intervening variable (Hendrix & Salehyan, 2012; Koubi et al., 2018; Reuveny, 2007; Salehyan, 2008). Much of the literature

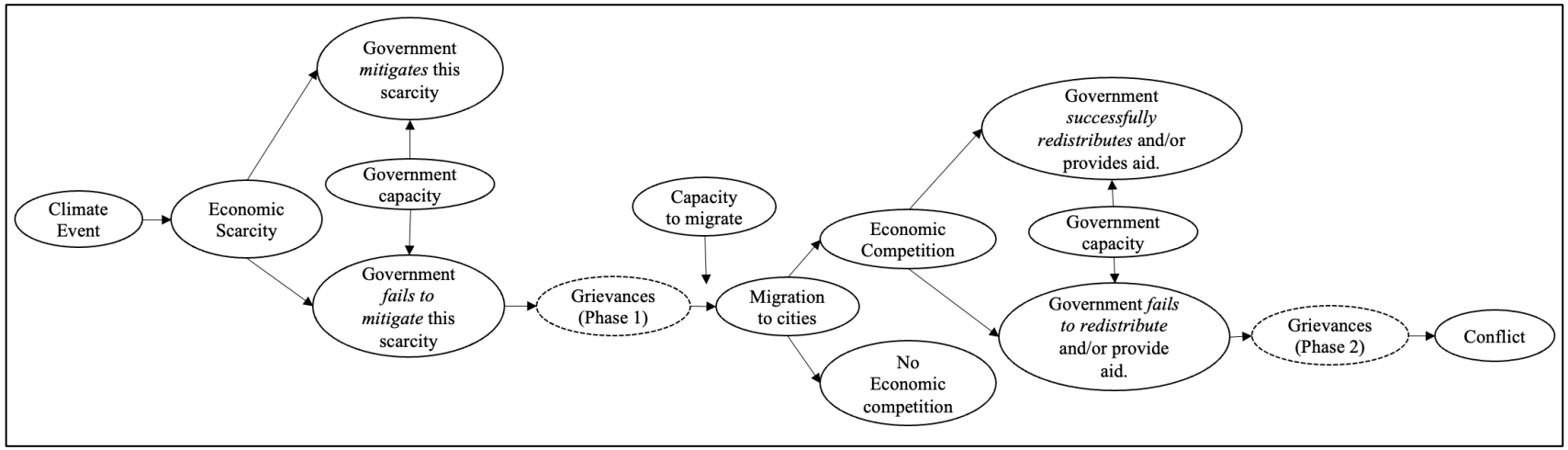
points to resource scarcity as the channel which climate events contribute to migration and unrest (Black et al., 2011; Brancati, 2007; Gleditsch, 2012; Raleigh & Urdal, 2007; Salehyan, 2008; Theisen, 2008), but this pathway purports to provide a more accurate depiction of the link by including economic scarcity as the main tenet linking the key variables of climate, migration, and unrest.

In this regard, following a sudden water-related climate event that depletes resources, the government has a critical role in mitigating the effects of subsequent economic scarcity. However, the literature indicates that governments often struggle to effectively address such scarcity, which can lead to grievances that cause urban migration (Hendrix & Salehyan, 2012; Koubi et al., 2018; Reuveny, 2007; Salehyan, 2008). Upon urban population influx, competition for resources may arise, and if the government fails to mitigate the negative effects of competition, the failure to mitigate competition for resources will lead to the second phase of grievances. This added layer of grievances for the migrant population is exacerbated by the economic grievances also developed by the host population, which may then result in urban unrest in the form of acts against the government (see Figure 6 for mapped Causal Pathway).

It is crucial to reevaluate the existing tenets of the causal pathway constructed with reference to the literature, as different parts of the pathway are not consistently supported. While the literature points to resource scarcity as the main pathway linking climate events, migration, and conflict, this pathway overlooks the critical role of economic drivers of social outcomes such as migration and unrest. By including economic scarcity as a central tenet, which resource scarcity certainly contributes to, this pathway provides a more accurate depiction of the relationship between climate events, migration, and unrest. By incorporating economic scarcity into the pathway, the constructed causal pathway serves as a framework to better understand the

complex relationship between climate events and events of social unrest and can provide insights for policymakers to mitigate the negative effects of climate change on conflict outcomes. In this dissertation, I analyze different parts of this pathway in different ways. First, I do within-case analyses in countries with varying levels of climate, migration, and unrest to compare and explore the main mechanisms in this relationship. Then, I execute quasi-experimental analyses to capture whether economic scarcity is contributing to urban migration and urban unrest in the context of Bangladesh, which is also known to have high levels of climate change.

Figure 6. Causal Pathway of the Climate-Conflict Nexus



The case of Bangladesh, as discussed in Chapters 3 and 5, perfectly exemplifies this causal pathway. It presents evidence for the direct connection between climate and urban unrest through climate-related rationales for protest, as well as the indirect connection, where mass climate displacement contributes to urban migration, economic stress, and urban unrest. An experimental analysis of Bangladesh in Chapter 5 provides causal evidence of not only whether migrant shocks lead to unrest, but also whether this unrest is contingent on economic scarcity and migration. There is evidence suggesting that grievances toward the government spark unrest with economic scarcity as the source of such grievances. Moreover, as climate change increasingly affects communities in Bangladesh, it is presumable that it could further amplify discontent with the government, potentially leading to urban unrest.

Hypothesis 1: Economic scarcity following sudden climate events causes the affected population to migrate.

Hypothesis 2: Urban migration leads to acts against the government when corresponding economic discontent is present.

In conclusion, the literature supports the construction of a causal pathway to understand the relationship between climate events and urban unrest. While there is little evidence of a direct relationship between climate events and unrest, the literature suggests an indirect relationship through migration as a key intervening variable. Resource scarcity, influenced by climate events, is often identified as the main channel linking climate, migration, and conflict. However, this pathway should be expanded to include economic scarcity as a central tenet, which contributes to the development of discontent and unrest. Governments play a critical role in mitigating the effects of economic scarcity, but often struggle to address these challenges effectively. Urban migration and competition for resources can lead to government discontent, both among the

migrant population and the host population, potentially resulting in urban unrest and acts against the government. By incorporating economic scarcity into the causal pathway, policymakers can gain a better understanding of the complex relationship between climate events and unrest, enabling them to implement strategies to mitigate the negative effects of climate change on unrest. Further research can explore the hypothesized relationship between economic scarcity, migration, and urban unrest in specific contexts to deepen our understanding of the nexus.

CHAPTER 3

CASE STUDIES FOR COUNTRIES WITH HIGH LEVELS OF MIGRATION

Introduction

In the next two chapters, I employ within-case analyses to gain a comprehensive understanding of the mechanisms driving urban unrest within the climate-migration-conflict causal pathway. The purpose of these analyses is to ensure the theoretical validity of the causal pathway. To achieve this, I conduct an eight-grid fuzzy-set qualitative comparative analysis on countries that meet specific conditions outlined in Table 1.

Table 1. Fuzzy-Set Qualitative Case Comparison

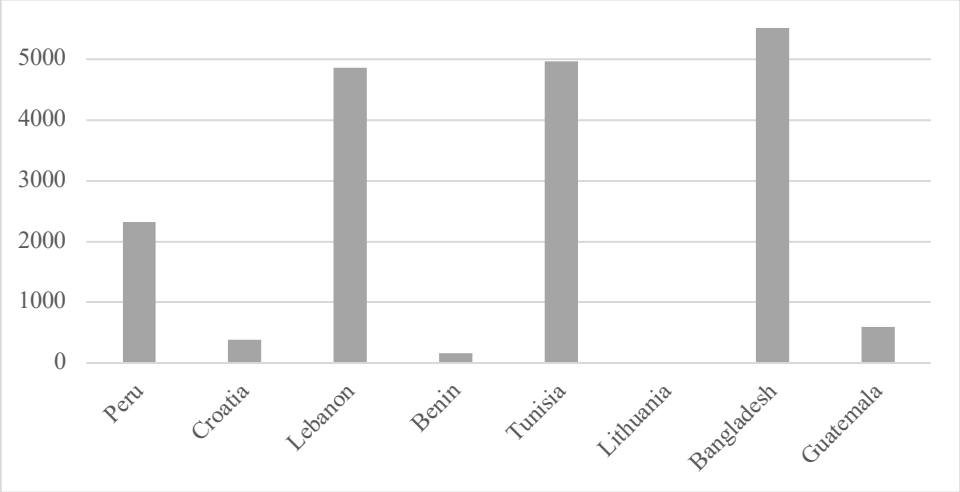
	Urban Unrest (high)	***Urban Unrest (low)***	
Urban Migration (low)	Peru	Croatia	***Climate event (high)***
Urban Migration (high)	Lebanon	Benin	***Climate event (low)***
Urban Migration (low)	Tunisia	Guyana	***Climate event (low)***
Urban Migration (high)	Bangladesh	Guatemala	***Climate event (high)***

Note: Climate Risk data from GermanWatch, Urban Migration data from the World Bank, and Conflict Event Data from GDELT were pivotal in the case selection process. The temporal domain is 2000-2019.

The selection of cases is based on three key dimensions: the degree of urban migration, climate change-related events, and urban unrest. I specifically focus on middle-income countries with moderate levels of government capacity, as described in Appendix A. These countries are particularly relevant because urban regions within them typically offer economic opportunities, making urban migration an attractive option (see middle-income comparison with world averages in Appendix B).

To choose the cases, I rely on Climate Risk data from GermanWatch, Urban Migration data from the World Bank, and Conflict Event Data from ACLED.[1] I examine the time period of 2000-2019, which aligns with the availability of the GermanWatch Climate Risk Index data and coincides with a period when climate events and migration have gained prominence. Figure 7 presents a graph illustrating the levels of urban unrest in the eight cases analyzed in this study. This data includes counts of protest, riot, and demonstration events sourced from ACLED. The actors involved in these events encompass protesters, civilians, and rioters. Subsequent case studies involve content analyses of the summaries of event rationale extracted from the event data, which will be discussed in detail.

Figure 7. Urban Unrest Events (2000-2019)



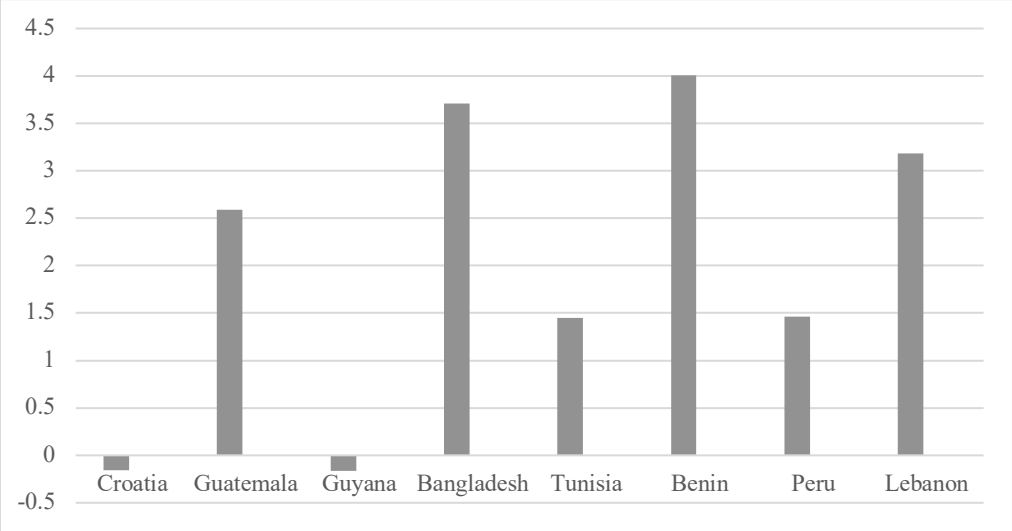
Note: Counts of events of Protest, Riots, and Demonstrations from ACLED Data in selected countries.

The data on urban population growth, depicted in Figure 8, is sourced from the World Bank Development Indicators Index. It reflects the average annual percent change in urban population growth between 2000 and 2019. The selection of cases takes into account not only

[1] German Watch has the most spatially and temporally comprehensive Climate Risk data to date. GDELT Conflict Data is also used as a proxy.

urban population growth but also focuses on countries that have not yet completed their industrial revolutions. This deliberate choice lends greater significance to the nature of urban migration within these contexts.

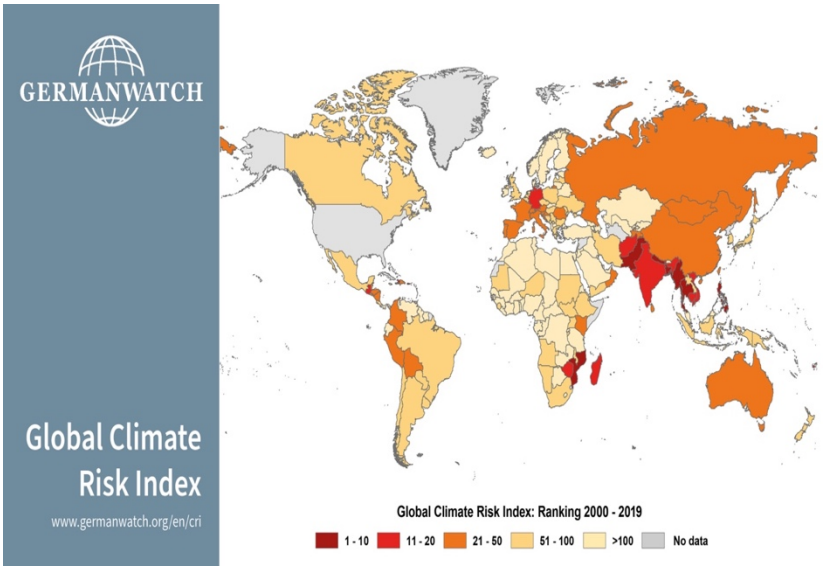
Figure 8. Urban population growth (annual %) (2000-2019)



Note: World Bank Urban Population Growth Data in selected countries.

In addition, Figure 9, which depicts the GermanWatch Global Climate Risk Index map, serves as a reference to categorize countries into quintiles based on Climate Risk between 2000 and 2019. This map allows for the classification of cases into low or high climate risk countries. Specifically, the light yellow (>100) category represents low climate risk countries, while the orange, red, and dark red categories (<50) indicate high climate risk countries.

Figure 9. Global Climate Risk Index (2000-2019)[2]



Note: GermanWatch Global Climate Risk Index from 2000-2019.

As discussed in the previous chapter, I expect that migration plays a pivotal role in shaping the relationship between climate change and urban unrest. As such, I organize the chapters based on the migration variable, which mediates the climate-migration-unrest causal pathway. By focusing on migration, I explore how urban migration levels and patterns interact with climate change-related events, influencing conflict dynamics.

This division enables a systematic analysis of the mechanisms driving unrest within the proposed pathway. Each chapter examines specific aspects of migration, including the economic draw of urban regions, the impact of industrial development, and the role of government capacity in shaping migration patterns and their link to climate change and unrest. Moreover, this division allows for a nuanced examination of migration as a catalyst or mitigating factor in the climate-

[2] Eckstein, D., Künzel, V., & Schäfer, L. (2021). Global climate risk index 2021. *Who Suffers Most from Extreme Weather Events*, 2000-2019. GermanWatch.

migration-conflict relationship. By studying different cases and migration dimensions, variations in outcomes and potential conflict-driving or unrest-preventing mechanisms can be identified.

In sum, the methodological choices made in this chapter, including within-case analyses and the selection of cases based on urban migration, climate change-related events, and urban unrest, have contributed to a robust analysis. The chosen time period aligns both with data availability and the growing significance of climate events and migration. Additionally, the decision to divide the chapters based on the migration variable has provided a comprehensive exploration of migration's role in the climate-migration-conflict causal pathway. This approach yields insights into the mediating effects of migration on the relationship between climate change and urban unrest, shedding light on the complex dynamics. Through these methodological choices and this in-depth case analysis, this study has contributed to a deeper understanding of the mechanisms driving unrest within this causal pathway.

Countries with High Levels of Migration

In late September 2013 in the urban center of Dhaka, Bangladesh, thousands of factory workers, many of whom economic or climate migrants, protested for higher wages amidst rising prices and economic stress going unchecked by the Bangladeshi government (Haque & Azmat, 2015). This unrest culminated from months of steep inflation and rising consumer prices ultimately resulting in proportional wage increases. Urban economic competition and subsequent tensions are often purported to be exacerbated by migration shocks. Rural to urban migration in Bangladesh is high, owing both to mass climate displacement and the urban draw of the garment industry (as will be further examined in Chapter 5). As this example of urban unrest in Bangladesh shows, economic discontent here have prompted unrest and have been exacerbated by high levels of urban migration.

In this chapter, the main objective is to examine the interplay between climate and urban unrest, with a specific focus on the mediating variable of urban migration. By conducting a detailed analysis of four within-case studies (see Table 2), I aim to gain insights into how migration influences the relationship between climate change and conflict dynamics. These selected cases encompass different levels of climate events and urban unrest, while sharing a common characteristic of high levels of urban migration. By studying these cases, the intricate dynamics at play can be discerned, and the mediating role of migration can be explored. The presence of other factors driving high migration enables the disentanglement of the effects of migration from purely climate-related influences. Additionally, examining cases where there are high levels of migration, but no unrest provides a valuable opportunity to understand the conditions under which migration may act as a mitigating factor. By analyzing these cases and considering rival and alternative explanations, a deeper understanding of how migration contributes to the dynamics between climate change and conflict can be gained. Ultimately, this research provides valuable insights into the multifaceted nature of the relationship and contributes to the broader understanding of the role of migration as a mediating variable.

Table 2. Levels of Urban Unrest and Climate Risk in Countries with High Migration

	Climate event (low)	***Climate event (high)***
Urban Unrest (low)	Benin	Guatemala
Urban Unrest (high)	Lebanon	Bangladesh

Note: Climate Risk data from GermanWatch, Urban Migration data from the World Bank, and Conflict Event Data from GDELT were pivotal in the case selection process.

Next, I will examine case studies with high levels of urban migration, focusing on the causal pathway identified in Chapter 2. By considering cases with varying levels of climate risk and urban unrest, the proposed mechanisms can be isolated, and additional drivers in this relationship can be explored. Understanding these mechanisms is crucial for shaping our

perspective on climate events, migration, adaptation, and other climate and urban policy measures. Throughout this chapter, the modes in which climate and urban migration can mutually amplify their effects, particularly in nations with low income and constrained resources will be explored. These nations are especially vulnerable to shocks and struggle to adapt or respond effectively to changing climatic and migration patterns. Climate events exacerbate scarcity, intensifying the strain on already-fragile incomes and resource access. Additionally, shocks caused by both climate events and urban migration can escalate economic competition, amplifying existing tensions. Through the subsequent case studies, insights into these complex relationships will be gained.

In this chapter, I start first by considering what else may be driving migration, if not climate, through the case of Benin, and what is responsible for low levels of unrest despite high levels of migration. I find that industrialization, with increased access to services in urban centers, is the main driver of urban migration in Benin. Moreover, these urban migrants are experiencing new increased quality of life and relative prosperity, mitigating any economic discontent and resulting in low levels of urban unrest. Second, the case of Guatemala allows for consideration of what is mitigating unrest, despite high levels of climate change and urban migration. I find evidence that climate adaptation measures have occurred, but also that gang violence and corruption may supersede the conditions for unrest. I next discuss the distinct role of economic scarcity linking urban migration with urban unrest. The case of Lebanon shows that economic discontent distinctly predicts unrest and that high levels of urban migration in the country enhance economic tensions and the subsequent this risk of unrest. Finally, I explore the mechanisms in each link in my causal pathway through the case of Bangladesh which shows that climate change has created mass displacement, contributing to mass urban migration. The

overwhelmed urban centers in Bangladesh have been even more vulnerable to negative economic shocks, when occurring, creating conditions for high levels of urban unrest.

Benin: Industrialization as the Driver of Migration

Simple access to services in urban centers of industrializing Benin is the key driver of migration in the country. Climate-related scarcity is reported in the country, despite having low levels of climate risk over the 2000-2019 period of this analysis. Benin has a large informal work sector, particularly in cities, and some of whom former agricultural workers forced to migrate to cities to seek this opportunity amidst changing and drying weather patterns producing low crop yield. Low levels of urban unrest are also reported in the country. While citizens have some discontent with the government and the economy, the relative prosperity that the population gains due to industrialization and access to basic services keeps unrest at bay (Raleigh et al., 2010). It seems that the population of Benin, with the country's current development and industrializing status, have prioritized seeking services and income-generating opportunity in urban centers, driving migration. Despite how in many countries urban migration drives economic scarcity, the urban economic opportunity provided by the comparatively recent industrialization boom in Benin has so far mitigated economic discontent which otherwise prompt urban unrest. In cases like Lebanon and Bangladesh, the high levels urban migration have not uniformly been met with economic opportunity, subsequently sparking urban unrest due to economic scarcity.

Climate-Related Agricultural Scarcity

Like most West African states, Benin also suffers from climate variation. While it has low levels of climate risk from 2000-2019 as compared to other states, this region of the world has a particularly fragile agricultural production system due to its low levels of development and

historical scarcity (Filho et al., 2022). Climate volatility even further exacerbates these preconditions. The global rise in temperature has led to periods of drying and rainfall variation in Benin, distressing the already fragile agricultural economy (Tatjana et al., 2014). Climate risk in Benin has increased in 2000s, and this is reflected in public perception as well.

The Afrobarometer Survey Wave in 2017 shows that 66% of Beninese think that climate change is worse than it was 10 years prior. Although climate change risk is comparatively low for the duration of our analysis, farmers in Benin still report perceiving it. They also report that climate factors go into their decisions to migrate. Mounirou and Yebou (2022) analyze 630 agricultural producers' perceptions of climate risk finding that the threat of climate change increases propensity to migrate. The authors find that while climate change does not cause direct migration for these Beninese farmers, it plays into their decisions to migrate in order to adapt to this new climatic era. Mounirou (2022) expresses that the migration consequence of climate change can be mitigated if agricultural workers diversify their incomes including both agricultural-related and nonagricultural-related income sources of revenue. In Benin, the government capacity is quite low, meaning that they can do little to help with climatic adaptation strategies (Idrissou et al., 2020). Diversifying income, if the government fails to increase rural adaptation measures, could mean more urban migration. This is because especially with climate variation increasing rural scarcity, most income-generating opportunities will be un urban centers.

Industrialization and the Informal Work Sector

While some of the migration in Benin is reportedly prompted by climate-related scarcity, income-related factors and services that cities are more apt to provide are still the main drivers of migration in the country. High levels of migration in Benin reflect the industrializing patterns in

most of West Africa. Although the workforce in Benin is largely informal, urban centers still are more plentiful with work opportunity and have more public services to provide, drawing urban migrants especially in their times of economic scarcity (Tacoli, 2012). Basic services are still a major problem in Benin with over half of the population struggling to access drinking water and sanitation (Afrobarometer, 2017). This is rapidly improving in cities where basic infrastructure in place due to the industrial revolution greatly increases quality of life and mortality (Fox, 2017).

Lohnert (2017) speaks in depth regarding urbanization in Africa. For Benin in particular, the industrialization process has culminated to 42% urban population, with a 4% growth rate for each of the first 15 years of the century. The author also speaks to the vastness of the informal work sector (approximately 90%). Benin cities have become attractive because of services such as education and medical care to meet basic needs of the population.[3] Partially because formal job sectors are so insecure, there is a large number of both the urban and rural population that engages in more than one income source that Lohnert (2017) refers to as "pluri-activity." This is in order to increase income, becoming especially necessary with the absence of wage laws mediating the informal work sector. The rural population may engage in pluri-activity to mediate climate-induced scarcity of income while the urban population is likely doing so out of informal sector-related wage precarity. Pluri-activity also seems to be a mediator for low levels of education. Those with lower levels of education are more likely to engage in more than one job. It may be the case that the next generation of educated Beninese, due to enhanced education services, may be more apt to engage in the formal work force, generating more stable income. In

[3] According to the World Bank school enrollment rates, CPIA policies for inclusion, and a variety of health indicators including IMR, have all shown stark trends in terms of public service improvements.

the meantime, the services that cities provide and large opportunity for informal work continue to draw urban migrants, particularly with the increasingly volatile rural agricultural sector.

In general, industrialization drives urban migration, but if this migration surge does not put pressure on urban resources, often captured by government capacity, unrest will not result. In the case of Benin, industrialization was met with urban migrants' access to a larger work sector and new public services such as education, healthcare, increased access to clean drinking water, and more. Industrialization led to access to formal work and the urban centers also had a large informal work sector leading to increased economic opportunity. Potential scarcity from the flood of migrants was offset not only by this large work sector and the need for low skilled urban employees, but also by increased access to services.

Low Levels of Unrest in a Developing State

Historically, the type of conflict that can be observed in Benin is related to terrorism and disputes with its neighboring countries. This is on a much larger scale than the urban unrest identified in the causal pathway of this analysis. Although Benin remains relatively peaceful, it also remains quite poor. As an industrializing state, the population has been experiencing an increased quality of life, and although some discontent with the government due to economic scarcity and lack of government transparency exist, the public is still undergoing an era of increasing relative prosperity. [4]

Furthermore, 87% of citizens in Benin report that they would join with others to demand government action and 80% claim not to fear violence during acts of protest (Afrobarometer, 2017). This indicates that it is not state repression driving these low levels of unrest. In other

[4] This is observed in that net income per capita has experienced only positive growth since 1995 (World Bank, 2020).

words, if citizens harbored discontent with the government, according to their reported propensity to protest, they would engage in acts of unrest towards the government. That unrest levels are low indicates that grievances are not strong enough to spark unrest and that there are other conditions mitigating potential grievances.

In a study analyzing the mere 157 instances of urban unrest in the 2000-2019 time period, the main grievances were reportedly related to dissatisfaction with leaders and workers' rights (Raleigh et al., 2010). Formal employment is extremely low, and the government's low capacity paired with the public's discontent with the leaders create conditions for grievances. Nevertheless, the relative prosperity and quality of life enhancements that citizens receive moderate these grievances, making for low levels of unrest for now. As the country continues to develop and state capacity increases, the population will likely be more prone to holding the government accountable. The industrialization/development trend is expected to plateau in the late 2020s, leaving the population with expectations of their needs, especially with an increasingly educated young workforce (Kappel & Knedlik, 2017). With such high levels of urban migration, the government will need to be particularly attentive to urban planning and formal workforce opportunity for its citizens in order to mitigate scarcity and unrest. As climate-related scarcity becomes more prominent, this will also prompt the government to create adaptation policies to stabilize migration, alleviating urban stress.

A Case of Industrialization and Low Economic Grievances

Beninese urban migration is high due to its recent industrialization, paired with rural climate-induced scarcity, but the publics grievances have not yet resulted in high levels of urban unrest. Despite discontent with the government due to low access to the formal workforce, these city dwellers are experiencing a greater quality of life due to access to services and education.

This increase in quality of life has mediated potential government discontent. As climate change worsens and drives more people to urban centers, the government will have to adapt its infrastructure to accommodate them, tackling the urban employment and creating more work opportunities in order to avoid unrest. The government will also have to mediate the allure of urban migration by creating more rural infrastructure and access to serveries along with climate adaptation strategies to decrease the economic stress caused by rampant urban migration. This case reinforces that scarcity and income-related factors drive urban migration and that positive urban economic conditions mitigate potential urban unrest.

Guatemala: Climate Migration Amidst Gang Wars

Guatemala ranked in the top ten of the Global Climate Risk Index for two decades (Kreft et al., 2013). The public is very aware of this risk, with 89% of the population considering climate change a serious problem in the country (AmericasBarometer, 2021). The country has since increased its adaptive capacity, adopting a variety of major climate resilience policies and commitments including a full congressional framework to "regulate vulnerability reduction and obligatory adaptation to the effects of climate change (Nachmany et al., 2015, p. 4). As the Guatemala economy is highly reliant on agricultural production, both the population and the government have interests in adapting to drying climatic conditions (Buhr et al., 2018). Urban migration is frequently used in Guatemala as an adaptation measure to diversify and increase income that has been affected by climate change and decreased agricultural productivity (Bouroncle et al., 2017). Levels of urban unrest in Guatemala from 2000-2019 have been low, despite high levels of urban migration. This could be, in part, because the government is responsive to climate change, mitigating some economic scarcity.

An alternative explanation is that the gang violence in urban Guatemala supersedes other types of conflict such as unrest. While climate refugees initially flee to urban centers to seek alternative income opportunity, the violence upon arrival is responsible for a major outflow of migration. This mode of migration becomes preferable due to the prevalent violence, which drastically reduces the potential for unrest to take hold. Consequently, in instances marked by severe violence, the observed response involves people leaving the country instead of engaging in protests (Slattery, 2020). This phenomenon, characterized by violence-induced migration outflows instead of protests, is further exacerbated by substantial government corruption and collusion with organized criminal entities. In sum, in countries that have similar climate migration trends, protest is observed to combat related grievances. In Guatemala, because of gang violence, more people choose to flee the country. The low level of urban unrest is an unintended consequence of violence despite the climate migration and subsequent economic scarcity otherwise creating conditions for unrest.

Decades of High Risk and Little Rainfall

The major climatic problem in Guatemala is rainfall variation related drought and flooding. Drought in Guatemala has been shown to decrease agricultural production which in turn creates problems with food scarcity and livelihood (Vargas et al., 2018). This problem has reinforced itself as low agricultural yields led to less food production, high food prices, low income, and less consumers of the food produced (Vargas et al., 2018). Climate-related losses have also led to crop disease, disrupting farmers' livelihoods for years and doubling migration rate due to loss of income (Dupre et al., 2022).

Rural communities have been devastated by the impacts of drying over the years and scholars have suggested diversifying income to adapt (Afifi et al., 2016). Many have turned to

weaving and textiles to supplement their income both pre- and post-urban migration. This is a prime example of income diversification that could benefit both individual and state level reliance on agricultural production (Ruano & Milan, 2014). So far, income diversification has not been a major priority, but the state has enacted other measures to protect their agricultural industry.

Adaptation and Income Diversification

During the 2000-2019 period, urban migration in Guatemala was high. Deemed one of the most high-risk states by the Global Climate Risk Index from 1994-2013, the country was under serious pressure to create a strategic plan to adapt to climate change and protect their agricultural sector (Kreft et al., 2013). Overtime, the government has been taking instrumental steps towards mitigating the climate-related economic scarcity that causes this migration. Since the momentous Adaptation Framework that was enacted in 2014, Guatemala has greatly increased its adaptive capacity (Nachmany et al., 2015).

Migration is a last-resort measure used by many climate-vulnerable Guatemalans to self-adapt to climate change and diversify or increase income. There has so far been two types of urban migration in the country. The first is household migration, where the entire family gives up in situ because of major agricultural losses (Losch et al., 2012). The second is a single-household member migration to urban centers to diversify income outside of the agricultural sector with vocations such as weaving (Ruano & Milan, 2014). Many rural communities have deep geographical ties and have high indigenous populations. As a result, in situ work is preferrable, but migration sometimes still results (Chomsky, 2021). The government's attention to increasing its adaptive capacity is attractive for rural workers. As long as there is relative economic stability in the location and vocation, they will not have to resort to urban migration.

Unlike in other cases, Guatemalan urban centers do not have a major economic draw. In fact, between the severity of gang violence and large agricultural sector, remaining in rural vocations is desirable. Due to the absence of major industries in urban centers that would attract mass urban migration, it can be inferred that the urban migration is truly driven by necessity resulting from climate-induced agricultural losses. While emigration is also a problem that Guatemala faces, only 2% of emigrants cite climate as a result for leaving the country (AmericasBarometer, 2021). Most Guatemalans report the driver of migration as either being a victim of extortion (54%), crime (48%), or corruption (83%) . This provides further evidence that the climate scarcity is prompting internal urban migration in nature.

Organized Crime Superseding Unrest

The urban disruption plaguing Guatemalan cities is related to gang violence, corruption, and drug crime rather than urban unrest. This severity is reflected in that 61% of urban residents report being afraid to leave home at night and 30% resort to keeping their children at home for their safety (AmericasBarometer, 2021). The nature of corruption-related emigration in Guatemala seems to mediate potential urban unrest via the supersession of violence from organized crime. In fact, in the existing cases of unrest from 2000-2019, the major grievances referenced were related to government corruption (Raleigh et al., 2010). One possibility is that engaging in organized crime as a source of income, mediating economic scarcity that would lead to unrest. Informal employment makes up about 80% of the income generating population in Guatemala (López-Ruiz et al., 2015). The climate disruption that the agricultural sector takes affects food prices and subsequent economic scarcity for all Guatemalans (Vargas et al., 2018). It seems that many have engaged in informal work to self-mitigate their economic scarcity.

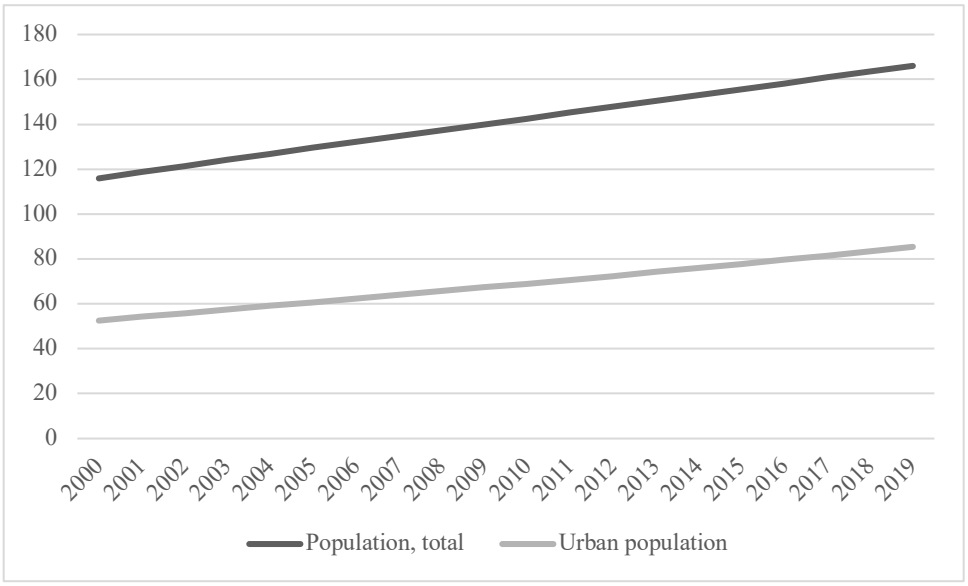
Organized crime members in Guatemala include former military, militia, and police (Trejo & Nieto-Matiz, 2022). It seems that the violence is so severe in urban Guatemala, that it pushed people to migrate out of the country rather than remaining and engaging in major unrest. This is also likely because of the perceived levels of corruption in the government as 78% believe that corruption is widespread in the country (AmericasBarometer, 2021). Rather than remaining in the country and engaging in acts of discontent, the violence has been so severe that Guatemala is the origin of the majority of unaccompanied minors at the U.S. border in the 2014 crisis, with approximately half of these minors reporting fleeing violence related to organized crime (Goldberg, 2014).

Referring to the overarching theory of this project, the government appears to exhibit responsiveness to climate-induced economic scarcity, especially following the enactment of legislation in 2014. Given that the most significant enhancements in adaptation capacity unfolded during the 2010s, one can anticipate that urban migration might continue to be mitigated as agricultural laborers manage to sustain themselves. Furthermore, the prevalence of crime and corruption in urban areas renders urban migration unattractive. If the scenario of rural workers preserving their means of livelihood can be achieved, it is foreseeable that a reduction in urban migration will transpire.

Climate issues are very high profile in Guatemala. In cases of climate-related unrest in the country, with the help of transnational pressure, it appears that the Guatemalans have had some success getting their climate-related demands met (Aguilar-Støen & Hirsch, 2017). Furthermore, data shows that more Guatemalans expect their economic situation to improve in the near future than do not, indicating that economic scarcity may not be a strong condition in this case, which would otherwise drive urban unrest (AmericasBarometer, 2021). Along with

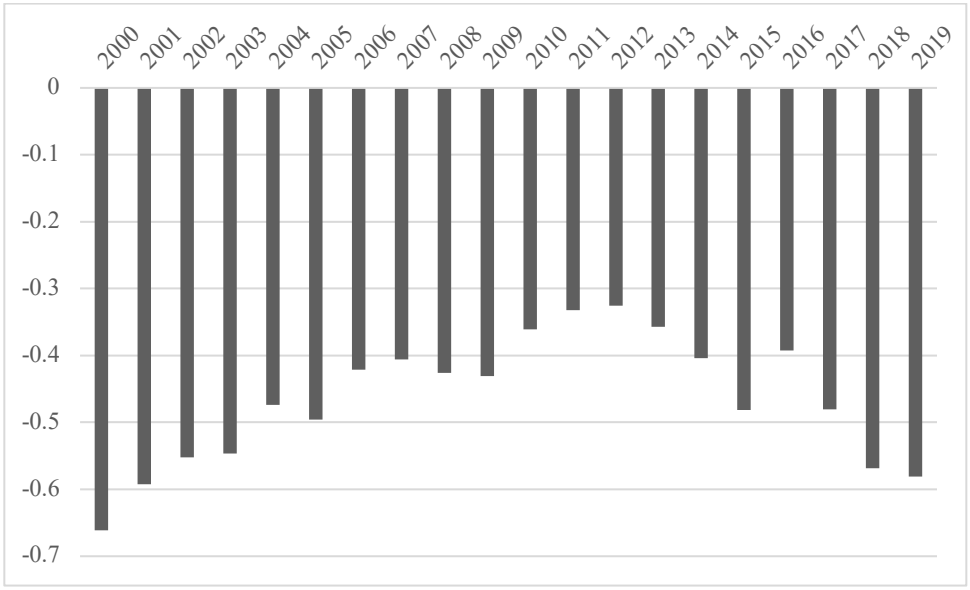
this, the leading alternative explanation for the low levels of unrest is that the severe gang violence and corruption supersede any option for urban unrest. With 83% of Guatemalans citing corruption as the main driver of emigration, the expected response of the urban population, instead of engaging in unrest, is to leave the country in response to corruption and other organized crime-related victimhood. Climate change drives urban migration; however, organized-crime violence offsets this impact by driving a large emigration surge. These two processes balance the potential for urban population growth. While urban proportion has been increasing overtime, the annual percent change in urban proportion shows trends relatively synonymous with the global trend (WorldData, 2021). This is because emigration is also particularly high. Despite the asylum seekers from other Latin American countries frequently increasing Central American countries' net migration, Guatemala actually has historical negative net migration trends, meaning that more Guatemalans are leaving the country than immigrating to it (World Bank, 2021b). Climate change drive urban migration; however, gang violence offsets this impact by driving a large emigration surge. These two processes balance off urban population. This is apparent when observing the urban population increase trends relative to the total population increase trends. Figure 10 shows a similar increase in urban migration in line with the total population increase. Figure 11 shows that in the same time period, there is a parallel trend that indicates net migration outflow showing that emigration is likely offsetting some of this urban migration spike.

Figure 10. Urban and Total Population in Guatemala (per 100,000 people)



Note: World Bank Global Development Indicators, 2000-2019

Figure 11. Net Migration (per 100,000 people)



Note: World Bank Global Development Indicators, 2000-2019

Violence Driven Emigration

There is much evidence showing that climate events in Guatemala do create rural economic scarcity and result in high levels of urban migration (Afifi et al., 2016; Dupre et al.,

2022; Ruano & Milan, 2014; Vargas et al., 2018). Despite historically high levels of climate risk, the government is now quickly increasing its adaptive capacity. This should help curb urban migration moving forward, diminishing some conditions for potential unrest. Another satisficed condition for unrest is that the urban population tends to mitigate their own economic scarcity by engaging in informal work or diversifying income. For now, the discontent that people have in Guatemala's urban centers are related to the extreme gang violence and personal safety (Argueta & Kurtenbach, 2017). With serious government corruption and collusion with organized criminals, the utility of unrest is futile. Furthermore, the urban violence drives migration outflow. While there are low levels of urban unrest in this case, it is not inherently because the government is mitigating urban economic scarcity following migration like is more organically occurring in Benin due to its more recent wave of industrialization.

Lebanon: Assessing Urbanization Shocks and Urban Unrest

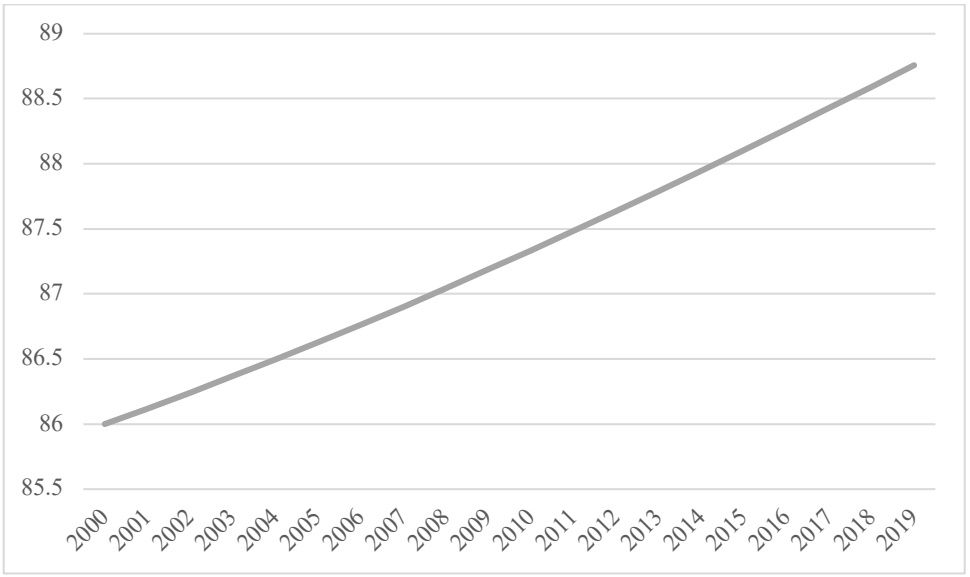
Despite the comparatively low climate risk in all four cases reviewed in this chapter over the time period of 2000-2019, there was a serious spike in such risk in Lebanon in recent years (Fragaszy et al., 2020).There is growing evidence of climate events becoming important for urban migration and unrest despite the generally low risk over this larger time period (2000-2019). Setting climate risk aside, Lebanon provides an ideal opportunity to analyze urbanization and unrest and how discontent plays a role in this relationship regardless of the urban migration cause. Like other cases have shown, economic scarcity seems to be a major driver of unrest in Lebanon. Urbanization has increased not only because of the industrializing society, but also because of the large refugee population (Doraï, 2010). The increasing migrant population has acted as a threat-multiplier increasing existing economic discontent. In November of 2019, banks across Lebanon closed due to protection measures amidst a culminating economic crisis. Months

of accusations of government fiscal mismanagement preceded this, triggering mass outbreaks of urban unrest (Bakken, 2021; Baylouny, 2020).

Industrialization, Transnational Refugees, and Economic Scarcity

While exploring the link between urban migration and conflict, the consideration should be given to factors other than climate events that drive urbanization in Lebanon. First and foremost, expanding industry sectors and development have consistently attracted the population to urban centers for employment since the beginning of the century (Sharp, 2018). Figure 12 illustrates this trend. Within this trend, there are various types of migrants, but it can be expected that a significant portion of them are driven by economic motives. The Arab Barometer shows that about a quarter of Lebanese respondents have considered moving due to their economic situation (Arab Barometer Wave V, 2018). Such levels of economic dissatisfaction, paired with the industrializing society shows that much of this migration trend may be economically driven. Delving into the economic drivers within the intricate web of climate events, urban migration, and conflict not only provides a clearer lens to view the causal dynamics but also facilitates a more holistic understanding of the multifaceted interactions at play.

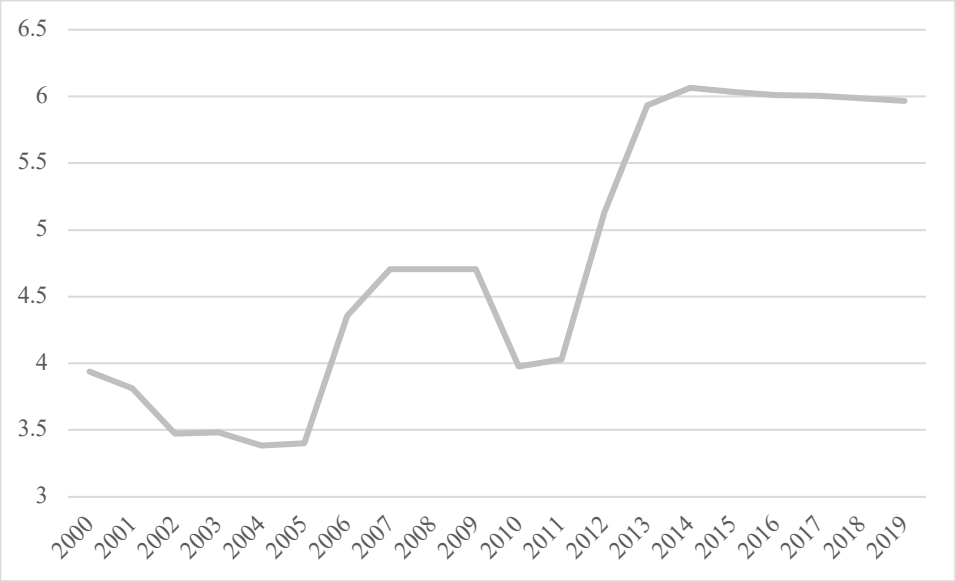
Figure 12. Urban population (% of total population)



Note: World Bank Global Development Indicators, 2000-2019

Another major driver of this trend is related to the refugee crisis. Figure 13 shows that spikes of refugees in Lebanon have followed a similar upward trajectory. The migration problem here is also responsible for stretched and scarce economic resources (Doraï, 2010). This migrant population is mostly made up of Palestinian and Syrian refugees. Conflicts in the region have driven this transnational migration. It is suspected that up to 84% of refugees live outside of refugee camps in urban centers in various Middle East countries (Obi, 2021; United Nations, 2014). Lebanon has a steadily increasing urban population growth and increasing numbers of refugees (see Figure 12 and Figure 13). The reasons cited by refugees for moving out of camps and into urban centers are because this increases their freedom and integration even with the tradeoff of struggling to pay rent and enjoying the safety net that the camps provide (Obi, 2021). The status of refugees living in urban areas instead of camps, even under weak economic conditions, has become so prominent that the United Nations has even opted to implement a specific strategy to target the ever-growing population (Doraï, 2010).

Figure 13. Refugees and Asylum Seekers under UNHCR Mandate



Note: This data comes from the United Nations High Commissioner for Refugees Population Database, and it represents the logged total population of asylum seekers and refugees in Lebanon from 2000-2019.

The nature of the internal economic migrants and refugees responsible for the high levels of urban migration in Lebanon indicates that urban resources are stretched thin. Sentiment about the government and the economy reflects this. According to the Arab Barometer, 44% of respondents in Lebanon think that the economic situation is the most important challenge facing the country. About 15% of respondents think that the public services (e.g., health, sanitation) are the most important challenge, 13% of respondents think that financial and administrative corruption is the most important challenge facing Lebanon, and 5% of respondents think that the representation/governance is the most important challenge facing Lebanon (Arab Barometer Wave 5, 2018). Therefore, problems related to the economy, financial corruption, lack of public services, and governance make up about two-thirds of the public's major concerns in Lebanon. The problems of financial corruption and poor public services are both political and economic in nature. This set of public concerns and dissatisfaction with the government is both intuitively and empirically linked to anti-government sentiment (Persily & Lammie, 2004). In fact, 81% of the

population has little or no trust in the government (Arab Barometer Wave 5, 2018). With the mixture of poor economic conditions and discontent with the government, unrest is likely.[5]

Longstanding Economic Discontent

The population in Lebanon has consistently grappled with government disregard for citizens' economic concerns (Weiner, 1992). Yet, the reported propensity to protest is not very high in Lebanon. According to the Arab Barometer, 85% of people have never signed a petition or protested while 92% have never used force or violence for a political cause (Arab Barometer Wave V, 2018). This may be because over half of the population (59%) do not think that the freedom to participate in peaceful protests and demonstrations is guaranteed. These numbers may also serve as an indication of survey bias since high levels of protest are observed in Lebanon. This could also indicate that only a very specific type of group or demographic within Lebanon is prone to such unrest. To analyze the drivers of protests in Lebanon, I did a content analysis on the summaries of protests in Lebanon from 2000-2019 using ACLED data.[6] I found the cause for unrest and protest to include grievances about refugees, government officials, unfair taxes, political corruption, calls for economic reforms, and climate events.

We can draw a variety of inferences from this list of highly referenced rationales for unrest. With 38% of the population “dislike having immigrants as neighbors,” there may be a distinct difference for how urban residents view Lebanese urban migrants as opposed to transnational migrants. There may be some sort of ethnic fractionalization component here to note, which former studies have shown as a driver of unrest (Blanco & Grier, 2009; Cebotari &

[5] Lebanon has a long history with other types of conflict, such as civil war. For the purposes of this analysis, I focus on urban unrest rather than supra-national sectarian conflict.

[6] These were chosen by a phrase and word count that collected the most highly cited subject areas. This list is ranked in order of most cited.

Vink, 2013). This could also be related to the labor market and how the urban population views outsiders as threats to increased labor market competition and subsequent economic scarcity.

Calls for economic reform are also major drivers of protest in Lebanon. This is reflected in public opinion polls as 86% of Arab Barometer survey respondents consider the economic situation in Lebanon to be bad and 71% consider it as the first or second most important challenge facing Lebanon. Because these protests call for economic reform specifically, population's problem with their economic situation is directly associated with anti-government sentiment. Overall, there is strong evidence that links economic competition to discontent with the government with subsequent unrest. The question remains, however, as to whether climate factors play any role in these urban unrests.

The Increasing Climate Situation in Lebanon

The climate factors referenced in the ACLED rationales for unrest from 2000-2019 are likely due to the rapidly debilitating climate situation in Lebanon. An exploration of climate attitudes helps to analyze this further. In the Arab Barometer Wave V (2018), Lebanese attitudes towards climate change should be contextualized under more severe climate conditions (see Appendix C). Indeed, in countries like Bangladesh that have experienced high levels of climate risk over the past two decades, public attitudes about climate change are distinctively different from those in Lebanon. Only about 41% of Lebanese respondents think climate change is a serious problem; 42% think that air quality is a serious problem; and 46% think that water pollution is a serious problem (Arab Barometer Wave V, 2018). This parses with the fact that water and drought have escalated in severity in recent years. It is perhaps the case that respondents fail to associate climate events that they experience with the broader concept of climate change. Furthermore, the particularly high no-response rate on these questions suggests

that climate education and awareness may be comparatively low.[7] That said, climate is referenced in events of urban unrest, indicating that a portion of the population, albeit a distinct one, has climate-related grievances that contribute to the conditions for unrest.

While migration, the economy, and political dissatisfaction are the most referenced drivers of protest, climate change does make the list. Because Lebanon's climate risk has only started increasing during the late years of my analysis, it follows that while it is not a top driver, it is highly referenced, nonetheless. This is particularly with reference to economic hardships that come from climate change or climate disasters. Socioeconomic stress can be exacerbated by both climate events, and population growth (Selby et al., 2017). Due to these amplifying factors, this socioeconomic adversity does contribute to unrest, as observed in the case of Lebanon.

In Lebanon and similar contexts, the connection between economic hardship and climate events is significant due to the economy's reliance on environmental stability. This interplay is crucial to understanding unrest dynamics. Lebanon's economic structure heavily depends on sectors sensitive to climate, such as agriculture. Climate-related challenges, like droughts, exacerbate economic fragility, contributing to social discontent and unrest. Recent climate escalations intensify this link. While migration, economy, and political dissatisfaction are primary protest drivers, climate-related economic difficulties play a role, even in an urban-oriented economy like Lebanon's. Urbanization and population growth compound economic stress, increasing the potential for unrest. The urban context shapes how climate impacts the economy and consequently unrest.

[7] On survey questions related to whether climate change was a serious problem, there was about a 50% no-response rate.

To contextualize this case around the broader causal pathway, even though Lebanon is classified as low climate risk over the period of time in analysis, it is still worth considering what else has been driving urban migration and unrest over this time period. Because climate severity has increased in the more recent years of this timespan, this provides a unique opportunity to consider climate events as an amplifier for urban migration and unrest. Urban population growth is also found to amplify the consequences of climate events (Dodson et al., 2020; Wang & Wang, 2017). For example, Selby et al. (2017) speak to the case of Syria where mass migration caused by severe drought exacerbated the existing violent conflict in Syria by increasing socio-economic stress. Considering the unique regional vulnerability to drought, Lebanon likely sees similar patterns of drought increasing economic stress too. The interconnected relationship between climate disasters and urban migration growth puts strain on urban economies which could intensify already-existing discontent.

Economic Scarcity Linking Urban Migration with Urban Unrest

When examining the intricate causal relationship between urban migration and urban unrest, the case of Lebanon emerges as a compelling example, shedding light on the multifaceted dynamics at play. The evidence supporting the notion that urban migration contributes to urban unrest by exacerbating economic scarcity is particularly evident within this context.

Lebanon is a relevant case study due to its pronounced urban migration trends and the consequential strain on economic resources. Notably, the Lebanese government's tendency to disregard the populace's needs in policymaking processes has been well-documented (Mourad, 2017). This aspect of governance becomes a critical factor when analyzing the relationship between urban migration and unrest. The semi-authoritarian regime in Lebanon operates in a top-down manner, resulting in insufficient funding allocated to rural communities to avoid impeding

broader developmental and economic goals (Sowers & Weinthal, 2010). This strategic neglect of local-level requirements leaves a significant portion of the population feeling marginalized both politically and economically (Fabra-Mata et al., 2015).

While the Lebanese government's policies contribute to public discontent, the convergence of climate-related challenges in recent years has added another layer of complexity. The interaction between climate-induced grievances and existing sources of dissatisfaction is intricate and requires careful examination. It remains a question whether climate-related factors worsen preexisting grievances or independently predict urban unrest. Nonetheless, parallels can be drawn with the previously discussed case studies, where a direct correlation between climatic conditions and conflict has been proposed. It is important to acknowledge that the potential link between climate and unrest cannot be dismissed outright.

Crucially, the Lebanese case underscores how high levels of urban migration act as a catalyst for exacerbating urban economic strain and, consequently, unrest (Fetzek & Mazo, 2014; O'Sullivan, 2015; Selby et al., 2017). The influx of migrants into already densely populated urban areas intensifies competition for limited resources, job opportunities, and social services (Buhaug & Urdal, 2013). This heightened competition, when combined with existing economic disparities, social inequality, and government neglect, creates a fertile ground for social tension and discontent. The compounded effects of urban migration and economic scarcity amplify each other's impact, creating a cycle of discontent that can manifest as urban unrest (Bienen & Gersovitz, 1985; Denoeux, 1993).

As the global landscape is witnessing an increasing trend in climate-induced displacement, the convergence of population growth, economic scarcity, and climate-related challenges in urban centers is expected to be more pronounced. Consequently, the nexus between

urban migration and economic scarcity is poised to become an even more significant factor in driving urban unrest. The lessons drawn from the Lebanese case suggest that unless proactive measures are taken to address economic disparities, provide essential services, and ensure equitable resource distribution, the trajectory towards heightened discontent and unrest seems inevitable.

In conclusion, the intricate relationship between urban migration and urban unrest, mediated by economic scarcity, finds compelling evidence in the case of Lebanon. The government's neglect of community needs, coupled with the emergence of climate-related challenges, has magnified economic strain. This case study highlights the importance of considering multifaceted dynamics when examining the causal pathways that lead to urban unrest, ultimately underscoring the urgency of holistic policy approaches in the face of complex challenges like urban migration and climate change.

Bangladesh: Urban Unrest Exacerbated by (Climate-) Migration

In 2018 in the Southern province of Bangladesh, mass floods destroyed farmland in the region. Many former farmers in the area migrated to urban slums near Dhaka, the country capital, to seek new livelihood following these climatic events. These major floods were due to river erosion, and this was not the first time this region experienced such an event. River and coastal erosion is an ongoing climatic concern in Bangladesh destroying over 10,000 hectares of farmland annually (Ahmed et al., 2017; Bhuiyan et al., 2017). The mass climate migration that ensues results in over 2,000 rural-to-urban migrants arriving in the slums outside the major urban centers daily (Jahan, 2012). As the urban slums increase in size, already scarce public services and resources become even thinner. In effect, such migrant-induced scarcity has acted as a threat-multiplier contributing to widespread protest and unrest in these communities (Castellano

et al., 2021). Bangladesh exemplifies a case that fits perfectly into the causal pathway of this dissertation. While the government in Bangladesh is aware that climate change is a serious problem in the country, the problem is so large that it simply does not have the capacity to invest in climate resilience efforts.

Mass Climate Migration and Urban Scarcity Prompting Unrest

Bangladesh is particularly susceptible to climate disasters. The severe nature of climate change risk in Bangladesh has been studied for decades (Dastagir, 2015; Ericksen et al., 1993; S. Huq, 2001; Yu et al., 2010). Years of severe rainfall deviations and water-related climate disasters have dangerously affected Bangladesh's rural and coastal communities (N. Huq et al., 2015; Kirby et al., 2016). There is mass river and coastal erosion causing loss of land, water contamination, and destroyed agriculture (Hasnat et al., 2018). These communities suffer from water scarcity both for human consumption and agricultural purposes as well as devastating climate disasters that have destroyed homes leaving large populations displaced (N. Huq et al., 2015; Mallick et al., 2017).

Bangladesh is uniquely affected by climate disasters causing displacement. According to (M. R. Khan et al., 2021), there were over 4 million internally displaced climate refugees in Bangladesh since 2019, with over 13 million projected to be displaced by climate events by the year 2050. There is no doubt that climate change is driving a large proportion of urban migration in Bangladesh. The decision to migrate is a complex one (Longueville et al., 2020). Especially for rural farmers, choosing urban migration leaves them with an unfamiliar vocation. That said, especially in a rapidly industrializing country such as Bangladesh, there can be economic draws that encourage urban migration as well. The decision to migrate to a city is a bit more

straightforward for those who have lost their homes but still is considered by those experiencing the negative agricultural and scarcity-related implications of climate change (Koubi et al., 2021).

Climate change and a profound industrial surge over the last two decades have ushered in a transformative era for the labor landscape in Bangladesh. This transformation is rooted in the theoretical framework presented in this study. Acknowledging the intrinsic relationship between climate change and economic scarcity, the theory posits that when climate-induced adversities heighten resource constraints, they subsequently stimulate migration by virtue of alluring income-related pull factors. This very premise aligns seamlessly with the evolving work dynamics in Bangladesh.

While many former agricultural workers have lost their land or crop yield due to climate change, industry, particularly related to textile and clothing work, has exploded. This provides the conditions for a sort of inherent shift in the nature of work in the country. And while many are fleeing their climate-afflicted communities to seek factory work in urban centers, these urban municipal resources and services struggle to accommodate this shift.

It is important to dissect what is driving post-climate event urban migration. (Biswas et al., 2019) comprehensively address the major causes of migration in Bangladesh. They show that over 83% of urban migration is driven by work-related or economic factors. Many workers that did not even lose tangible land still suffered increasingly poor and variable crop yields citing this volatility as motivation for seeking industry work in urban areas (Afsar, 2003). In so, the decision to migrate when facing climate-related scarcity may take into account the nature of the market and economic opportunity in urban areas. In other words, climate change can indirectly enhance urban migration.

While sheer loss of property makes the decision to migrate clearer, the decision to migrate is generally complex. Martin et al. (2014) conduct a case study in several rural areas in Bangladesh affected by climate stress and shocks and constructing a behavioral model of their decisions to migrate. They find that migrants' main driver is seeking better income, but that environmental shocks and stress can make migration more necessary (Martin et al., 2014). In this sense, climate can increase the conditions which contribute to the decision to migrate, with economic factors being the primary driving force.

It is clear that climate events have prompted urban migration in Bangladesh, directly or indirectly. After considering urban migration, the subsequent exploration involves understanding how conflict emerges. Mass levels of urban migration in Bangladesh have led to an increase in the size and population of urban slums (Jahan, 2012). This exacerbates problems of access to services and public resources. The government does not always respond to these problems kindly. In fact, rather than increase service and resource provision, the Bangladesh government has historically moved to evict slum-dwellers (Sharma, 2021). In as recently as August 2022, slum dwellers took to the streets to protest the government's eviction response to their scarcity blocking highways and demanding that their needs be met (R. Sultana et al., 2022). These occurrences link urban population growth with government discontent and unrest, and further analysis enhances these findings.

Climate Unrest and Other Drivers

Bangladesh has experienced over 12,000 events of urban unrest in the timespan of 2000-2019, a uniquely high number. Analyzing causes of protest in Bangladesh during this time span using ACLED data, I identified three main categories: government, economic, and social drivers of unrest. Key concerns for urban unrest with government rationale include accusations of

government corruption and poor democracy, demands for rights being met, and government reform. Key economic unrest causes are agriculture concerns, hunger and food scarcity, inequality and disparity, and unions and working conditions. Finally, for social causes of unrest, drivers include references to climate change and the environment and migration. These drivers indicate that discontent with the government when faced with urban scarcity is driving unrest. Not only this, but reference to the environment is also observed as a main social driver of unrest also indicating a potential direct link between climate change and urban unrest.

Bangladeshi citizens were devastated by the 2008 food price shocks sparking massive food riots (Bakken, 2021). However, (Heslin, 2021) found that the discontent over food prices was not the root of protest; rather, exacerbated existing frustrations with the economy and government can be blamed for those protests. Hendrix and Haggard (2015) find a relationship between food insecurity-related unrest and governance. Taking a political opportunity-based approach to unrest, they find that democratic countries are more likely to see unrest following food price shocks (Hendrix & Haggard, 2015). Perhaps this is related to high references to freedom and rights in the protest rationales (Bangladesh ACLED data, 2000-2019). Events such as food shocks or garment factory safety headlines can likely exacerbate ill-sentiment that citizens already harbor toward the government due to the economy or their rights and needs not being met, triggering unrest.

Beyond issues with urban food scarcity, Bangladesh has experienced major unrest related to labor, working conditions, and employment. (Hossan et al., 2012) look specifically at the causes of unrest in the Ready-made-garment (RMG) industry in Bangladesh finding that low wages, high workloads, and poor employee-manager relations have caused such unrest. In demand for higher pay and proper working conditions, workers made calls on the government

for workers' rights laws, labor unions, and wage increases (Ahmed & Nathan, 2016). Some of this unrest also references worker's rights and treatment in this industry (Karim, 2014). In both cases, the role of economic factors is evident in discontent with the government, whether related to food price regulation or labor rights, leading to unrest. This nature of discontent related to labor conditions, prices, wages, and other factors indicates economic scarcity-related grievances in the causal pathway of this work which predicts the urban unrest exemplified clearly in the case of Bangladesh.

Noting the potential direct relationship between climate and conflict, direct references to climate concerns are observed as rationales for unrest. This is intuitive as climate change and climate migration is such a major problem in the country. Petrova (2021) analyzes how damaging flood disasters in Bangladesh increased the likelihood of migration but does not increase the likelihood of unrest in these climate migrants' destinations. This indicates that the nature of the migration-unrest relationship is likely more related to urban population growth causing or exacerbating economic scarcity than something distinct about the nature of climate migrants as a group. That said, the nature of the climate migration seems to matter. Koubi et al. (2021) find that migrants fleeing from severe climatic events to urban areas are more mobilized to participate in social movements like protests due to the 'forced' nature of the migration. This indicates that when people are faced with the decision to migrate, their concerns are economic in nature so the unrest may be contingent on potential economic discontent upon migration whereas when people are forced to migrate from tangible loss of property and resources, this could be a partial driver of protest. Koubi et al. (2021) go on to say that urban centers should strive to accommodate these migrants upon arrival. According to the overarching causal pathway, this would mitigate potential discontent with the government, decreasing the likelihood of unrest.

While some direct links between climate discontent and urban unrest are observed, in the aggregate, this may not be a strong enough predictor to unrest in many cases. This is because of varying levels of climate salience and related government approaches. However, it is more frequent to observe urban scarcity as a predictor of unrest.

Climate Migration, Grievances, Economic Scarcity, and Unrest

Attitudes towards the government play a crucial role in the causal pathway examined in this work. It has been established that negative economic sentiment and scarcity contribute to discontent with the government and subsequent unrest. However, the question remains: What is the role of urban migration in this context? The Bangladeshi population is concerned with holding the government accountable in general as 53% of citizens think that the government should do more to ensure the public's needs are met, whereas only 32% think people should do more for themselves (World Value Survey (WVS) Wave 7, 2017-2020). This indicates that public grievances toward the government are present and likely indicative of unrest. That said, even though climate has been such a severe problem in Bangladesh, the population seems to be more concerned with economic factors according to the WVS (2017-2020) as only 48% of people prefer environmental protection over economic development (see Appendix D). Again, there is a unique dichotomy occurring in Bangladesh as the workforce is transforming from agricultural workers, due to climate change, to urban factory workers, due to the garment industry spike. This provides evidence that while some unrest rationale references climate change, the factor of urban population spikes and economic scarcity is more highly predictive of unrest, as in the causal pathway.

In revisiting the first stage of grievances toward the government, the case of Bangladesh provides an alternative explanation. Martin et al., (2014) show that while migrants do not have

high trust in the government, it appears that their decisions to migrate have to do more with networks of people around them, what they choose to do, and their information-sharing. This can indicate that perhaps migrants are not necessarily harboring grievances that lead to migration, but that economic draws and migration networks seem to be more important.

Even though climate change is a salient and large problem in Bangladesh, the government's climate resilience measures seems to be absent. These measures could potentially prevent some climate migration, so why does the government fail to develop and implement such policies? (Chowdhury et al., 2021) point to insufficient political will, funding, governance, and implementation are preventing Bangladesh from successful adaptation strategies. This analytical review does place some blame on the government, but some rural communities may not see it this way. The authors go on to say that some of these communities are deeply religious and cope with climate disasters as the will of the divine (Chowdhury et al., 2021). While a distinct link between discontent with the government and migration cannot be provided, it appears that economic factors play a role in attracting people to urban migration, which is sometimes further influenced by climate events. Subsequently, population growth can contribute to economic scarcity, leading to urban unrest.

Nonetheless, my ACLED content analysis did show climate and climate migration as highly referenced rationales for the event of unrest. This indicates that there are grievances associated with climate events and the forced nature of climate migration in some cases. While the identification of grievances as a direct link between climate events and climate migration remains unclear, and there may be additional complexities influencing the decision to migrate, it is evident that in the case of Bangladesh, climate events certainly serve as a catalyst for

migration (Chaturvedi & Doyle, 2010; Jolly & Ahmad, 2019). The uncertainty of whether discontent is necessary to prompt migration does not change the main predictors in this pathway.

The Climate-Migration-Conflict Relationship in Effect

Bangladesh exemplifies all major links of the causal pathway presented. First, there is evidence to believe that the nature of climate disasters prompts urban migration both due to sheer loss of land and because of climate-related decline in agricultural yields (Ahmed et al., 2017; Bhuiyan et al., 2017; Jahan, 2012). Bangladesh experiences extremely high levels of climate-related displacement where climate migrants, in majority, have found themselves in urban slums as factory workers (Hasan et al., 2020). The problems with access to resources and unfair wages for factory workers and slum-dwellers has fostered discontent with the government ensuing in numerous urban unrest events. Importantly, economic scarcity following urban population spikes is the most established part of the causal pathway, but Bangladesh shows how the nature of climate migrants and garment sector opportunity has not only drawn in urban migrants, but also is a condition for resources in urban centers thinning, fostering scarcity and unrest. Moving forward, it is worth exploring whether discontent is uniquely associated with urban migration, or whether other drivers provide more of a push or pull factor.

Discussion and Conclusions

The relationship between climate, migration, and urban unrest has been examined through case study analyses in countries experiencing high levels of migration, including Benin, Guatemala, Lebanon, and Bangladesh. These case studies reveal that the presence of industries heavily impacted by climate change, such as tourism or agriculture, plays a significant role in driving adaptation policies aimed at mitigating migration (see summary of findings in Table 3). Governments, driven by vested interests in addressing climate-related grievances, take measures

to alleviate the effects of climate change on these industries. However, the dynamics differ across the countries studied. Benin's industrialization and limited access to urban public services contribute to strong urban migration, while Guatemala continues to grapple with scarcity in the agricultural sector, leading to increased migration to urban areas. Additionally, adaptation policies implemented in these countries decrease the likelihood of unrest and can reduce overall climate risk and subsequent climate migration.

Table 3. Summary of Findings for High Migration Cases

Case Study	Key Points of Evidence	Conclusions
Benin	• Climate variation affecting agricultural sector, leading to scarcity • Industrialization and improved services driving urban migration • Low levels of unrest due to mitigation of economic grievances	• Climate risk is low; industrialization and economic factors are stronger migration drivers • Economic mitigation reduces urban unrest
Guatemala	• Major drought causing agricultural scarcity and urban migration • Urban violence overshadowing potential for unrest • Gang violence and government corruption leading to out-migration	• Climate-induced scarcity drives migration • Urban unrest suppressed by violence and corruption • Urban migration driven by violence, not just climate
Lebanon	• Urban population growth exacerbates economic scarcity • Government policies reinforcing discontent and unrest	• Urban population growth and economic scarcity correlate with unrest • Repressive regimes contribute to government discontent
Bangladesh	• Climate-related rationales for protest • Climate displacement leading to urban migration, economic stress, and unrest	• Government grievances spark unrest; economic scarcity plays a role • Potential for climate change to amplify government grievances and unrest

While climate risk is low in Benin, the case analysis provides some evidence that climate variation is affecting their agricultural sector, creating agricultural scarcity. Some of this has been shown to drive urban migration, yet the alternative driver of industrialization and increased goods and services is a stronger and more clear driver in this case (Fox, 2017). This finding is intuitive since the climate risk is in fact low in the country, an alternative driver must be present.

This speak to the importance of income as a major migration driver, even in climate-affected settings. Benin also provides evidence that mitigation of economic discontent helps drive low levels of unrest. The urban migrants in the country have access to new higher quality infrastructure and services as well as an expanded workforce (albeit largely informal). This relative prosperity keeps economic-related discontent low, resulting in low levels of urban unrest in Benin.

The case of Guatemala exemplifies the first part of the causal pathway (climate prompting migration) discussed in Chapter 2. By experiencing major drought and subsequent agricultural scarcity, Guatemalan leaders have more recently attempted to implement policies increasing its adaptive capacity. This provides further evidence that major reliance on climate-affected sectors, a theme of this chapter's analyses, does help increase the likelihood of climate action. Regardless, this agricultural scarcity has driven urban migration in the country in great numbers (Bouroncle et al., 2017). It is quite likely that this scarcity is the mechanism for migration because urban centers in Guatemala are otherwise unattractive places to migrate to because of the high levels of organized crime-related violence. Despite high levels of climate migration in Guatemalan cities, there are low levels of urban unrest. While the first part of this causal pathway fits this case perfectly, the second part of the pathway shows an important alternative explanation to low levels of unrest. In the case of Guatemala, strong evidence shows that the gang violence and government corruption and collusion with organized crime has superseded the potential for urban unrest (Slattery, 2020). Not only this, but the violence has created migrant outflow from Guatemalan cities. Rather than engage in acts of unrest, the people resort to fleeing the country. The high levels of perceived corruption may also be strong drivers

of the low levels of unrest. Fear of violent persecution or repression following unrest likely drives the low levels of urban unrest and high levels of out-migration.

The case of Lebanon allows for revisitation of the relationship between urban population growth and unrest. Dating back to the Malthusian Theory of Population (1798), a large subsequent body of literature has supported a relationship between urban population growth and conflict (Daoud, 2010; Dolan, 2000; Verhoeven, 2011). This case analysis provides further support for this preexisting evidence by showing how urban population growth has exacerbated economic scarcity. The discontent with the government as a result of their belligerent policymaking reinforcing this scarcity seems to be predictive of unrest in Lebanon (Fabra-Mata et al., 2015; Sowers & Weinthal, 2010). Noting a potentially important consideration when thinking about urban unrest, both Lebanon and Tunisia (see Chapter 4) indicate that regime repressiveness may play a role in government discontent and subsequent unrest. Given Lebanon's relatively low levels of climate risk, the rise in climate displacement resulting from climate events suggests that climate change, when coupled with population growth, could act as an amplifier, potentially contributing to unrest.

Additionally, both countries share a common characteristic: urban economic scarcity. Particularly in Lebanon, high rates of urban migration place strain on economic resources, leading to government discontent and unrest. This underscores the pivotal role of economic scarcity in shaping conflict dynamics. While it is evident that climate-induced migration does not serve as the primary driver of unrest in Tunisia and Lebanon due to their relatively low climate risk, economic factors and government policies play more prominent roles in shaping the dynamics of unrest in these nations. These commonalities emphasize the significance of

considering socio-economic and political factors alongside climate impacts when analyzing the intricate interplay within the climate-conflict nexus in these regions.

The case of Bangladesh presents evidence for the direct connection between climate and urban unrest through climate-related rationales for protest, as well as the indirect connection, where mass climate displacement contributes to urban migration, economic stress, and urban unrest. Because the link between urban migration and urban unrest is easier to empirically assess, an experimental analysis of Bangladesh in Chapter 5 provides causal evidence of not only whether migrant shocks lead to unrest, but also whether this unrest is contingent on economic scarcity and migration. For now, there is evidence which suggests that grievances toward the government spark unrest with economic scarcity as the source of such grievances. Nevertheless, it is not possible to assert that climate change and urban migration contribute to this causal pathway. However, there is room for speculation that as climate change increasingly affects communities in these countries, it could amplify discontent with the government, potentially leading to urban unrest.

Overall, this chapter presents compelling evidence that climate-related factors, particularly in the cases of Guatemala and Bangladesh, indeed lead to scarcity, which ultimately drives urban migration. Moreover, Lebanon and Benin demonstrate that even in the absence of climate-related factors, economic drivers exert significant influence on migration patterns. In terms of unrest, the examples of Bangladesh and Lebanon underscore the close connection between post-migration economic scarcity and urban unrest, while Benin illustrates how relative economic improvements can mitigate the potential for unrest. Chapter 3 has effectively demonstrated a chain of causality: climate impacts contribute to economic scarcity, economic scarcity drives migration, and economic scarcity also contributes to urban unrest. Additionally, it

suggests that the impact of urban scarcity and urban unrest may be more pronounced in regions with high levels of migration, a phenomenon that will be subject to more rigorous analysis in Chapter 5. Looking ahead, Chapter 4 will shift its focus to low-migration cases to explore the potential direct link between climate change and unrest.

CHAPTER 4

CASE STUDIES FOR COUNTRIES WITH LOW LEVELS OF MIGRATION

Countries with Low Levels of Migration

In 1934, violent floods devastated coastal communities in Guyana (Vaughn, 2018). Immediately following this flood event, the country recruited engineers to combat the consequences of these climate-related events.[1] Throughout the 20th century, the country built up its adaptive capacity and resilience to climate change, resulting in low levels of climate risk in the 21st century (Eckstein et al., 2020). Guyana also experiences low levels of urban migration, as climate-related policies have reversed the effect of increasing urban migration in the country in the 1980s (Nicholls et al., 2007). Low levels of climate risk and migration create conditions for low levels of urban unrest as a result. The case of Guyana offers the opportunity to understand how mitigating climate-related urban migration by creating more rural climate resilience has culminated to low levels of climate risk, urban migration, and urban unrest. Shifting the focus from the previous chapter's examination of high levels of migration cases, this chapter delves into a contrasting perspective by exploring countries characterized by low levels of migration. The objective remains centered on understanding the intricate interplay of climate change, and urban unrest, but within the context of minimal migration activity. In doing so, this chapter aims to illuminate the specific dynamics that arise when migration is not the predominant driver of unrest.

[1] According to our definition of climate-related events, these floods are considered climate-related. Drawing on the definition outlined in Chapter 2, "Water-related sudden climate events" pertain to rapid environmental changes driven by climate factors, notably involving water-related phenomena like floods, droughts, and storms. Such events encompass elements like rainfall patterns, water availability, runoff, drought, and flooding, playing a crucial role in the climate-conflict dynamic (Ash & Obradovich, 2020; Gleick, 2014; Hsiang & Burke, 2014; Raleigh & Kniveton, 2012; Reuveny, 2007; Theisen et al., 2012).

The primary goal of this chapter is to analyze how climate change influences migration patterns, with a specific emphasis on situations where migration remains at a minimum. Moreover, the chapter embarks on a comprehensive exploration of the factors that play a role in mitigating urban unrest within these specific scenarios. To achieve this, the chapter employs a methodological approach involving four within-case studies (see Table 4). These cases, carefully selected to represent varying levels of climate events and urban unrest, all share the common characteristic of low migration rates. This approach facilitates a thorough investigation into the diverse elements that effectively counteract urban unrest, with particular emphasis on factors like economic scarcity and migration management as potential explanatory components. Furthermore, this approach provides a clearer lens through which to examine cases where a more direct link between climate and unrest is pronounced.

Table 4. Levels of Urban Unrest and Climate Risk in Countries with Low Migration

	Climate event (low)	***Climate event (high)***
Urban Unrest (low)	Guyana	Croatia
Urban Unrest (high)	Tunisia	Peru

Note: Climate Risk data from GermanWatch, Urban Migration data from the World Bank, and Conflict Event Data from GDELT were pivotal in the case selection process.

In the present chapter, the analysis shifts its focus to cases characterized by low levels of migration, allowing for a comprehensive exploration of the core components outlined in the causal pathway elucidated in the preceding chapter. These cases offer a unique vantage point for disentangling the mechanisms that involve climate factors, economic scarcity, government discontent, and potential urban unrest drivers. This exploration bears special significance for unraveling the intricate web of relationships between climate change, adaptation strategies, migration mitigation, and their collective impact on policymaking. Through the lens of low

migration cases, this chapter aspires to unveil insights into the factors that foster urban resilience in the face of climate change challenges.

The chapter commences with a detailed dissection of Croatia's scenario, demonstrating how its tourism sector propels climate adaptation policies that effectively mitigate urban migration and unrest, even in the presence of pronounced climate risk. This analysis provides a bridge to the insights gained from the previous chapter, highlighting the role of industry-driven strategies in curbing migration-related conflicts.

Subsequently, the narrative transitions to Tunisia, where urban migration rates remain low, yet the nation grapples with high levels of protest. The primary drivers of unrest in Tunisia are economic scarcity and associated discontent. This case underscores the direct link between economic challenges and conflict, showcasing that urban unrest triggers can transcend migration patterns.

Moreover, the chapter delves into the intriguing dynamics of Peru, where minimal migration coexists with unrest arising from the convergence of heightened climate awareness and mining interests. This case underscores the multidimensional nature of conflicts and their triggers, even when migration is not the primary catalyst.

Lastly, the case of Guyana serves as a fitting conclusion, revealing how a history of significant climate risk once drove substantial urban migration. However, sustained efforts to bolster climate resilience have led to a shift towards lower climate risk, reduced urban migration, and diminished unrest in the 21st century. This echoes the broader theme of the interplay between climate, migration, and urban unrest dynamics that emerged from the previous chapter's high migration cases.

In essence, this chapter enriches our comprehension of the intricate interactions among climate change, migration patterns, and conflict dynamics, particularly within the context of scenarios characterized by low migration. By probing these intricate relationships, it provides a more comprehensive understanding of the myriad factors that shape urban landscapes in the face of climate challenges, while acknowledging the diverse levels of migration activity. This holistic perspective contributes to a more nuanced approach to policymaking that takes into account the multifaceted nature of these dynamics.

Croatia: The Tension Between Tourism and Climate Change

While experiencing high levels of climate change, Croatia experiences particularly low levels of urban migration and unrest. Croatia is a coastal country with an economy largely driven by its tourism sector (Ivandić & Šutalo, 2018). Climate change is a serious problem in Croatia, affecting tourist-heavy areas the most (Brosy et al., 2014; Grdić & Nižić, 2016). The tourism sector in Croatia is taking measures to address this concern, but the impact of climate change in Croatia is expected to worsen (Faivre et al., 2019; Omazić et al., 2020). Because of these climate projections and the corresponding economic stakes, the Croatian government has taken great interest in this dilemma (Todić & Božanić, 2013). Not only are the government's climate adaptation efforts mitigating migration, but more prominently, the economic benefits of the tourism sector incentivize vulnerable populations to remain. In the absence of urban population spikes that create conditions of scarcity, Croatia exhibits low levels of urban unrest.

Coastal Climate Change Impacts in Croatia

Climate change in Croatia means that the summers have become hotter and dryer, the sea levels have begun to rise, and because of this the climate risk assessment shows Croatia as highly vulnerable to climate change (Omazić et al., 2020; Todić & Božanić, 2013). So far, the impacts

have most severely affected agricultural production and access to water, but as climate change is expected to worsen, more severe impacts are also expected (Kovačević et al., 2013; Patekar et al., 2021). More and more Croatians are facing the impending detriments of climate change (Nefat & Benazić, 2019). This is particularly with reference to the economic stake experienced by workers in the tourism industry (Racz et al., 2021).

Since the 1980s, scholars observed that Croatia was undergoing rapid levels of warming and sea level rise, resulting in increasingly hot summers (Faivre et al., 2019; Todić & Božanić, 2013). In the last decade, Croatian farmers have been particularly impacted by these climate changes. Escalating temperatures and drying conditions have contributed to a substantial 53% decrease in maize yields in 2012 (Kovačević et al., 2013). Furthermore, Patekar et al. (2021) show that due to increased heat and subsequent evaporation, significant freshwater deficits are expected and suggest that Croatia considers immediate adaptation measures focusing on increasing the resilience and sustainability of freshwater resources that affect all sectors. This scenario highlights the crucial role of agriculture within the economy and prompts consideration of the role of rurality in shaping the nation's adaptation dynamics. However, despite being vulnerable to climate change, Croatia's status as a more urban country implies that it may not experience significant urban population spikes.

Nevertheless, because of these climate impacts and projections, the population is subsequently mobilized in terms of climate policy. According to the WVS-EVS (1999, 2008, 2017), approximately 80% of Croatians said that they would give up part of their income to combat climate change. In 2017, over half of the population prefers environmental protection over economic growth. While some of this may be related to the higher level of development of Croatia compared to the other cases in this analysis, this pro-environment sentiment is indicative

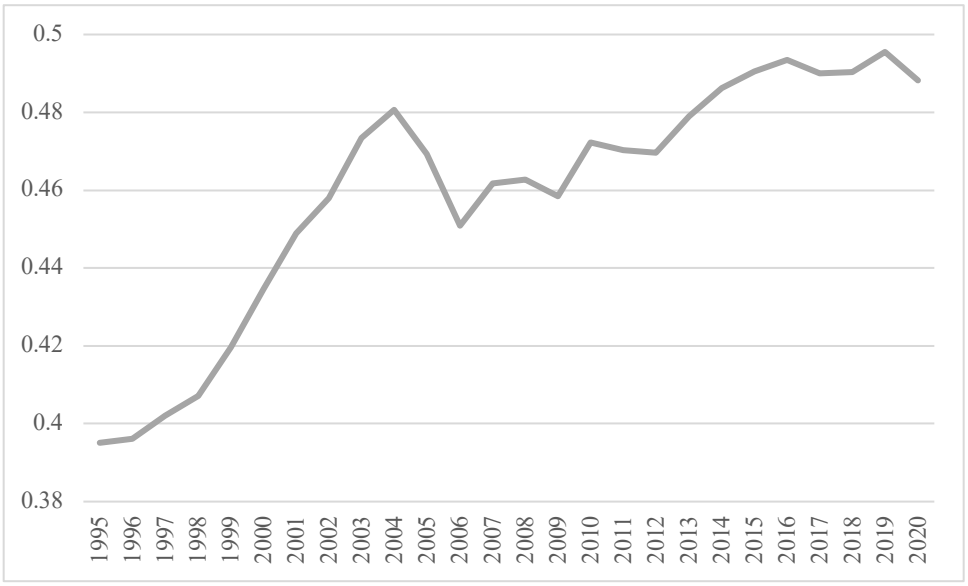
of what a serious problem the population perceived the threat and effect of climate change to be. In the case of Croatia, it so happens that environmental protection is necessary for economic growth, making the stakes even higher.

State Response to Climate Change

Because of both experienced and projected scarcity and the economic demand for the tourism sector in Croatia, the government has climate change resilience on its agenda. Climate change is often a local and regional problem making government response at this level vital. Croatia has been an active member of the Covenant of Mayors, a European co-op of local leaders where it has achieved the highest stage of climate planning among other European countries (Reckien et al., 2018). In fact, a report from the European Commission said that "Croatia continues to have a stable policy framework in place in the field of climate change (Todić & Božanić, 2013)." By 2013, Croatia had made the most progress in the area of climate change policy preparedness (Reckien et al., 2018). Croatia seems to be committed to climate resilience at both the local and state level, in part, mitigating potential for migration.

Due to the strong state response, Croatia has increased its adaptive capacity and lowered its greenhouse gas (GHG) emissions. As can be seen in Figure 14., according to the Notre Dame Global Adaptation Initiative (ND-GAIN), Croatia's Adaptation Readiness score has been steadily increasing overtime. In terms of mitigation, the United Nations Framework Convention on Climate Change (UNFCCC) reports that Croatia has steadily lowered its net emissions since they peaked in 2007 at an even steeper rate than the aggregate European Union trend (Liselotte, 2021).

Figure 14. Croatia Adaptation Readiness Overtime



Note: Notre Dame Global Adaptation Initiative, 1995-2020

Low Urban Migration in a Tourist Driven Economy

The rationale for low urban migration in Croatia is double sided. First, Croatia has strong climate policy, and second, urban centers make up many of the climate-impacted tourist destinations. Despite major climate problems, projections, and increasing scarcity, the government has made great strides in its focus on climate resilience. In contrast to many developing countries where there is an inherent conflict between economic development and addressing climate change problems, in Croatia, the state has actually created? economic incentives in addressing climate change issues. These economic incentives have played a major role in alleviating climate-related grievances, which have led to a surge in urban migration in other parts of the world (such as Bangladesh). Studies show that climate change has already impacted areas where this sector is prominent and will likely continue to do so (Brosy et al., 2014; Grdić & Nižić, 2016; Ivandić & Šutalo, 2018; Peric et al., 2013; Peric & Grdic, 2015).

Croatia's tourism sector relies on its coastal destinations in the summer. Grdić and Nižić (2016) discuss how climate impacts tourism both by direct and indirect effects. Direct effects imply that climate will make some destinations unable to meet tourists' needs whereas indirect effects imply other implications related to changing weather patterns caused by climate change, such as freshwater scarcity. That said, climate change will have different impacts in different tourist destinations. While raising temperatures may decrease the number of tourists in coastal destinations, it may actually increase tourists in mountainous destinations. Regardless, it is in the country's interest to stabilize all regional economies and the Croatian government has made progress in doing so, thus far mitigating the need for urban migration to seek new income revenue.

Increasing temperatures have already decreased the tolerability of outdoor activities in the coastal regions in the Summer, and these temperatures are projected to increase (Brosy et al., 2014). This is already provoking government attention toward tourism potential. The increasing sea level rise is expected to also have detrimental impacts on the tourist-heavy coastal regions. Sea level rise could contaminate freshwater sources, destroy fishing ports, and submerge beaches, drastically harming tourist potential in these coastal regions (Peric & Grdic, 2015).

Peric et al. (2013) emphasizes that climate change is already here, and that Croatian tourism workers must adapt to these new conditions by "using flood resistant irrigation systems, developing sea defense systems in coastal areas, developing health care and methods to address new types of diseases, and implementing other measures (Peric et al., 2013, p. 1)." With many communities already prioritizing climate resilience, there is minimal evidence of significant urban migration spikes and urban unrest.

Precarious Economics and the Potential for Unrest

While the inland capitol city of Zagreb is by far the most densely populated, the other urban centers in Croatia are spread among the tourist destinations along the coast and in the mountains. Fleeing climate change for urban protection is not an option in Croatia because urbanization would mean migrating to a place which is already climatically precarious. Because of the low levels of migration in Croatia, there is no major migrant shock aspect, and subsequently no necessary conditions for unrest. Climate policy and planning has also helped mitigate unrest, but Nimac et al. (2022) suggest that urban adaptation measures because of tourism and climate implications will become even more necessary moving forward to mitigate economic scarcity. It is mitigating urban economic scarcity that will be vital to ensure continual low levels of urban unrest. Because cities in Croatia are uniquely impacted by climate change as compared to the other cases in this analysis, climate change is directly linked to the potential urban economic scarcity problem, which drives unrest.

The government has made prominent strides in mitigating these consequences and working to decrease vulnerability (Reckien et al., 2018; Todić & Božanić, 2013). Nonetheless, recurring themes in the events of unrest that have occurred between 2000-2019, though low in number and severity, provide some insight as to government discontent in Croatia that could potentially fuel unrest if the government were to neglect stated concerns (Raleigh et al., 2010). Content analysis of the only 378 events of protest in this given time period show climate change and prices, particularly fuel prices, to be of main concern for Croatians (Raleigh et al., 2010). The theme of climate change is intuitive, and the low levels of unrest overall may reflect the government's response to this concern. The discontent regarding price increases even further

shows the need for urban planning to mitigate economic scarcity in urban centers in order to keep levels of conflict low in Croatia.

Tourism Industry and Government Response to Climate Needs

Given the particularly elevated levels of climate change in Croatia, it is reasonable to expect a corresponding increase in urban migration and urban unrest. This is not the case. Croatia's unique nature of having its urban centers hit hardest by climate change, as well as the strong tourism sector, have made climate change high on Croatian policymakers' agenda. Croatia has invested heavily in its climate mitigation and resilience efforts to alleviate the negative impact on its economically prosperous tourism sector. This has in turn successfully mitigated both urban migration— from the agricultural sector— and urban unrest as a result. Scholars continue to encourage climate resilience planning and urban planning to help alleviate the severity of implications following inevitable worsening of climate change. Fortunately for Croatia, the government has high stakes in this matter, as the tourism center drives the Croatian economy and is highly affected by climate change. This case shows that the government has economic incentives in combating the effects of climate change and potential for scarcity which have decreased conditions for mass urban migration and urban unrest so far. As the climate situation escalates, the government should continue to be attentive to this matter. Unlike many other countries in this analysis, Croatia has more economic Capacity. Croatia's tourism industry drives the government to respond to climate-induced economic scarcity. These economic incentives have played a major role in alleviating climate-related grievances which in many cases, such as the case of Bangladesh, have led to a surge in urban migration.

Tunisia: Linking Economic-Related Government Discontent and Unrest

Tunisia has a history of urban unrest related to both socio-economic and government discontents which are inherently interconnected. In 2008, uprisings in Tunisia occurred when the public's economic grievances reached a boiling point in the height of mass unemployment and government economic corruption, (Brannen et al., 2020). Based on the subsequent revolution in 2011, it is established that government repression was the fundamental cause of public discontent. Following the process of democratization, Tunisians still endure unfavorable economic conditions, which perpetuate longstanding grievances. Revolutionaries in Tunisia hoped that the new democratic regime would decrease repression and address the major economic inequality, but this did not fully manifest (Saidin, 2018). President Essebsi did little to address the inequality problem in Tunisia and continued to respond to unrest with an overly firm hand, particularly for a democracy (Achy, 2011). It is this longstanding economic equality and government discontent that is largely responsible for the high levels of urban unrest in Tunisia.

Low Climate Risk and Migrant Outflow

Tunisia has low levels of climate risk and low levels of urban migration.[2] While it is beyond the scope of this work to speak to a direct relationship, insights regarding the sentiments on climate change and migration among Tunisians can be derived from evidence obtained from the Afrobarometer. Likely stemming from Tunisia's low levels of climate risk, the Afrobarometer Round 8 (2020) shows that only 33% of Tunisians have heard of climate change, and of this group, 26% think it makes life much worse (see Appendix E). Climate change does not appear to be a high-profile topic in Tunisia, at least among the general public. Like Lebanon,

[2] The low levels of climate risk in Tunisia are calculated from the averaging the GermanWatch Climate Risk Index score from 2000-2019. Despite this low average, Tunisia's climate risk has greatly increased in recent years, and this should be noted when analyzing reference to climate in migration and unrest rationales in the country.

however, Tunisia's climate risk has also been increasing in the latter end of the 2000-2019 timespan and will likely increase in salience moving forward (Allani et al., 2020; Bahri et al., 2019) as the country is estimated to lose one thirds of its land due to climate factors in the future (see (Daly & May, 2019)). While future research could assess the potential links in this broader causal pathway as climate worsens in Tunisia, the situation as it stands provides an opportunity to understand the drivers of protest.

The nature of attitudes towards migration is largely related to transnational migration in Tunisia. Not only because the country has experienced large refugee populations over the years, but Tunisians also consider out-of-country migration (Lafleur, 2015). This is also responsible for the low levels of urban migration. Those that consider moving, perhaps because the decision is not tied to climate change, are more likely to consider transnational migration rather than urban migration. Generally, immigrant attitudes in Tunisia are particularly positive as 78% of people would not mind or would like immigrants as neighbors (Afrobarometer Round 8, 2020). That said, 43% of Tunisians have considered moving elsewhere themselves (Afrobarometer Round 8, 2020). With dissatisfaction to the point of considering migration, there must be a strong set of drivers of such sentiment. These may likely be economic in nature, as economic-related drivers are responsible for the high levels of unrest in the country.

The nature of the Afrobarometer survey questions allows for execution of some useful correlations to assess attitudes on climate change, migration, and other important variables in my causal pathway (Afrobarometer, 2018; 2020). The effect of 'climate change makes life worse' has no significant correlation with considering migration (corr coef: -0.01).[3] This indicates that

[3] Q75. Do you think climate change is making life in Tunisia better or worse, or haven't you heard enough to say? "1=Much better … 5=Much worse "

climate events are not a driver of migration in Tunisia, albeit transnational migration. This provides some counterfactual evidence that climate migrants may be more inclined to urban migration rather than transnational migration. Because climate risk is low and grievances are of another nature, especially post-revolution, migration consideration frequently related to outflow of migration, or emigration in the case of Tunisia. This null effect also indicates that climate is not a particularly contentious issue.

Although a relationship between climate sentiment and migration remains elusive, a correlation is evident between government and economic sentiment and migration. On the topic of discontent with the government, the first part of my causal pathway asserts that scarcity and subsequent discontent with the government also cause urban migration. I have executed simple bivariate regressions to show that there is an association between various economic and government attitude indicators and the desire to migrate (see Table 5).

Q68A. How much, if at all, have you considered moving to another country to live? "0=Not at all … 3=A lot"

Afrobarometer Data, Tunisia, Round 7, 2018.

Table 5. Bivariate Regression Results of Migration Drivers

How much, if at all, have you considered moving to another country to live? (Not at all=0, A lot=3)				
		Coefficient	Std. Err.	P>|t|
Economic Indicator	In general, how would you describe the present economic condition of this country? (Very bad=1, Very good=5)	-0.17	0.08	0.04
Government Trust Indicators	How much do you trust the president? (Not at all=0, A lot=3)	-0.24	0.07	0.00
	How much do you trust the parliament? (Not at all=0, A lot=3)	-0.21	0.08	0.00
	How much do you trust your local government? (Not at all=0, A lot=3)	-0.23	0.08	0.00

These results show that the less trust in government, the more likely one is to consider migration. Negative perceptions about the economic situation in Tunisia is also associated with an increased desire to migrate. While climate events might not be fostering the bad economic situation or the anti-government sentiment, it seems that discontent with the government may foster migration, particularly if economic in nature. In the case of Tunisia, there is low climate risk and low urban migration, but the general sentiment of this economic and governance dissatisfaction does go into the decision to migrate. Whether this is synonymous with urban migration specifically, especially in a climate context will be explored in the subsequent case analysis.

Economic Grievances and the Revolution

The response rate is very low for the protest participation survey question, and likely biased since evidence suggests the high levels of protest in Tunisia (Afrobarometer Round 7, 2018; Tunisia from 2000-2019, ACLED). This bias could come from long-standing fears of

opposition repression, or it could be that the protesters are a more specific group of the population.[4] Like in Lebanon, this could also be related to the historical and subsequently systemic repression in the country. When conducting the content analysis for the rationales protests in the ACLED data, I found that many are related to governance and the economy, with a few references to agriculture and access to drinking water. The major topics of the unrest were calls for government reforms, labor unions, inflations, and unemployment. The other highly referenced topic was reference to the Tunisia (Jasmine) Revolution which occurred over this time period.

The Tunisia Revolution in 2010-2011 triggered many protests and demonstrations accounted for in the ACLED data. The revolution was built on years of discontent with the government of President Zine El Abidine Ben Ali, who had been in office for over 2 decades and attempted to repress any opposition (Angrist, 2013). The regime prioritized the private sector and foreign investment but neglected the economic needs of the citizens (Erdle, 2010). In fact, in 2008, the state-funded National Employment fund had even diverted spending away from providing goods and services to the public (Kuddo, 2012). Employment, poverty, and repression were major problems in Tunisia at this time (Saidin, 2018).

Economic discontent was driving the revolution itself. When assessing attitudes toward the economy according to the Afrobarometer, 74% of people consider the economy as bad and 67% of people blame the government for this. This indicates that people do have grievances toward the government that are economic in nature (Afrobarometer Wave 8, 2020). This speaks

[4] For instance, it is known that young people exhibited high rates of participation in these protests (Honwana, 2013).

to the part of the causal pathway that indicates that grievances toward the government spark unrest and that economic scarcity is the source of such discontent.

Indirect Evidence for Unrest

While this case can only provide insight on a smaller piece of this pathway, a connection does emerge between economic scarcity, discontent with the government, and urban unrest. This finding holds significance considering the exacerbating effect of urban migration spikes on economic scarcity, which is anticipated to be further amplified by the inevitable increase in urban migration resulting from climate change (Barrios et al., 2006; Mianabadi et al., 2022). The case of Tunisia provided the opportunity to parse out whether economic scarcity alone, without the presents of high urban population growth and high climate risk, is enough to drive protest. While considering other conditions in Tunisia that sparked high levels of unrest, economic scarcity and subsequent discontent with the government have in fact been at the source. Considering the discontent with the government variable even further, there is evidence Tunisians are more likely to consider migration when they have low levels of government confidence and disapproval of the economic situation. With this variable seemingly being the driver of both migration and unrest, I explore the subsequent case of Bangladesh to see how climate risk may play a role in these grievances and the full causal pathway. I observe high levels of Tunisians considering migrating out of the country, but this may be related to the nature of the scarcity and discontent. Because the nature of the climate-displaced usually results in urban migration rather than transnational migration, it may be the case that other drivers are more indicative of migration outflow in Tunisia such as government repression. Even though grievances among Tunisians are mostly economic in nature, the response of their discontent being met with persecution and oppression have been shown to foster migration outflow.

Persecution and oppression allow for refugee status following migration to another country whereas climate refugees are now awarded this status under the UNHCR's mandate. Therefore, scarcity and discontent still may foster migration, but with the absence of persecution, urban migration is more likely in the case of climate-related displacement.

Peru: Public Awareness of Climate Change and Mediated Migration

In 1968, Peru faced severe flooding that devastated the rural population in the coastal Ica region. With little government preparedness for this event, many affected people were pushed to urban areas. The government subsequently made disaster relief policies in preparation for the next event. When the 1998 El Niño major drought event occurred, the government was slightly more prepared but failed to meet the drinking water needs of the now overcrowded urban population (Fagan, 2009). Since then, Peru has made great strides in mitigating urban population spikes following major climate events. Nevertheless, the powerful mining sector in the country continues to foster climate-related unrest (Lynch, 2012). Peru exemplifies a case in my analysis with high levels of climate events and high levels of urban unrest, but low levels of urban migration. While urban migration is being mitigated via post-climate disaster and climate-resilience policies, the population still harbors climate-related grievances. The case of Peru offers an alternative explanation of how climate can lead to conflict without migration as a necessary link, but also shows how mitigating urban migration also mitigates some of the potential for unrest.

Vulnerability to Climate Change and High Climate Salience

As an Amazonian country, Peru has climate-policy concerns high on its political agenda. Conservation and ecological concerns surrounding Amazonian preservation represent some of the early discussions of climate change. Environmental organizations and scholars alike have

devoted resources to studies about conservation and climate change in this region. As water-related climate events such as the Amazonian drought (2005-2010) have devastated the region, several scholars have investigated how Peruvian livelihood in the area has fared as a result. Michaelsen et al. (2020), for example, conduct interviews in Madre de Dios, Peru among 77 residents in 2014 to examine how climate change affects communities and increases perceived vulnerability.

Astonishingly, they find that in Madre de Dios, 96% of respondents have been affected by climate change with the major issues of concern including rising temperature, torrential rains, floods, and droughts (Michaelsen et al., 2020). With these events, a major concern is a decrease in food and water access. Respondents also believe that their agricultural production is severely vulnerable to these climate disasters. Yet, over half of the survey population reported that their institutions and sectors were making advances to address these climate threats (Michaelsen et al., 2020). This is noteworthy as it may increase confidence that the population will adapt to these climate challenges. Survey evidence also indicates that the Peruvian population is certainly educated about and affected by climate change, but they have some faith that their local institutions are addressing the concerns. As discussed in Chapter 1, such a trust in government can indicate that the population may be less motivated to migrate. Especially with the geographical barriers and hardships related to migration from the Amazon, institutional confidence and climate resilience policies will further precent incentive to migrate. Because literature establishes how urban population spikes strain urban economies and create heightened conditions for unrest (see, for example, Buhaug & Urdal, 2013), it can be anticipated that certain factors contributing to unrest can be mitigated by establishing conditions for resilience in the face of climate stress.

The evolution laws and increased decentralization of climate policy is largely responsible for this increased community-level climate resilience in the region. The Peruvian government has implemented federal climate policy and over half of vulnerable communities have observed such policy implications. However, as the case of Madre de Dios presents, this policy may not have reached the rural communities effectively as 43% of survey respondents were not aware of such climate policy (Michaelsen et al., 2020). This has always been a problem in Peru as the country had faced previous climate disasters, but a 2002 legislation made efforts towards decentralizing environmental policy.[5] Fortunately, after the Ministry of the Environment was established in 2008, all sectors acknowledged the need for climate strategy and policy in their agendas. While many sectors struggled to execute these in practice, the 2018 Climate Institutional Framework Law created binding legal measures including adaptation and community-level vulnerability assessments which made further efforts to reach the climate-affected rural populations (Michaelsen et al., 2020). This has been particularly effective in the Amazonian communities, effectively mitigating the need for climate migration, but less so in areas of Peru that have proximity to large-scale mining practices.

The Presence of Climate Unrest Despite Low Urban Migration

While the Amazonian region of Peru is the most climate-stressed, this does not diminish climate concerns in other areas of the country. The main driver prompting such concerns in Peru is its powerful mining sector. Like many countries battling with sustainable development at odds with the more lucrative mining practices, Peru has experienced ongoing contentions between the

[5]The 2002 Organic Law of Regional Governance (Law no. 27867)

pro-mining and pro-environment stakeholders. According to Salmoral et al. (2020), Sludge, pollution, and poor waste management from the mining sector have been cited as major points of concern for Peruvians. The National Water Agency (ANA) and the Ministry of the Environment (MINAM) were cited as the most influential stakeholders in the mining-environment paradigm followed by the general opposition of the Ministry of Energy and Mining (MINEM). The incessant contentions and calibration of the energy sector to focus on water management while abating the mining sector have created pressure for policy. The Peruvian government, from a variety of internal and external pressure, has enacted water management and environmental policies, including the 2009 Water Law, but has still been confined in its implementation by the push and pull of mining sector interests (Salmoral et al., 2020). Due to the significant grievances held by the population, the Mining Sector vs. Environment Nexus is consistently cited as a contributing factor in urban unrest. Scholars suggest that Peru's ranking as one of the most water-stressed countries has been further aggravated by the extractive mining industry as a main mode economic development (Gamu & Dauvergne, 2018). Furthermore, the this industry has been directly linked to increased protest in affected communities (Rees et al., 2012).

This is further exemplified in the case of mass mining in San Marcos which led to mass mobilization of protest and anti-government sentiment in response to the government's disregard for the affected population's interests before implementing the mining project. This project created severe water scarcity even further exacerbating the public's discontent with the government. These protests even became violent as a way to gain leverage against the government's disregard (Taylor, 2011). In 2011 in rural Peru, over 25,000 protested against a mining corporation citing water contamination as their basis (McDonell, 2015). Instances of

protest in very large numbers point to environmental concerns mainly with reference to Peru's mining industry.

To elaborate, the Peruvian mining industry, among other resource extraction development endeavors, plays a serious role in constraining sustainability institutions and innovations. That said, Bebbington and Bury (2009) suggest that sustainability institutions can still prevail even after a resource-based development agenda has begun. This is mostly via institutional change prompted by social conflict. The authors present data showing 250 recorded social conflicts in 2009, with 214 (or 86%) of these directly relating to the environment-mining contentions. The institutional status quo was insufficient, forcing institutional change by prompting the related ministries and organizations to take action. The increased frequency of social conflict helped offset the economic power of the mining industry, creating the conditions for this institutional change (Bebbington & Bury, 2009).

The power of the mining industry stakeholders is quite politically influential in Peru. This influence drives discontent in the climate-concerned society and creates barriers to political climate action. Salmoral et al. (2020) show the distribution of stakeholders in terms of influence and interest in enhancing climate governance. The endeavor is to create a mechanism where interest and influence can converge, and the authors point to initiatives and policies where that has occurred as an exemplar of increasing climate governance. An example of this is the New Water Law of 2009 which created cross-sectoral water management and engagement with the distribution of stakeholders.

While these political contentions and institutional barriers show that climate concerns in Peru spark high levels of urban unrest, this is not the only driver cited in the scholarship. In my content analysis of ACLED data in Peru from 2000-2019, the major referenced sources of protest

cited mining projects, the environment, and food service, with a less substantial amount referencing teachers and transport workers. Beyond the major drivers of mining- and environmental-related unrest, it seems that food insecurity also predicts unrest.[6]

A 2007 food price shock devastated many Latin American countries, including Peru. This food insecurity led to many children joining the informal labor force to offset food cost burdens and urban dependence on food purchases exceeded 88% (Cohen & Garrett, 2010). Reports show that over 1000 women protested Peru's Congress over its handling of food price shocks (Patel & McMichael, 2014). While much of my theorizing in this case links climate concerns and unrest, my broader causal pathway also shows that urban economic scarcity prompts unrest. In the case of Peru, it was not urban migration spikes driving this economic scarcity, but rather exogenous food price shocks. Nevertheless, this does indicate that the link between economic scarcity and discontent with the government is a founded condition for unrest.

"Mining" for Public Trust: Mitigating Migration but not Conflict

While there are not high levels of urban migration in Peru, climate is still related to conflict in this case. Data from the World Value Survey (WVS) wave 7 (2017-2020) shows that 44% of Peruvians have confidence in environmental organizations while 59% of the population believes that protecting the environment is more important than economic growth (see Appendix F). The majority of the population believing that protecting the environment is more important than economic growth is a testament to the stark awareness of climate change and disasters in the country. Nearly half the population having confidence in environmental organizations lends the assumption that some progress has been made. This and the knowledge that there are high

[6] I executed this content analysis, and the remaining in subsequent sections of this chapter, by using the ACLED data in each given country from the years of my analysis (2000-2019) by using keyword search technology identifying the most commonly referenced rationales for the events within this time period.

contentions between the environmental and mining sectors again suggests high levels of awareness and climate education. Furthermore, evidence shows that the public is pushing for water environmental solutions, and has seen some success (Salmoral et al., 2020).

Peru has been highly affected by climate change and therefore awareness and climate education are also high. The government has taken measures to address these concerns while constrained by the large mining sector interests. Both the measures that the government has taken to address climate and disaster relief, along with the sense that peoples' local sectors and institutions are working with them is indicative of the low levels of urban migration seen in this case, but perhaps not the low levels of climate-related unrest overall due to the consistent tensions between the government, population, and mining sector (Michaelsen et al., 2020).

Climate Salience and Government Discontent

Even with the decentralization of laws, institutional evolution, and mobilized stakeholders, the government is still being pushed and pulled between climate policy and mining governance. The frustration regarding the mining-environment political dilemma is likely reflected in that 89% of Peruvians have little to no confidence in the government (WVS wave 7, 2017-2020). That said, 68% of the population thinks that the political system in Peru allows them to have some say in policy. If the population believes they can influence policy change, it may lead to ongoing climate protests. Furthermore, the population having trust in the political system also may provide hope for climate adaption, in turn mollifying the consideration of climate migration.

This confidence in the political system has likely also prevented the conditions of despair that cause many to migrate (Lee, 2010). The fact that there is blatant public contention on climate policy also provides evidence that climate policy issues are being deliberated.

Furthermore, the logistics of migrating also may be hampered by the geographic nature of the Amazonian region in Peru. As initially mentioned, it is decades now that Peru has been a hotspot for climate disasters and subsequent climate policy deliberation. Therefore, the climate events occurring may not feel as much like shocks as they are expected and, in some cases, prepared for.

While these attitudes and evidence provides some explanation for why lower levels of urban migration are observed, there are nevertheless reported instances of climate-related urban migration in Peru. For example, in 2009, due to water competition partly generated by the mining sector, and the interconnectedness of climate-related scarcity and labor migration, many were driven to urban centers (Wrathall et al., 2014). This finding provides evidence that environmental concerns can spark urban migration in Peru. With reference to the high levels of government discontent due to the mining sector, it can be inferred that the affected population holds specific grievances related to economic scarcity resulting from the mining sector, which in turn, are likely to be connected to subsequent unrest prompted by migration. While Peru does a fair job of mitigating such events, cases of this exemplify my full causal pathway playing out.

Support for a Direct Climate-Conflict Relationship

In the case of Peru, several important links to the theory presented in Chapter 2 are identified. First, I find that government efforts for community-level climate resilience have prevented climate-related urban migration (Carey et al., 2012; Gabriel-Campos et al., 2021). It is also found that economic scarcity, in this case prompted by food insecurity rather than urban migration is also an important link to government discontent and unrest (Patel & McMichael, 2014; Rudolfsen, 2020). Sub-national evidence is suggestive of the full pathway linking climate-related scarcity, urban migration, and government discontent (Adams, 2016; Kingdon & Gray,

2022a; Mitchell & Pizzi, 2021). In summary, even in the absence of urban migration, a connection between climate change and conflict persists when climate policy becomes politically contentious and there is a high level of climate salience. A key consideration to explore moving forward which this case provides is how climate-related discontent is uniquely sparking urban unrest without the presence of urban migration.

Guyana: An Example of State Responsiveness to Discontent

The case of Guyana shows low levels of climate risk, urban migration, and unrest. While climate risk is low, that does not mean that climate change does not impact the country. In fact, 88.38% of the population consider climate change a serious problem (AmericasBarometer, 2021). Climate salience is high in Guyana because of a lengthy history with the effects of climate change and the country's unique history with climate adaptation measures. Guyana introduced these measures years before they can be observed emerging in most other countries. Guyana provides an example of a case that has effectively mitigated urban migration through climate resilience measures subsequently decreasing economic conditions that lead to unrest.

Guyana's economy relies on sugar and rice exports (Mullenite, 2019). With agriculture sustaining the economy, the country has a great interest in adapting to climate variation. As a coastal country with a history of policy responsiveness to rainfall and flooding, Guyana has long prioritized its adaptive infrastructure as compared to many other countries in the Global South. In doing so, the agricultural sector, which the population relies on, has increasing resilience. These resilience measures may be stabilizing potential scarcity, otherwise increasing climate risk and migration. In doing so, unrest also may be mediated.

Mitigating the Consequences of Climate Change

The history of responding to climatic disasters in Guyana is long. In 1934, a major flood forced the government to strategize damming resilience to such disasters (Vaughn, 2018). Dating back to the 1950s, Guyana recruited top international scientists and engineers to research optimal soil fertility in the mangroves and to defend against erosion on the coast (Vaughn, 2017). Guyana has undergone largescale engineering projects to create climate resilience historically, and this continues today. Guyana remains a member of a variety of climate and research-based organizations including the Intergovernmental Panel on Climate Change (IPCC). In 2010, scientists in accordance the Ministry of Agriculture prompted a largescale planting project with an emphasis on conservation and decreasing vulnerability of the entire agricultural sector by protecting the coast from climate hazards and potential flooding (Vaughn, 2017). These are few of the many examples of the Ministries of Agriculture and Public Works having strong policy and project responses to climate change and having notably worked to protect their prosperous agricultural sector.

Because the small country of Guyana is an agricultural export economy, approximately 71% of the population lives in rural areas (World Bank, 2021c). Cities in Guyana do not have the kind of economic draw present in other countries as there is no major urban industry in Guyana and the rural livelihoods are politically protected. Similar to the tourism sector in Croatia, the economy in Guyana relies on a climate vulnerable sector. In situations where this appears to be the case, countries demonstrate a greater interest in formulating climate resilience policies. Guyana remains a member of a variety of climate and research-based organizations including the Intergovernmental Panel on Climate Change (IPCC) (Vaughn, 2017). This country's long history with climate change has prompted a long history of climate adaptation as a response. In terms of

migration, rural agricultural protection and funding are likely related to the low levels of urban migration. Scarcity is being mitigated by the government and the orientation of the economy makes the agricultural sector necessary, also making rural work more attractive. Between adaptation project and other Ministry initiatives, the rural agricultural sector in Guyana remains funded and protected. The low levels of climate risk and urban migration are thus reflected.

Urban Flooding and Grievances

Climate resilience is not only important for the rural agricultural sector, but also for the urban areas as flooding affects these areas of Guyana too. Pre-2014, urban planning on the flood resiliency front had been relatively weak, prompting urban flood victims to self-adapt to the disasters (Mycoo, 2014). Since 2020, the World Bank has donated hundreds of thousands of dollars to invest in flood drainage and resilience in the most highly populated city of Georgetown.

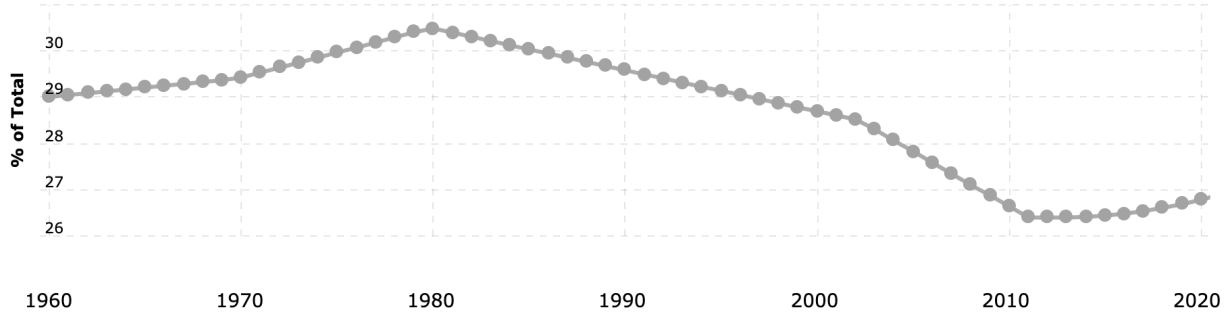
Despite having low levels of urban unrest, content analysis of 149 cases provide some insight as to discontent among the population (Raleigh et al., 2010). Interestingly, climate-related grievances are not mentioned in any of the cases of unrest. The most common driver of dissatisfaction is low wages. Many events are on behalf of unions and agricultural workers demanding pay increases. The second referenced matter of grievances were calls to elections that the public deemed overdue. That the population does not reference discontent regarding climate change or disasters indicates that the climate adaptation policies are experienced. It is likely these extensive policies that contribute to the country's status of low climate risk despite climatic and coastal variability quite present in the country.

Climate Risk: Past and Present

We know from historical evidence and accounts that climate was severe in Guyana since the early 20th century (Vaughn, 2017). Climate policies and strategies have begun to emerge ever since. Although the GermanWatch Climate Risk Index has only been available since 1990, a noticeable decrease in the average climate risk ranking can be observed between the periods of 1990-1999 and 2000-2019 (Eckstein et al., 2020). Since the period of analysis commences in 2000, our observations of Guyana are limited to instances when its climate risk rates are low. However, evidence suggests that climate risk in Guyana was likely considerably high for the majority of the century, experiencing a turning point around 1980, despite its relatively low levels in the 1990s.

Constitutional provisions were introduced in 1980 to increase climate resilience. Article 25 states, "In the interests of the present and future generations, the State will protect and make rational use of its land, mineral and water resources, as well as its fauna and flora, and will take all appropriate measures to conserve and improve the environment (Guyana Const., Art. 25)." The trend in urban migration reflects this strong focus on improving the environment. Urban migration showed consistent growth annually from 1960 to 1980, followed by a gradual decline thereafter. There was a slight uptick in 2011 due to Guyana's export diversification, but the trend has predominantly been one of decreasing migration almost every year since 1980. (see Figure 15). While agriculture-related exports continue to make up the bulk of Guyana's exports, from 2010 to 2011 there was a 106.59% increase in machinery and electrical equipment-related exports, perhaps accounting for some of this urban shift.

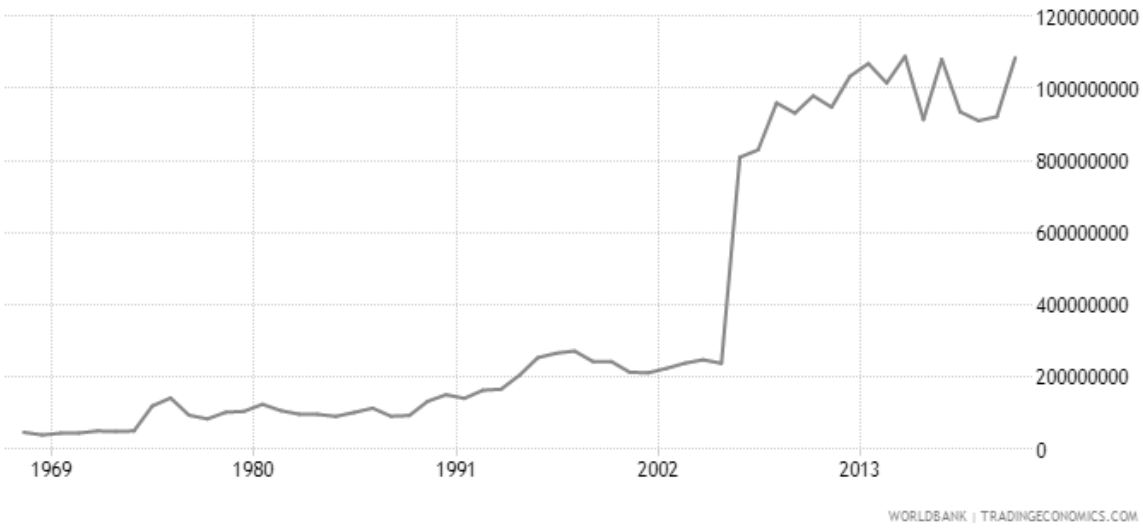
Figure 15. % Urban Population in Guyana (1960-2019)



Note: World Bank Global Development Indicators, 1960-2021

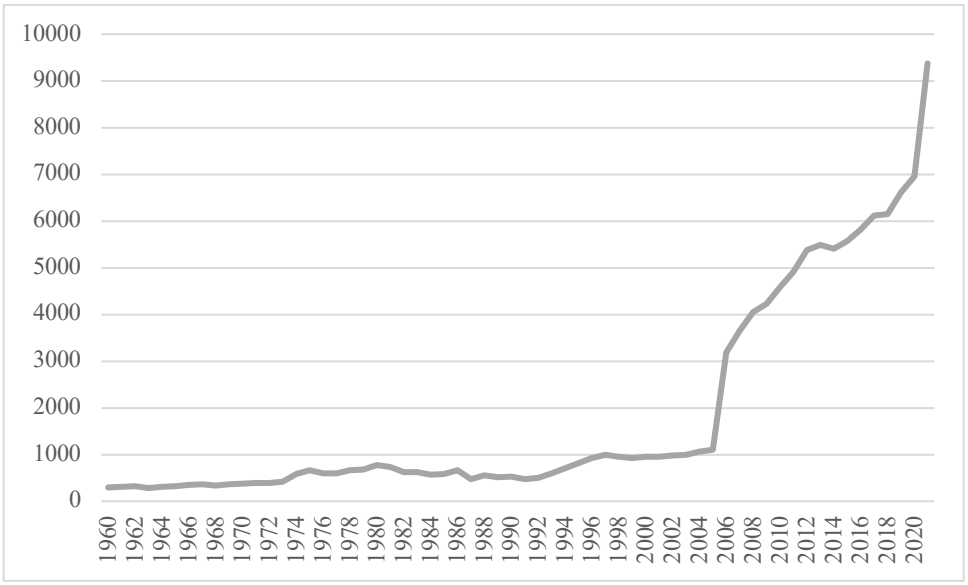
Agricultural production has also been increasing slowly over time, spiking in the early 2000s (see Figure 16). By examining the concept of "Value Added Agriculture", it becomes evident that the agricultural sector in Guyana, which places significant emphasis on climate policies and safeguarding agriculture, is reaping the benefits of their adaptation and risk management policies over time (Lu & Dudensing, 2015). Figure 17 shows GDP per capita over time, mirroring the trend in Value Added Agriculture. This indicates that agriculture really is a vital sector for the country and that the health of this sector likely mitigates economic scarcity. That the early 2000s saw a major uptick in value added from the agricultural sector, provides some support for the low levels of climate risk and urban migration in Guyana in the period of our analysis (2000-2019). With these conditions, and the evidence of the increasing economic situation over this time period as well, it follows that there are also low levels of conflict in the country.

Figure 16. Value Added Agriculture from in current USD (1962-2019)



Note: World Bank Global Development Indicators, 1962-2019

Figure 17. Guyana GDP per capita in USD (1960-2019)



Note: World Bank Global Development Indicators, 1960-2020

Early vulnerability to climate change has made Guyana a longtime leader in the realm of climate action. The country is so strong in terms of climate policy that it acts as a carbon sink. The attentiveness toward climate change and increasing climate resilience has been shown to

both environmentally and economically pay off for the country while decreasing climate vulnerability and subsequent urban migration and unrest (Jaikishun et al., 2017).

A Climate Resilience Success

Guyana is an example of a country that has drastically reduced its climate risk, despite experiencing prominent climate variability and disasters historically. The government is responding to climate change, mitigating the potential consequences in order to protect its integral agricultural sector. The population has thus remained quite rural, meaning there is no rapid population growth stress placed on urban centers. The Ministry of Public Works, while partnering with various international funding sources, has been implementing climate resilience projects and policies which protect both the urban and rural populations. The lack of population growth stress on urban centers alleviates some pressure of service provision that developing countries may otherwise struggle to accommodate or absorb. In the small number of cases of government discontent and unrest, wages seem to be a key driver. While the government does a good job of focusing on adaptation, this is often internationally subsidized (Mycoo, 2014). To continue to prevent unrest, the government will need to prioritize mitigation of economic scarcity by attending to wages and workers' needs in the country.

Discussion and Conclusions

The cases of Croatia, Tunisia, Peru, and Guyana provide valuable insights into the interplay between climate change, migration, and urban unrest (see summary of findings in Table 6). In Croatia, the government's effective response to climate risk is linked to the mitigation of urban migration, driven by economic protection measures for the tourism industry. This highlights the interconnectedness of economic and climate policies in addressing climate-related challenges. Tunisia, with low levels of climate risk and urban migration, allows for exploration

of other drivers of urban unrest, revealing that economic scarcity, coupled with discontent with the government's economic situation, plays a significant role in driving unrest. This case underscores the influence of domestic politics and the distinct nature of discontent associated with climate displacement. Peru's case demonstrates the potential for successful government responses to climate events to mitigate urban unrest, emphasizing the importance of climate adaptation, salience, and awareness. However, the presence of other factors, such as conflicting mining interests, can complicate the relationship between climate and urban unrest. Finally, Guyana's experience highlights the possibility of reversing the causal pathway by focusing on climate resilience. Through strong resilience measures and increased adaptive capacity, the country has managed to reduce climate risk and migration while boosting agricultural production and economic prosperity. These cases collectively underscore the importance of addressing economic scarcity to prevent urban migration and unrest. Effective adaptation measures, combined with policies that alleviate economic challenges, are vital for supporting rural and urban livelihoods and promoting social stability in the face of climate change.

Table 6. Summary of Findings for Low Migration Cases

Case Study	Key Points of Evidence	Conclusions
Croatia	• Effective government response to climate risk mitigates urban migration • Economic protection measures for tourism drive climate action • Interconnectedness of economic and climate policies	• Climate and economic policies intertwined • Mitigation of grievances and unrest through economic protection
Tunisia	• Low climate risk and urban migration, focusing on drivers of urban unrest • Economic scarcity and discontent with government's economic situation drive unrest	• Economic scarcity, government discontent, and domestic politics play roles in unrest • Nature of climate displacement influences grievances
Peru	• Successful government response to climate events mitigates urban unrest • Climate adaptation, salience, and awareness factors contribute • Climate protests linked to climate impacts and mining interests	• Climate adaptation and salience can mitigate migration and unrest • Mining interests and other factors complicate the relationship
Guyana	• Strong climate resilience measures reverse migration trajectory • Low climate risk, increased agricultural production, and economic prosperity • Positive economic trajectory reduces urban migration and unrest	• Climate resilience leads to prosperity and reduced migration • Mitigating migration and unrest through adaptation and economic measures

The case of Croatia shows how effective government response to climate risk may be mitigating urban migration. It also shows that economic protection of the country's tourism industry is likely driving climate action in the country (Racz et al., 2021). An alternative explanation to the low levels of migration that the case of Croatia illuminates is that in this country, the urban centers are also affected by high levels of climate risk. Because economic planning is frequently focused on urban centers anyway, this case shows that for Croatia, urban-economic- and climate-related policies are intertwined. Because climate policies are also protecting the economy, this likely helps mitigate potential for grievances and unrest.

Tunisia, with low levels of climate risk and urban migration, allows for focus on other drivers of urban unrest. In doing so, economic scarcity, without the presence of urban population

shocks or growth, has been identified in driving urban unrest (Erdle, 2020). This is due to the serious government discontent due to the economic situation (Kuddo, 2012). Like in Lebanon, this case also suggests that domestic politics may play a role in unrest. There is something distinct about the nature of climate displacement, regime type, and discontent to note here. Many Tunisians consider migrating out of the country due to dissatisfaction with the government, as the government was prone to economic and political repression (Honwana, 2013). If people internally displaced by climate have grievances towards a non-oppressive regime, they are not allowed refugee status in other countries (UNHCR, 2013). This will likely prompt urban within-country migration that prompts unrest under economic scarcity. These findings indicate that climate refugees, due to the obstacles they face in emigrating, may develop distinct grievances toward the government.

The case of Peru shows how successful government response to climate events can mitigate urban unrest. It shows that factors such as climate adaptation, salience, and education/awareness may mitigate urban migration following climate events (Michaelsen et al., 2020; Rodríguez-Morata et al., 2018; J. Warner & Oré, 2006). Future research should further identify which of these conditions are causal in mitigating migration to identify prospective policy measures. If climate migration can be mitigated, this decreases population growth which might otherwise exacerbate urban economic scarcity. The case of Peru also indicates a direct link between climate and unrest. Climate in Peru is contentious and a relatively frequently referenced rationale for protest. Frequently included in such rationales is the juxtaposition of climate interests against powerful mining interests in the country. The relationship between climate and unrest, in this case, is likely contingent on the other major confounds mentioned such as climate salience, mining interests, and climate education or awareness. Something in the case of Peru

worth noting is that although climate policies and salience may be curbing urban migration, these factors certainly are not curbing urban unrest, particularly as the mining sector in the country works at odds against environmental interests.

Finally, the case of Guyana shows how it is possible to reverse the trajectory of this causal pathway, despite experiencing high levels of climate events. Historically, Guyana has responded to climate disasters with strong resilience measures and has increased its adaptive capacity to the point that it now has low levels of climate risk. Historically, a reversal of high migration levels can be observed in Guyana as climate resilience has improved. With a heavy reliance on its agricultural sector, climate measures have not only contributed to the mitigation of migration but have also led to increased agricultural production and enhanced economic prosperity in the country (World Bank, 2021a). This positive economic trajectory and low levels of urban migration culminate in low levels of urban unrest in the country.

The overall analysis of cases with low levels of migration emphasizes the importance of mitigating economic scarcity to prevent both urban migration and urban unrest. Adaptation measures aimed at addressing climate-related consequences play a crucial role in mitigating migration by enabling rural workers to sustain their livelihoods in situ. As climate-related impacts, such as decreased rural livelihoods and subsequent urban migration, are expected to worsen due to global climate change, governments must respond by implementing effective adaptation measures to support rural livelihoods and implementing policies that alleviate economic scarcity in urban centers. By doing so, potential unrest can be prevented, contributing to overall social stability.

Overall, regarding the causal pathway, Peru and Guyana stand out as important examples that demonstrate how the mitigation of climate-related economic scarcity can effectively reduce

migration. Similarly, Croatia and Guyana illustrate how addressing urban economic scarcity can serve as a preventative measure against the potential for unrest. These cases underscore the critical role that economic scarcity plays in both urban migration and unrest, emphasizing how mitigation efforts can significantly moderate these effects. Notably, Peru highlights a scenario in which a direct link between climate and unrest exists without the intermediary variable of migration. While migration often contributes to unrest, this case demonstrates that direct connections can also occur. In summary, Guyana serves as a noteworthy example of a case that has successfully implemented innovative and strategic policy measures to proactively reduce climate risk, migration, and unrest. It exemplifies a situation where comprehensive actions have effectively disrupted the climate-migration-unrest relationship.

Synthesizing High and Low Migration Case Studies

The case studies analyzed provide valuable insights into the relationship between climate and unrest, highlighting both direct and indirect links. While the direct relationship between climate and conflict may not be universally recognized, the analysis provides evidence suggesting that the indirect relationship, mediated by migration, plays a prominent role.

Analyzing the relationship across cases reveals the importance of economic factors and industries impacted by climate change as key drivers of migration, thereby mediating the relationship between climate and urban unrest. For instance, in Benin, industrialization and the desire for access to public services drives high levels of urban migration. In Guatemala, the agricultural sector, heavily affected by major drought, has led to migration from rural areas to urban centers. These cases illustrate the significant role played by economic drivers, sometimes resulting from climate impacts, in influencing population movements. Furthermore, the case of Croatia highlights the impact of climate-induced economic scarcity on the tourism sector. With

rising sea levels and increased coastal erosion, the tourism industry faced significant challenges. However, the government implemented policies to mitigate these effects and mediate migration. This example demonstrates how proactive government measures can help alleviate migration pressures caused by climate-induced economic shocks. By focusing on the economic aspects and the specific sectors affected by climate change, such as agriculture in Guatemala and tourism in Croatia, a better understanding of the interplay among climate, migration, and the impact of government policies can be gained. These cases emphasize the importance of considering sector-specific vulnerabilities and the necessity for targeted interventions to address climate-induced economic scarcity and its potential influence on migration patterns.

This intricate dynamic is demonstrated by the unique perspectives of Lebanon, Peru, and Tunisia. In Lebanon, where urban migration rates are notably high, the perception of climate change as a very serious problem by 26% of the population might be influenced by the socio-economic factors driving migration. This aligns with the observation in Benin, where industrialization and the pursuit of better public services fuel urban migration.

Conversely, in Peru, the relatively higher confidence (44%) in environmental organizations might be tied to the confidence in addressing climate-related challenges, potentially stemming from sector-specific resilience strategies. This is reminiscent of the case of Croatia, where proactive government policies to counter the economic impacts of climate change on the tourism sector helped stabilize migration patterns despite challenges posed by rising sea levels and coastal erosion.

Tunisia's context of 26% of people believing that climate change worsens living conditions aligns with Guatemala's scenario. In Guatemala, the agricultural sector's vulnerability

to climate impacts has prompted migration from rural to urban areas. Similarly, Tunisia's concern could be related to its low urban migration rates but significant migrant outflow.

In this manner, these cases, alongside those of Benin, Guatemala, and Croatia, highlight the pivotal role of sector-specific vulnerabilities and government interventions in shaping migration responses to climate-induced economic shocks. By considering economic dimensions and affected industries, a comprehensive understanding of the interplay among climate, migration, and government policies can be attained. This emphasizes the necessity for targeted approaches that address distinct economic challenges, fostering more resilient migration patterns in the face of climate change.

Tunisia and Lebanon exhibit distinct viewpoints both in comparison to the broader MENA region and in relation to each other. In terms of participation in peaceful protests and demonstrations, both countries significantly stand out with their high levels of civic engagement when contrasted with the MENA average. Lebanon records a notably high percentage of 74.3%, while Tunisia closely follows with 68.9%, surpassing the regional average of 57.7% (Arab Barometer Wave VII). This highlights a shared inclination toward active civic participation and protest, indicative of a strong public desire to voice concerns and grievances, as reflected in their high classification for urban unrest within the analysis.

When considering factors contributing to economic inequality and perceptions of government representation, the MENA average demonstrates a widespread belief that the interests of the poor are inadequately protected by their governments, scoring at 85.4% (Arab Barometer Wave VII). In this context, both Lebanon and Tunisia register high percentages of 84.5% and 72.6%, respectively (Arab Barometer Wave VII). While both countries exhibit

substantial concern over government representation, Tunisia's slightly lower percentage may suggest a nuanced perspective influenced by its distinctive political history and experiences.

Furthermore, economic scarcity matters for urban unrest following migration. The case of Lebanon shows how urban migration spikes strain economic resources, fostering government discontent and unrest, even in the absence of climate-induced scarcity. Similarly, Tunisia highlights that economic-related government grievances can drive urban unrest, despite climate not being the primary driver of migration. These cases underscore the importance of economic-related grievances in shaping conflict dynamics, with urban migration sometimes exacerbating economic scarcity, contributing to unrest.

Moreover, the case of Guyana demonstrates how effective government response to climate risk can mitigate both migration and unrest. Historically, Guyana has responded to climate disasters with strong resilience measures, leading to a stark decrease in levels of climate risk. This positive economic trajectory and low levels of urban migration culminate in low levels of urban unrest in the country. While the direct link between climate and conflict may not always be the primary driver, the evidence strongly suggests that migration acts as a mediating factor. By exacerbating economic scarcity and prompting or exacerbating discontent, climate-induced migration can become a significant catalyst for unrest.

These initial conclusions provide a foundation for further exploration of the relationship between climate, migration, and conflict. The following chapter will delve into a quasi-experiment in the case of Bangladesh, offering a more focused analysis of the causal mechanisms involved. Through this analysis, I aim to provide additional evidence and a deeper understanding of how climate, migration, and unrest are interrelated and the importance of economic scarcity as a key mechanism in this relationship.

In summary, the case studies demonstrate the significance of economic factors, migration, and government responses in shaping the climate-conflict relationship. While the direct link between climate and urban unrest may vary, the indirect relationship mediated by migration emerges as a crucial pathway. Revisiting the causal pathway, Peru and Guyana serve as notable examples illustrating how the mitigation of climate-related economic scarcity effectively reduces migration, while Croatia and Guyana demonstrate that addressing urban economic scarcity can function as a preventative measure against potential unrest. These cases collectively underscore the pivotal role economic scarcity plays in both urban migration and unrest, emphasizing the significant impact of mitigation efforts. Peru stands out for highlighting a scenario in which a direct link between climate and unrest exists without the intermediary variable of migration. Notably, Guyana showcases an exemplary case of proactive policy measures that have successfully reduced climate risk, migration, and unrest, effectively disrupting the climate-migration-unrest dynamic. Chapters 3 and 4 have offered compelling evidence of climate-related factors driving scarcity, which leads to urban migration, while also recognizing the influence of economic drivers in the link between climate and unrest as well as migration and unrest. It underscores the interconnectedness of climate, scarcity, migration, and unrest, setting the stage for a deeper exploration of the conditions under which migration may contribute to unrest in Chapter 5, thus informing important policy measures to absorb migrant shocks and foster economic stability.

CHAPTER 5

MIGRATION DYNAMICS, ECONOMIC SCARCITY, AND URBAN UNREST: A QUASI-EXPERIMENTAL ANALYSIS IN BANGLADESH

Urban unrest is rampant among middle-income/middle-capacity (MIMC) countries (World Bank, 2022). And while climate change is often said to contribute to urban unrest in the Global South (Bakken, 2021; Patel & McMichael, 2014), particularly in countries vulnerable to climate variation, little is understood about the potential channels through which these events may cause migrant shocks and how subsequent economic shocks may contribute to unrest. As discussed in Chapter 2, while the literature shows that urban migration is likely a mediating variable between climate change and conflict, empirical assessment of this relationship is still lacking (W. N. Adger et al., n.d.; Burrows & Kinney, 2016; Kingdon & Gray, 2022b; Koubi, 2019; Reuveny, 2007). The particularly tricky component of capturing post-climate migration is that migrants fleeing sudden climate events likely migrate due to sheer loss and damage while migrants fleeing gradual climate events likely migrate due to income concerns, the latter group being uniquely difficult to measure. The unique nature of these groups and the broader conceptualization of climate migrants has led to inconsistent findings. This prompts the question: What causal assertions can be made about the climate-migration-unrest relationship? What is known is that when it comes to the location of migration, climate migrants of both types will be drawn to places with perceived economic opportunity (Bhatta et al., 2015; Black et al., 2011; Davis et al., 2010; Gibson et al., 2020; Kennan & Walker, 2011). Although economic grievances are substantiated to cause unrest, I attend to the income-related urban migration draws and urban unrest part of this relationship. Subsequently, this chapter seeks to isolate the causal effect of both income draws generating urban migration as well as income shocks generating urban unrest

in post-migration settings. I do so by analyzing how global market shocks in Bangladesh draw migrants to urban centers and may foster urban unrest in times of negative economic shocks. As chapters 2 and 4 have clarified, economic draws to cities are a major underlying factor driving climate migration. Therefore, examining their role provides partial insight into the complex relationship between climate change and urban unrest. By focusing on economic factors, this research effectively captures the crucial aspect of the broader causal pathway connecting economic scarcity, migration, and urban unrest, while avoiding the complexities involved in isolating the specific influence of climate migration.

This chapter builds on the current scholarship in a variety of ways. First, although previous studies have shown the relationship between economic conditions and unrest (Dube & Vargas, 2013; Elfstrom & Kuruvilla, 2014), my analysis uses high-quality RMG industry location data capturing the most important economic driver of migration in Bangladesh which will allow for a more accurate identification of this effect. By accounting for city-level fixed effects, I control for municipal factors that may be correlated with migration-, economic-, and unrest-related outcomes.

Second, most scholarship focuses on the economic conditions that foster more large-scale conflict such as civil war or war (Collier, 2003; Collier & Hoeffler, 1998; Richani, 2013; Stewart, 1993). My chapter presents empirical evidence regarding labor market outcomes and lower-scale conflict in the form of urban unrest. By using a triple difference model, I isolate whether the post-migration factor uniquely contributes to unrest given negative economic shocks. I expect the results of my micro-analysis to build off of Tyran and Engelmann (2005) where they show how market price shocks drive forms of unrest as well as Dube and Vargas (2013) where they assess the relationship between economic shocks, wages, and violence.

However, my analysis differs from these articles in two ways. First, I exploit global food price shocks that are driven exogenously by supply shocks outside of Bangladesh which impacts all areas of the country. Second, by considering an array of urban unrest (e.g., protests, riots, demonstrations, etc.), my study speaks to the broader discontent that such price shocks prompt.

The remainder of this chapter is organized as follows. First, I will provide information regarding the conceptual framework and institutional context of migration and income expectations of opportunity in the RMG industry in Bangladesh. Next, I will outline the hypotheses. These hypotheses are that 1) positive economic shocks draw urban migrants and 2) negative economic shocks prompt urban unrest following urban migration. Third, I will identify the data and methods of my analyses and then discuss my results and related discussion. Finally, I will conclude with a discussion of implications and a follow-up on the findings of the chapter.

Background and Conceptual Framework

Much scholarship endeavors to capture the effect of climate change on migration patterns. A common approach to understanding these channels of migration is via resource scarcity (Evans, 2010; Gizelis & Wooden, 2010; Mildner et al., 2011). Measurement of sheer resource scarcity provides an incomplete picture of what motivates migration because the decision to migrate is complex and other conditions may confound sheer resource scarcity. Literature does provide evidence that income-related drivers motivate post-climate migration (Bhatta et al., 2015; Galor, 2005). Capturing the economic drivers of migration provides a more complete picture of this relationship. Doing so also inherently captures some implications of resource scarcity as well.

Furthermore, some scholars purport that migration can be used as a tool for self-adapting to climate change (Bardsley & Hugo, 2010; Singh & Basu, 2020). Nevertheless, economic

conditions and related grievances are purported to cause unrest (W. N. Adger et al., 2020; Bardsley & Hugo, 2010; Singh & Basu, 2020). Even though urban centers may draw migrants, depending on economic conditions, post-migration negative economic conditions or shocks are purported to prompt civil unrest (Burrows & Kinney, 2016; Mitchell & Pizzi, 2021; Reuveny, 2007). This indicates that migration as a tool for economically adapting to climate change does not solve the full economic problem and may exacerbate existing urban scarcity, prompting even more severe implications related to unrest.

In isolating the effect of both economic-related migration drivers and post-migration economic conditions for unrest, I use a quasi-experimental analysis of market shocks in Bangladesh on migration draws and urban unrest. Next, I outline the venues through which market price shocks affect migration and unrest by adapting the frameworks of Stark and Bloom (1985) regarding migration decisions and Portos (2021) regarding mobilization of unrest. These frameworks, in turn, will be synthesized with the case of Bangladesh but can apply to MIMC countries more broadly.

The Connection Between Economic Drivers and Migration Decisions

My attempt to disentangle climate-related migration from an economic perspective is aimed at building on existing literature that discusses resource scarcity as a driver of migration (Black et al., 2011; Reuveny, 2007). The idea that economic factors play a role in migration has been formalized in theoretical accounts, which I apply in this chapter (Lall & Selod, 2006; Tacoli et al., 2015). While post-climate circumstances may make migration a more necessary choice due to damage or resource scarcity, it is ultimately the promise of economic opportunities that drives the decision to migrate (Martin et al., 2014). However, the costs of uprooting one's

livelihood and starting anew in an urban community are significant, and if the post-migration income-related needs are not met, these costs can lead to discontent and unrest (Bauman, 2013).

Drawing on frameworks of neoclassical migration theory, Porumbescu (2015) discusses how migration decisions are often made at the household level rather than individual level. This is known as the "new economics of labor migration" theory. Stark and Bloom (1985) highlight the primary goal of households to maximize income through migration and refer to economic risks at the place of origin. While this theory initially focused on international emigration, I adapt this framework to internal migration within a country.[1]

Porumbescu (2015) points out two major criticisms of this theory, which, in the context of internal migration, can be addressed. The first criticism is that the new economics of migration theory does not consider the link between the attempt to reduce economic risk and the socioeconomic status of a household. However, within-country migration is influenced by economic risks in different ways based on geographical and socioeconomic factors. Market impacts associated with economic risk vary across communities within the country. For example, price shocks in certain industries primarily affect urban communities compared to rural areas. On the other hand, economic shocks have different implications for different regions. I will further discuss the inclusion of these factors in this theory below. Bhatta et al. (2015) have already discussed the socioeconomic status of migrant households in relation to migration outcomes in the previous section.

[1] While the theory of Stark and Bloom (1985) focuses on economic risks in the country of origin relative to the migrant-accepting country, economic risks can vary within countries as well. My analysis considers this within-country variation in levels of economic risk to discuss how migration involves maximizing income regardless of whether borders are crossed.

The second criticism highlighted by Porumbescu (2015) is the theory's failure to account for family reunification as a migration driver. Although the theory acknowledges internal migration for family reunification to some extent, it fails to account for the distinct dynamics involved. Specifically, individuals may migrate to urban centers to seek employment opportunities and provide support for their rural families. However, if household income becomes insufficient, the family may decide to reunify in the urban center. It is crucial to note that internal migration for family reunification does not encounter the same bureaucratic, political, and logistical barriers associated with international family reunification and asylum status (Chandler et al., 2020). This distinction emphasizes the unique challenges and dynamics present in different forms of migration driven by family reunification. This study's focus on internal migration does not face the same conceptual challenges.

With these critiques addressed, I adapt the main principles of the new economics of labor migration theory to my framework of internal migration drivers. Two key principles are relative deprivation and imperfect markets (Porumbescu, 2015). Relative deprivation suggests that societies with high inequality may push lower-income households to migrate (Jennissen, 2007). This concept applies aptly to cases in this chapter where severe income loss, whether due to market shocks, climate shocks, or other factors, drives migration, as evidenced in the cases of Benin, Guatemala, and Lebanon in Chapter 3. The comparison of one household's economic loss to another likely motivates migration, especially when urban markets offer attractive opportunities.

The idea of imperfect markets, another key principle, must also be adapted to my framework. While market volatility is a crucial component of my analysis, it does not affect the entire population in a country equally, as different regions and communities experience distinct

economic conditions. In all, the costs associated with emigration in contrast to within-country migration are quite high, particularly when the migration decision is not of a political persecution nature. For example, there is no internally recognized status of climate refugees, so in cases where climate shocks make migration more necessary, households will likely be partial to within-country migration, particularly when urban markets are promising. I operationalize this theory of income draws via the RMG industry boom that draws internal migration in Bangladesh.

Post-Migration Economic Conditions and Unrest

Examining the 2008 global economic shocks, Portos (2021) posits that protests should not be solely attributed to an austerity-driven perspective, but rather viewed as expressions of grievances against the socio-political status quo, advocating for transformative societal change. Contrary to previous theories on the matter, this unrest did not come from political opportunity, but often had a transformative effect on institutions, nevertheless. This is evidenced in the Bangladesh case study from Chapter 3, where riots following food price shocks eventually lead to price-setting policies in the country. Portos (2021) shows that both material deprivation- and attitude-related grievances are amplified by political satisfaction causing an increase in unrest over time.

The nature of such economic shocks is even more pronounced in MIMC countries because they tend to be more limited in terms of financial resources and institutional capacity as evidenced in Tunisia where the population has widespread economic scarcity despite demands on the government (Finland, 2015). Because of this, urban unrest is also more pronounced. The case of the food riots in Bangladesh during this particular era of market shocks is an exemplar of this framework. For example, material deprivation makes up the food scarcity, while attitude-

related grievances exemplify that they desire price stabilization. The failure of the government in doing so fosters political dissatisfaction prompting large-scale unrest.[2]

International food shortages in 2008 were detrimental for lesser developed countries. Widespread food riots occurred in many such nations. A major food riot in Dhaka called for the transformation of the government's price-setting policy (discontent with the status quo). The grievances were related to the fact that the population's income levels could not absorb the food price spikes. Amidst this widespread unrest, the Bangladeshi government responded by implementing price-setting policies to mitigate the consequences of global food shortages for its citizens, which represented a successful and reinforcing call for transformation (N. Hossain & Jahan, 2014).

Portos' (2021) framework theorizes on cases of unrest following financial crises, which this chapter's research agenda fits perfectly. I operationalize food price shocks with the inference of discontent with the government sparking social unrest. This theory also is supported by a series of findings on the relationship between economic conditions and conflict.[3]

Bangladesh Context

While the RMG industry was steadily growing in the region of the world for some time, a major boom in the Bangladesh RMG industry occurred with the global garment industry price spike following China's nationwide wage increase laws just before 2010 (Cooke, 2011). During the time span of my analysis (1992-2022), there are several moving parts related to migration and unrest. Major climatic events caused displacement, global food price shocks caused food

[2] Literature has shown this relationship between price shocks and unrest to hold up in other developing countries as well. See Hendrix and Haggard (2015) and Smith (2014).

[3] See Collier, 2004; Deutsch, 1990; Koubi, 2019; Stewart et al., 1997

riots all around the world, including in Bangladesh, and the Bangladesh labor force took advantage of the RMG market. I will detail the context of these parts chronologically.

The RMG sector began to increase steadily mirroring the industry in neighboring countries starting in 2002, accounting for 77% of Bangladesh's exports (WTO, 2008). This industry reached 75% of Bangladesh's earnings by 2005 and by 2012, making up 80% of export income (Exporters Association, 2017; Haider, 2007). This was all due to the ‘cheap’ labor supplied by this region of the world that the global market had exploited (S. Sultana et al., 2011). Over the years, the RMG sector prompted major income-driven migration in Bangladesh (Patwary, 2022).

This rapid urbanization did not come without costs. A few years into the RMG sector's growth, the 2008 global food price shock prompted food riots in Bangladesh. A notable instance of one such riot took place on April 13, 2008, in the capital city of Dhaka, where RMG industry workers rioted on behalf of their low wages during this time of unreasonable food prices (N. Hossain & Jahan, 2014). While the RMG industry drew many Bangladeshi workers over the years, their low wages were not sustainable during a food price shock. These riots were voicing grievances with the Bangladesh government for failing to stabilize food prices. Shortly after this, the government enacted policies which did help stabilize these prices, diminishing some unrest (N. Hossain & Jahan, 2014).

The following year, Cyclone Aila, struck the coasts of Bangladesh displacing over 200,000 people (Rojas, 2021). And a few years later, Cyclone Roanu displaced thousands more and forced 500,000 people to evacuate in 2016. These extreme weather events not only caused sheer displacement but left many wondering if moving would be the right decision considering economic losses caused by such events (Penning-Rowsell et al., 2013). Although the loss of life

following climate hazards had decreased over the years, the loss of economic livelihood has not. With the increasing frequency and severity of climate disasters, many consider relocation to provide security for their economic livelihood.

A key feature of the industrialization of the Bangladesh RMG industry is that a series of conditions prompted migration to municipalities with RMG factories. The two main features, substantiated in the literature, are climate events (M. Z. H. Khan et al., 2021; Plowman, 2015), and the economic draw of the RMG industry (Patwary, 2022; Ullah, 2004). The literature provides evidence that these two are likely inherently linked. While climate disasters are not always a necessary condition to prompt migration, this chapter builds on the premise that economic drivers may be.

In a study of South Asian countries including Bangladesh, Bhatta et al. (2015) show that migration decisions differ depending on household resources. The first household type is the resource-rich household that chooses to migrate to further improve its resilience to climate events. The second is resource-poor farmers that have no choice but to migrate for income prospects. While the first type of household is not migrating out of climate-induced financial hardship, they are taking advantage of the ability to migrate which will in turn decrease climate vulnerability geographically and economically. The second type of household exemplifies the necessity to migrate out of sheer economic necessity. While both types of household migration are climate-related, economic factors are the main drivers.

Ahsan et al. (2014) show how the increasing number of climate migrants globally muddies the idea of the typical economic migrant. Particularly in Bangladesh, climate factors have increased dramatically as push factors for migration. In a case study in Bangladesh, Ahsan et al. (2014) identified loss of property, hopelessness of the ability to restart in situ, the desire to

keep family safe, and the idea of a better life in an urban municipality as the major factors of migration following climate disasters. This indicates that there is certainly something to the sheer necessity of migration following severe climate events. This final reason though, of the idea of having a better life in a city, is highly connected with the pull factor of RMG industry opportunities. Undoubtedly though, climate shocks have made migration in Bangladesh more necessary, uniquely altering the population density patterns within the country (Hassani-Mahmooei & Parris, 2012).

While the push and pull factors related to climate shocks and urban economic draws are interconnected, there is more substantial supportive evidence of the strength of an economic draw on migration, yet this relationship has yet to be causally substantiated. In an intensive survey conducted in a district in Dhaka, Bangladesh, Ishtiaque and Ullah (2013) found strong support for the economic pull factors of employment opportunity and access to the informal workforce as the main drivers of migration decisions. An identifying push factor that the authors referenced is the occupation at origin as a key driver of migration. This indicates that income- and livelihood-related mechanisms are at the forefront of migration decisions.

With the integral driver of the perceived economic benefit of urban migration, these migrants harbor hope and expectations that following the hardship of migration, the economic promise of the relocation to deliver. In times where this fails to be the case, migrants harbor discontent with the government, often leading to unrest. This is due to two main factors. The first is the unique nature of vulnerability in MIMC countries and the second is the perception of more tangible resources in the city.

The vulnerability of MIMC countries to urban unrest is because while the institutions are developed enough for the population to have expectations of government justice and assistance,

they are not developed enough to always have the ability to provide (Hendrix & Haggard, 2015). These grievances are linked to the fact that once migrants reach the urban center, they perceive the more tangible nature of government provisions with reference to their rural origin (Majumdar et al., 2004). Such expectations of the government become particularly problematic in times of scarcity, as exemplified by the 2008 food riots in Bangladesh (N. Hossain & Jahan, 2014). Regardless of the post-migration component, in times of economic hardship, particularly in urban centers, populations harbor discontent with the government that drive unrest (Bakken, 2021; Portos, 2021). This occurs acutely in such industrializing countries as referenced.

Despite that evidence is suggestive of an economic scarcity-unrest relationship, there is little causal substantiation on the drivers of migration as related to economic scarcity. The empirical literature assessing the relationship between climate and migration is limited to small N and within-case analyses and is mainly correlational in nature. This has led to mixed findings on climate change as a migration driver. I argue that some of these mixed findings occur due to the lack of proper causal identification. In identifying income as a clearer driver of climate migration, this chapter intends to fill this gap. Furthermore, while previous literature does capture the causal effect of economic shocks and unrest (Dube & Vargas, 2013), by using a triple difference framework, this chapter distinguishes this relationship uniquely among units that have experienced income-related migration surges with reference to the RMG industry draw. In doing so, I not only reinforce evidence of an existing relationship between economic shocks and unrest but show how this effect is amplified in areas that have previously experienced a migrant shock.

Hypotheses

Causal assessment of climate shocks and subsequent forced displacement requires unique dyadic data that is unavailable. Therefore, I cannot statistically distinguish between the isolated

effect of a sheer climate shock (or climate-induced resource scarcity) versus an economic draw. Instead, I focus on the distinction between whether RMG market shocks are enough to draw in urban migrants, without the climate-related scarcity component. To test the expectation that a negative global market shock creates conditions for urban unrest, I focus on negative food price shocks.

To adapt these expectations to a sub-national analysis, allowing me to exploit variation in the RMG industry across municipalities, I use the identifying assumption that trends in levels of migration are the same across municipalities that do and do not receive factories before the factory arrives. This allows me to assess parallel trends, indicating that if stable pretends among units exist, and there is a substantive spark in migration among units that receive factories, the intervention is successful.

Testing the mechanism of economic draws driving migration is straightforward, as I have a measure for RMG Factory location and year established from the Center for Entrepreneurship Development (CED) of BRAC University as well as Urban Land Cover data captured by the European Space Agency. To test the effect of price shocks on urban unrest, I use the nature of economic scarcity prompted by food price shocks from the World Food Program (WFP) to account for the economic scarcity affecting all cities, rather than those dominated by particular sectors (like the RMG industry). Because I expect the effect of negative price shocks on unrest to be more pronounced in cities that have experienced migration spikes, I interact the food price variable with the RMG factory variable and look at the isolated effect on urban unrest. My

identifying assumption here is that trends across units would the same had the intervention of food scarcity not occurred.[4]

In summary, these referenced economic mechanisms inform two testable hypotheses:

H1: Economic draw will increase urban migration.

H2: Negative economic price shocks will increase urban unrest.

First, the emergence of RMG factories in urban centers is expected to increase urban migration by making the income-related benefits of migration more appealing. If income is indeed a substantial motivator for migration among those impacted by scarcity, it is reasonable to anticipate that the income prospects offered by RMG factories in urban areas will serve as a magnet for urban migrants. This includes individuals who have been impacted by climate-induced scarcity and are considering where to migrate after displacement or whether to migrate in response to the significant events.

Secondly, negative global price shocks are expected to amplify urban unrest by creating economic scarcity conditions. Existing research indicates a connection between urban migration and economic scarcity. However, this relationship is not universally applicable, especially when considering initial industrialization patterns. The hypothesis under examination aims to provide clarity on whether negative economic shocks following urban migration have a uniquely predicts urban unrest. The analysis has two significant implications. First, it will shed light on whether migration alone triggers unrest, challenging oversimplified narratives of this relationship. Second, it will determine whether economic scarcity distinctly prompts unrest in areas that have witnessed high levels of migration. By investigating these aspects, the study aims to contribute to

[4] There is some discourse about the agreed upon identifying assumption for a triple difference model, but drawing on Olden & Møen, 2022, I assert a parallel trend assumption on one of the difference-in-differences estimators here.

a deeper understanding of the complex dynamics between migration, economic conditions, and urban unrest.

Data and Methodology

Data

I use spatial sub-nationally disaggregated data from a variety of sources spanning the temporal domain of 1990 to 2022. My treatment variable for my first hypothesis is *RMG factory establishment* and is captured as an indicator for the first year a factory emerges in the unit. To capture the location of garment factories and the year in which they were established, I use data from the Mapped in Bangladesh (MiB) Project by the Center for Entrepreneurship Development (CED) of BRAC University [CED-BRACU] consisting of 4800 factory observations. These factories are housed in 21 of the 64 districts in Bangladesh. The years that the factories were established range from the late 20th century to 2021. The treatment variable for my second hypothesis is *food price shocks* over time, using Food Prices data from the Word Food Programme (WFP) Vulnerability Analysis and Mapping (VAM) with subnational price variation at the administrative unit 1 level measured as a continuous variable per 100,000 USD.[5] The *food price shocks* variable is interacted with the *factory establishment* variable creating a triple difference model.

My outcome variables of interest are *urban migration*[6] captured by Land Cover data from the European Space Agency (ESA), and *urban unrest* captured by an indicator of protests, riots,

[5] Administrative Unit 1 in Bangladesh refers to its 8 divisions, similar to a province or state.

[6] While some of the urban proportion variable accounts for some of the literal factory buildup, there are few cases where more than one factory goes up in a unit year. Especially with first or large factories being built, large housing divisions and apartment complex projects follow to accommodate this industry boom and migration draw. See section below for further explanation.

and food strikes from the GDELT Real-time Event Database.[7] The *urban migration* variable is measured as the proportion of the unit that is covered by urban land in a given year. The *urban unrest* variable is captured by a binary variable coded as 1 if the unit experiences an event of unrest in a given unit-year.

Methods

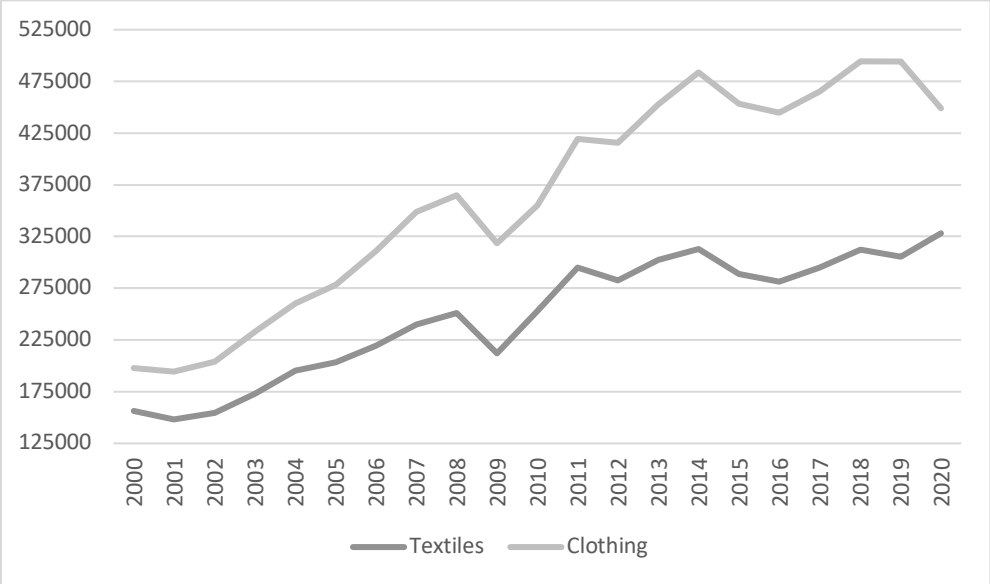
It is challenging to determine the impact of economic factors, such as factory emergence and food price shocks, on urban migration and urban unrest (Campbell & Cook, 1979; Dunning, 2008; Meyer, 1995). For instance, the presence of factories may attract migrants, while negative economic shocks, such as food price shocks, might lead to increased urban unrest following migration (Davis et al., 2010; Gibson et al., 2020; Kennan & Walker, 2011). To address this issue and estimate the causal effects, I take advantage of the panel format of the data and employ a quasi-experimental research design, utilizing a difference-in-differences (DID) model (H1) and a triple-difference (DDD) model (H2), allowing for clear interpretation (Campbell & Cook, 1979; Dunning, 2008; Meyer, 1995). This way, I can compare the change in migration among places that gain factories as opposed to places that do not. Additionally, I compare levels of unrest among units with high vs. low levels of migration on urban unrest distinguishing how these units behave depending on food price shocks.

Methods: Urban Migration. In the context of urban migration, I draw on a specific historical observation. In the mid-2000s, China implemented changes to its wage laws, resulting in a global industry shift, increasing the prices of clothing and textiles (see Figure 18). Notably, RMG factories rapidly relocated from China to Bangladesh around 2009 (Meyer, 1995). This

[7] Future work may incorporate an instrumental variable approach using *arsenic contamination* and factory draws to predict migration as an instrumental variable. This data comes from the Bangladesh Arsenic Mitigation Water Supply Project which captures arsenic contamination in tube well water as a percentage of wells in each union.

relocation created a demand for labor, prompting increased urban migration as individuals sought employment in the RMG industry.[8]

Figure 18. Global Clothing Market Prices Over Time



Note: WTO Textiles and Clothing data; Merchandise exports by product group – annual (Million US dollar); World Prices.

I employ a difference-in-differences (DID) model to estimate the impact of the emergence of RMG factories on urban migration, leveraging the inherent advantages of this framework. DID allows for accounting for the general propensity to migrate while introducing the treatment effect of factory-based migration (Meyer, 1995). In this analysis, the treatment condition is defined by the presence of garment factories in cities. I compare the changes in urban migration between administrative units before and after they received a factory (if they received one), with units that never received a factory serving as the control group coded as 0. The temporal domain of the data spans from 1992 to 2021. Given the staggered emergence of

[8] It is theoretically noteworthy that this is during a time when the formerly strong agricultural sector had been on the decline.

factories, I adopt the staggered treatment difference-in-differences methodology proposed by Callaway and Sant'Anna (2021). To account for potential heteroscedasticity, I estimate the model using wild bootstrapped standard errors clustered around the administrative 4-unit. Additionally, because the treatment is applied at the administrative 4 unit level, I cluster the analysis accordingly (Callaway & Sant'Anna, 2021).

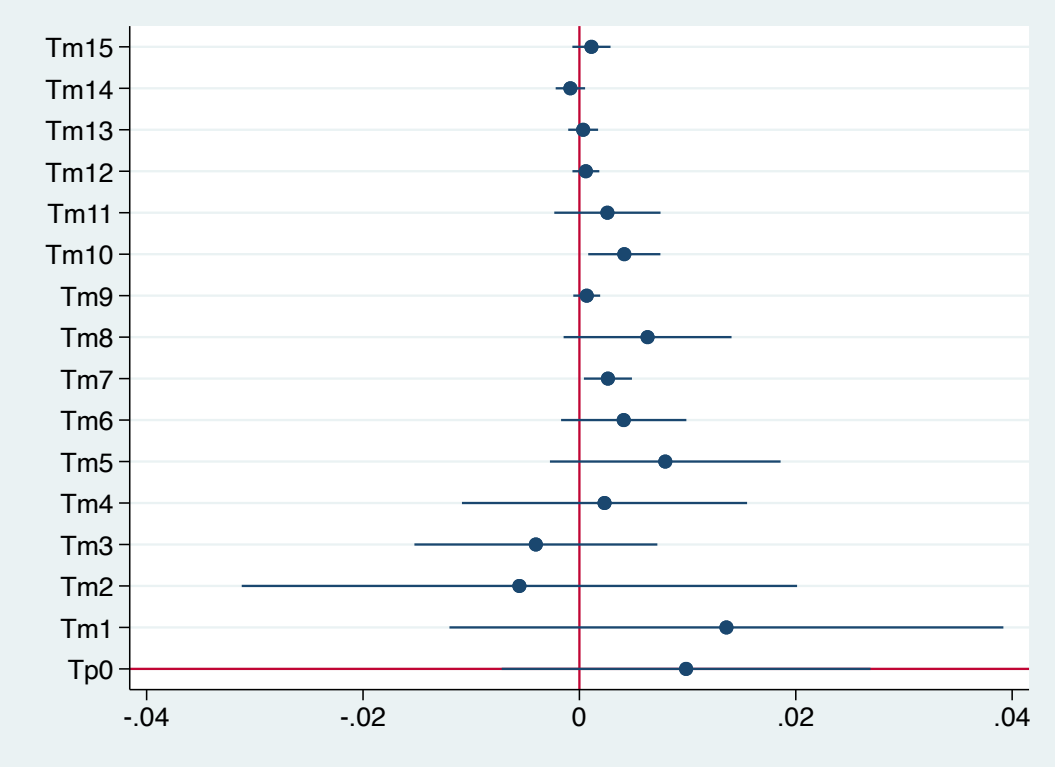
Formally, the model is represented by Equation 1, where Y represents the outcome of interest, which in this case is urban migration:

$$Y = \beta_1 Factory + \beta_2 Established + \beta_3 (Factory \times Established) + \varepsilon \quad (1)$$

Here, "Factory" indicates the presence of a factory in the city, "Established" represents the year in which the garment factory was established, and ε denotes the error term.

Before proceeding with the analysis, it is crucial to address the parallel trends assumption. The identification strategy in Equation 1 relies on the assumption that urban migration trends among cities without garment factories would have followed a similar trajectory as trends among cities with garment factories, had those cities acquired factories. This assumption is supported by theoretical considerations that highlight the importance of secure income-generating opportunities as a key factor in individuals' migration decisions (Davis et al., 2010; Gibson et al., 2020; Kennan & Walker, 2011). To assess the plausibility of the parallel trends' assumption, Figure 19 presents the pretreatment trends in urban migration. The coefficients before the intervention indicate no substantial difference between the treatment and control groups. This observation provides empirical support for the internal validity of the research design, indicating that migration occurred at comparable levels between the treatment and control groups before the RMG market shock. Thus, the estimated treatment effect can be reasonably interpreted within the framework of the parallel trends' assumption.

Figure 19. Parallel Trends in Urban Migration between RMG Factory Emergent and Control Group Cities

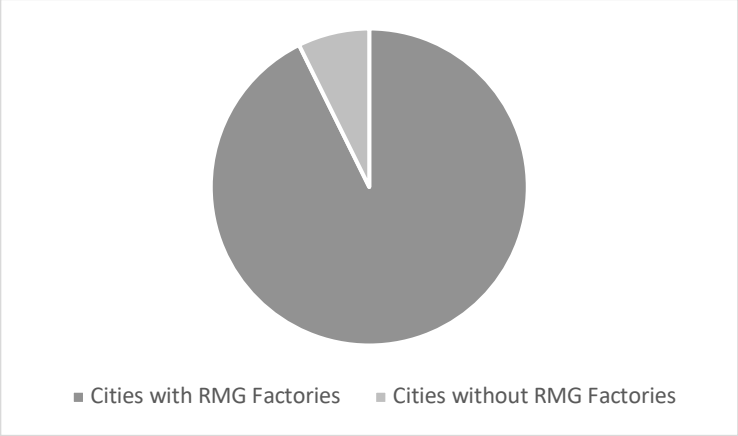


Note: This figure shows the coefficients of the DID analysis leading up to the intervention at Tp0. The existence of reasonably stable pretrends suggests that the parallel trends assumption is satisfied. Sources: Mapped in Bangladesh (MiB) Project by the Center for Entrepreneurship Development (CED); Land Cover data from the European Space Agency (ESA)

Methods: Urban Unrest. My second hypothesis aims to investigate the factors that contribute to urban unrest, particularly in areas experiencing rapid urban migration due to industrial growth. Existing literature suggests that such unrest is more likely in regions with a significant influx of migrants driven by industrial expansion (Buhaug & Urdal, 2013). This phenomenon becomes particularly problematic when price shocks occur, as they disproportionately harm livelihoods in these urban centers. A relevant example is the case of Savar, Bangladesh in 2008, where hundreds of ready-made garment (RMG) workers took to the streets following wage cuts and layoffs caused by the 2008 recession and subsequent clothing market price shock (M. S. Hossain, 2008). Similar instances of unrest were observed in areas

with factories surrounding Dhaka (M. S. Hossain, 2008). Furthermore, when examining levels of urban unrest, it becomes apparent that cities with RMG factories exhibit significantly higher average levels of unrest compared to non-RMG municipalities (see Figure 20). This suggests that specific conditions exist in locations experiencing high levels of migration due to a thriving industry in Bangladesh, and these grievances are instrumental in predicting urban unrest.

Figure 20. Mean urban unrest in RMG and non-RMG municipalities



Note: Data from ACLED Database, accounts for protestor, rioter, and civilian actors (2010-2014)

To conduct this research, I utilize the GDELT Real-time Event Database, which captures protest and riot events from 1978 to 2022. I also draw upon the triple-difference strategy proposed by (Muralidharan & Prakash, 2017) to estimate the onset of urban unrest following economic scarcity resulting from migration. To capture the nature of negative economic shocks contributing to urban unrest, I introduce food price shocks as a variable.[9] Additionally, I interact this variable with the location of RMG factories to assess whether the presence of RMG factories, which are associated with significant urban migration, amplifies the impact of negative economic conditions (i.e., food scarcity) on unrest. It is worth noting that this research utilizes

[9] At the administrative unit 1 level, to provide more subnational variation in the sample.

food price shocks instead of RMG price shocks to capture the negative economic shocks contributing to urban unrest. Food price shocks are chosen because they affect both low-migration and high-migration cities, allowing for a clearer interpretation of their impact. Through an examination of the relationship between food price shocks and urban unrest, an assessment can be made regarding the impact of adverse economic conditions, such as food scarcity, on unrest within various types of cities. Additionally, the interaction between the food price shock variable and the location of RMG factories helps to determine whether the presence of RMG factories amplifies the impact of these economic conditions on unrest. By employing a difference-in-difference-in-differences (DDD) approach, I can examine the nature of urban unrest while accounting for both negative economic shocks driven by global food prices and the urban migration spikes caused by RMG factories. The treatment condition in this study is the emergence of garment factories in administrative units, which is interacted with the food price shock variable. Because Callaway and Sant'Anna's (2021) staggered treatment model cannot absorb interaction terms, I draw on Sun and Abraham's (2021) model that uses the interaction-weighted estimator to account for multiple time periods.

The equation below formalizes the model (Equation 2), where Y represents the coefficient of interest, which is urban unrest:

$$Y = \beta_1 Factory + \beta_2 Established + \beta_3 Food\ Prices + \beta_4 (Factory \times Established \times Food\ Prices) + \varepsilon \quad (2)$$

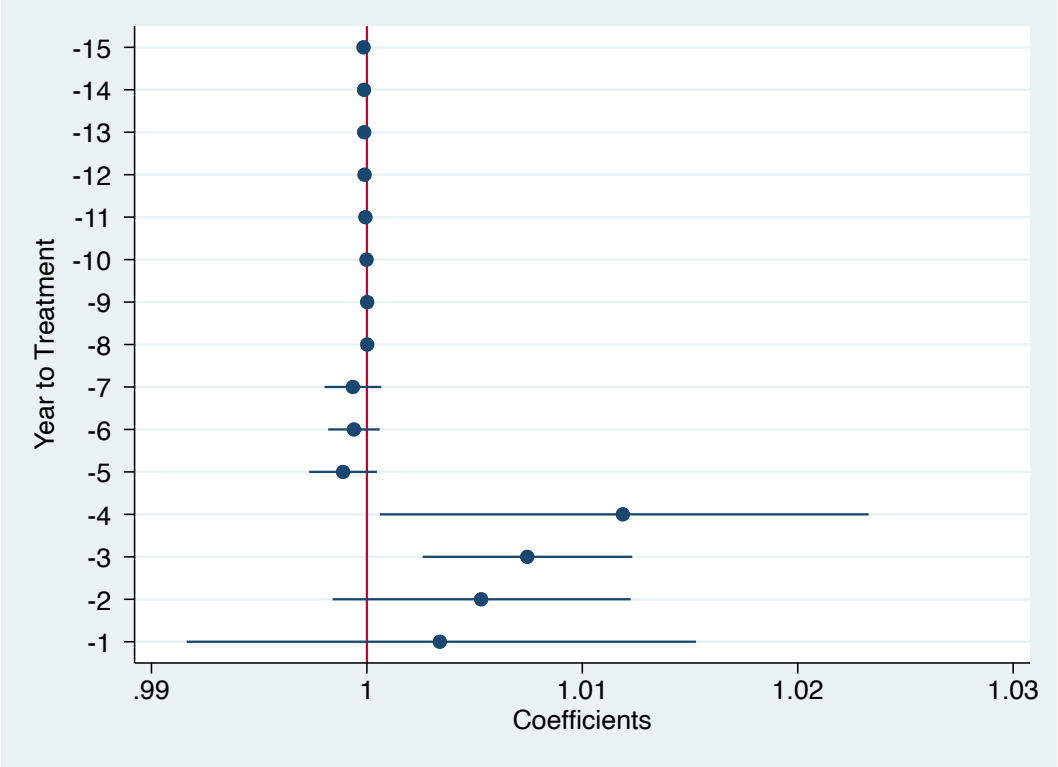
Here, "Factory" indicates the presence of a factory in the city, "Established" represents the year of establishment of the garment factory, "Food Prices" denotes the continuous variable representing global market food prices, and ε denotes the error term, and Y represents the outcome variable of urban unrest.

The identifying assumption in Equation 2 relies on the parallel trends' assumption, which states that levels of unrest in cities prior to a negative economic shock would have been the same across cities, even if the economic downturn had not occurred. However, this effect is expected to be amplified in cities with RMG factories. This assumption is reasonable given the significant reliance of many cities on the RMG industry, which leads to migration due to economic interests. Consequently, perceptions of economic security would be dangerously affected if destabilized by market fluctuations. The association between economic discontent and conflict has long been assumed (Hofmeyr & Govender, 2016). To verify the parallel trends assumption, Figure 21 depicts the pretreatment trends in urban unrest, demonstrating stable trends.[10] To supplement the slight messiness in the late pre-treatment period, an F-test is conducted to further validate this assumption. The F-test assumes that all coefficients in the pre-event period are jointly equal to zero. The statistically significant result ($p = 0.0004$) supports the satisfaction of the parallel trends assumption, providing confidence for conducting credible analysis (Sun & Abraham, 2021).

[10] Despite that these identifying assumptions do not require the satisfaction of an as-if random sample, I execute a randomization inference test of the factories distributed in the administrative level 4 units among the administrative level-1 unit strata (see Appendix G). I do so by drawing on McKenzie's (2017) randomization analysis using individual units over multiple time periods, finding that my sample of administrative level 4 units in Bangladesh is randomly distributed under the administrative level 1 unit strata.

Furthermore, the varying introduction of factories to different locations over time provides a suitable setting to measure the causal effect of factory establishment using DID.

Figure 21. Parallel Trends in Urban Unrest between RMG Factory Emergent and Control Group Cities Contingent on Food Prices



Note: This figure shows the coefficients of the DDD analysis leading up to the intervention at time = 0. The observed presence of stable pretrends indicates satisfaction of the parallel trends' assumption. Sources: Mapped in Bangladesh (MiB) Project by the Center for Entrepreneurship Development (CED); Word Food Program (WFP); GDELT Real-time Event Database

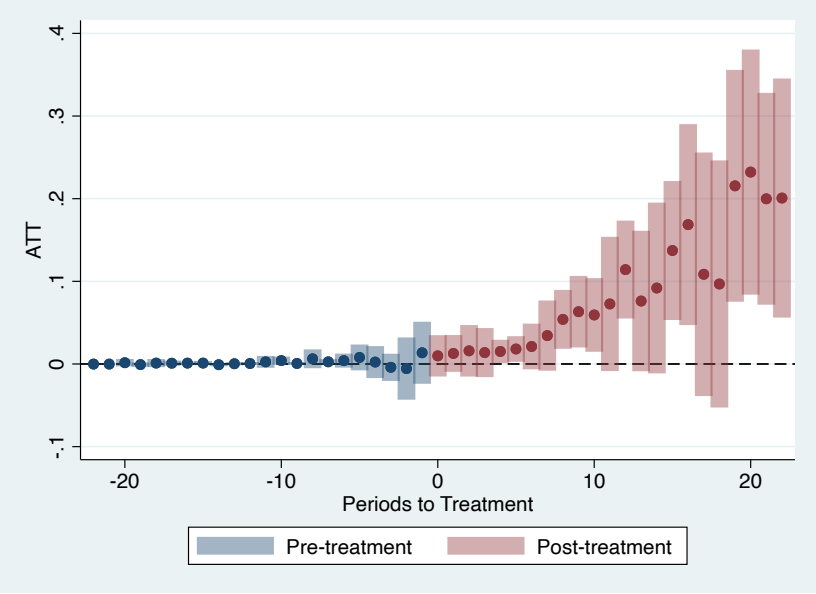
Overall, this research design utilizes sub-nationally disaggregated data to examine the effects of RMG factory establishment and food price shocks on urban migration and urban unrest in Bangladesh. The analysis employs a quasi-experimental approach, including a difference-in-differences (DID) model for urban migration and a triple-difference (DDD) model for urban unrest. The parallel trends assumption is validated, and robust methods are used to estimate the causal effects. Overall, this research design provides valuable insights into the relationships between economic factors, migration, and social unrest in urban areas.

Results and Discussion

Economic Draw and Urban Migration

I estimate the causal effect of income drivers on urban migration with reference to the specification from Equation (1). This effect is captured by the emergence of *RMG factories* and the subsequent increase in *urban proportion*. The event analysis in Figure 22 provides compelling evidence of this relationship. The figure consistently shows a positive effect of the treatment, with the pooled ATT indicating that the emergence of an RMG factory leads to a 5.4% increase in urban migration during the pooled post-treatment period (ATT: 0.054, p = 0.037, see Appendix H).

Figure 22. Effect of RMG Factory Emergence on Migration Trends



Note: This figure presents the results of the DID (Hypothesis 1) analysis, illustrating the Average Treatment Effect of the Treated (ATT) on the y-axis. The x-axis spans a total of 40 years, encompassing 20 pre-treatment years and 20 years post-treatment. It is evident from the graph that the intervention led to a notable increase in urban migration in units where factories emerged. Sources: Mapped in Bangladesh (MiB) Project by the Center for Entrepreneurship Development (CED); Land Cover data from the European Space Agency (ESA).

These findings support the hypothesis that exogenous market shocks create income incentives that drive urban migration. Specifically in Bangladesh, individuals are more likely to

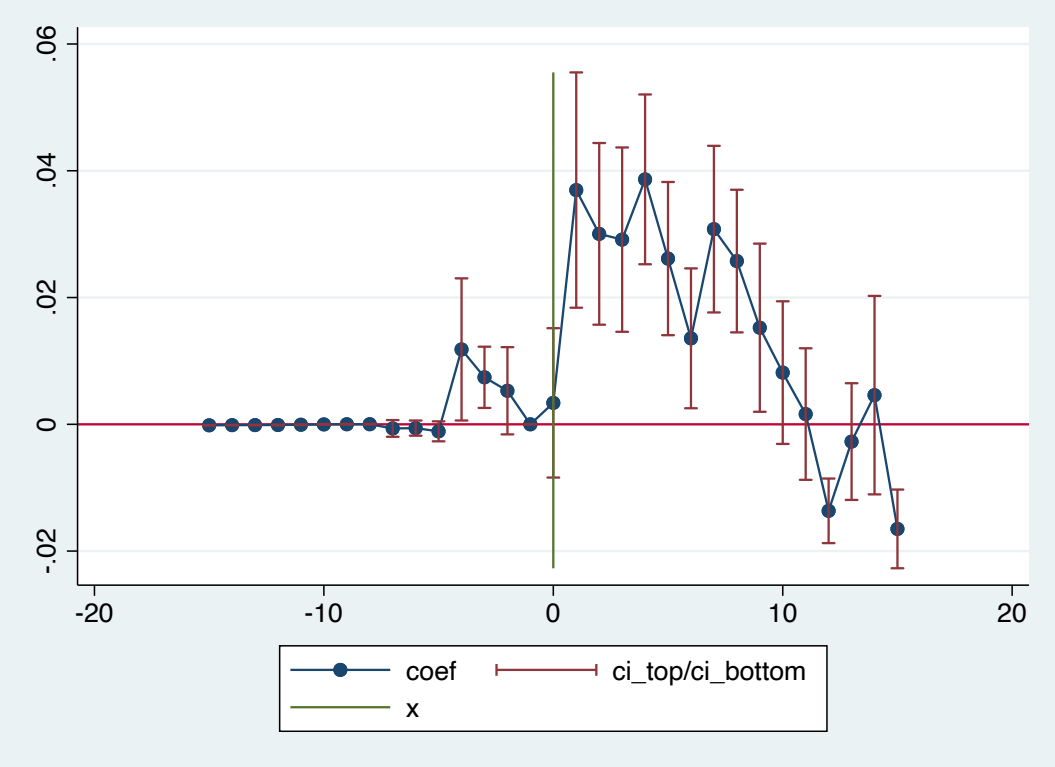
migrate to urban areas when faced with the opportunity to improve their income through employment in the RMG industry. These results have important implications for understanding the motivations and mechanisms behind climate-related migration and destination patterns.

Economic Conditions and Urban Unrest

Drawing on specification from Equation (2), I estimate the impact of the interaction between the presence of urban migration and negative economic shocks on urban unrest. I capture this using the *RMG factories* to account for migration and *global food prices* to capture negative economic shocks. Figure 23 illustrates the event study plot for the Triple Difference model, portraying the subsequent trend in urban unrest over time.[11] Observations show variability in the couple of years preceding the treatment, possibly influenced by an anticipation factor tied to expectations and speculations concerning future economic conditions and their effects on unrest. Nevertheless, following the treatment, there is a noticeable increase in the propensity for urban unrest, which subsequently declines in the following years. This pattern suggests that the relationship tends to diminish as the population gradually recovers from the scarcity experienced during the intervention period.

[11] Additionally, there might be some observed variability in the later periods for two reasons. First, some units introduce price-stabilizing policies following urban unrest, this could create some spuriousness as these policies are implemented differently among units over time. Second, the nature of the data means that observations start dropping in later periods because of the staggered treatment model. The post-intervention time periods are different among observations.

Figure 23. Event Study Plot of Treatment on Urban Unrest



Note: This figure illustrates the results of the DDD (Hypothesis 2) analysis in an Event Study Plot. The x-axis represents a time period spanning 15 years before and 15 years after the treatment. On the y-axis, the Average Treatment Effect of the Treated (ATT) is depicted. Notably, following the intervention, a distinct effect emerges, showing an increase in urban unrest during times of economic scarcity, particularly in units that have undergone urban migration. Sources: Mapped in Bangladesh (MiB) Project by the Center for Entrepreneurship Development (CED); Word Food Programme (WFP); GDELT Real-time Event Database; 95% Confidence Intervals Shown.

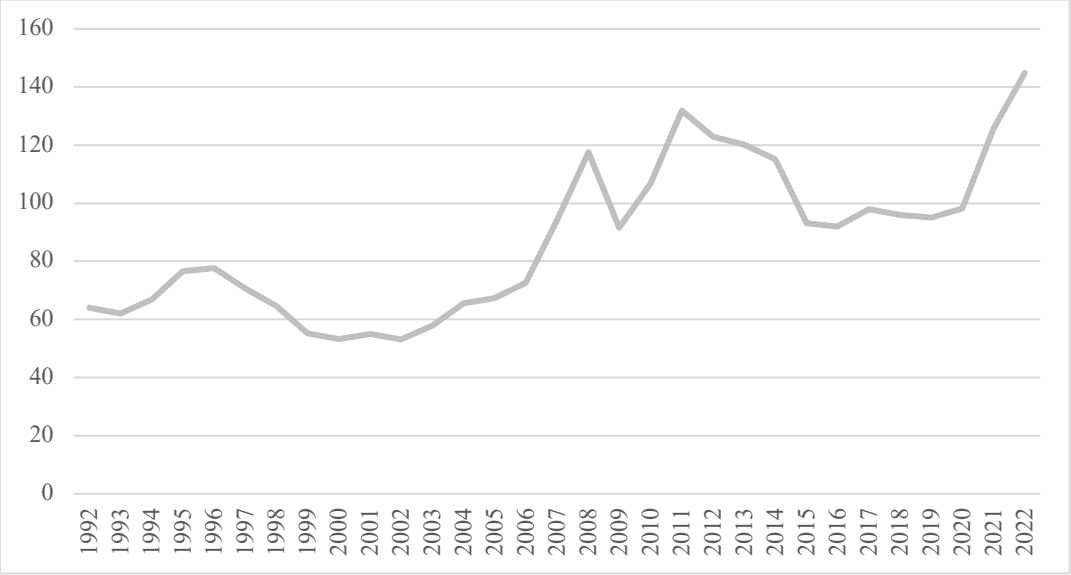
In this model, a more pronounced increase in urban unrest in the immediate years following the intervention is observed, with a subsequent tapering off over time. These findings align with intuitive expectations. The pooled ATT estimate across the sample is statistically significant, indicating that in the first 5 years after the treatment, economic scarcity represented by food price shocks leads to a substantial 32.2% increase in urban unrest. In the 10 years following the treatment, the total average effect diminishes to a 35.4% increase.

These estimates provide compelling evidence supporting the second hypothesis that negative price shocks contribute to urban unrest. More specifically, particularly in areas that

have experienced significant migration, negative economic shocks act as catalysts for urban unrest. These findings have implications for understanding how climate events can indirectly contribute to social unrest through their impact on migration patterns. Moreover, these results challenge the conventional narratives that attributes urban unrest solely to the presence of migrants, highlighting the nuanced nature of the migration implications.

To dig deeper into these findings on how migration exacerbates negative economic conditions, Figure 24 depicts the trend of global food prices over time, revealing a significant spike in the 2009 period. This period serves as an example of a negative economic shock within the analysis.

Figure 24. Global Food Prices (1992-2022)

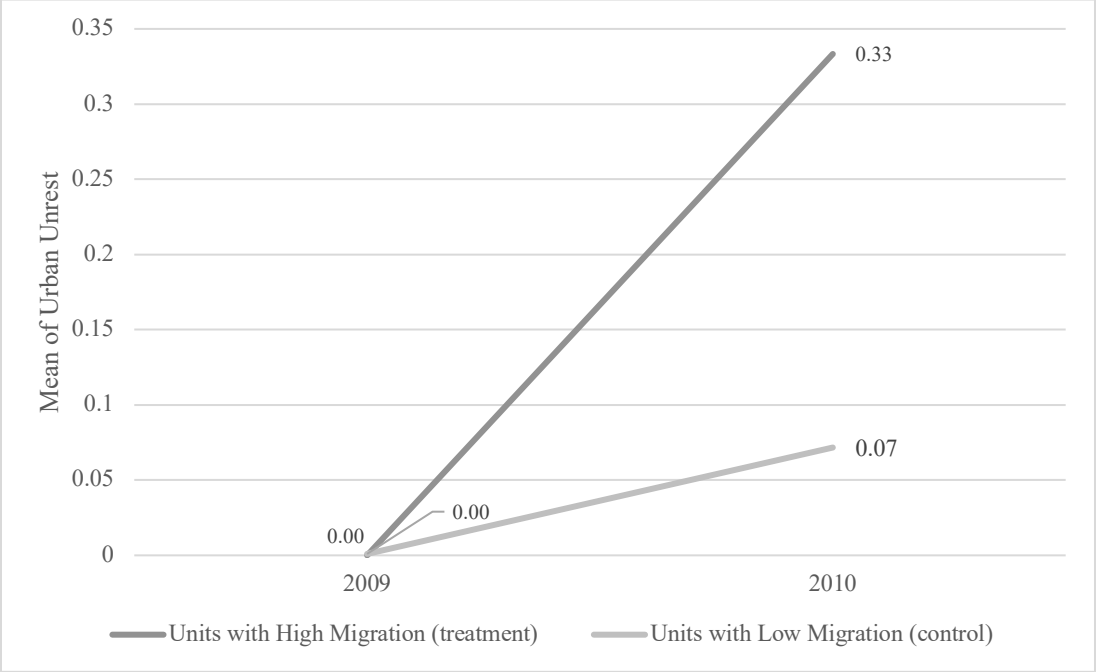


Note: Data from the Food and Agriculture Organization of the United Nations. Unit shown on y-axis is FAO Index Points while unit shown on x-axis indicates years from 1992-2022. Various "shocks" are noted, particularly in the 2009, 2012 , and 2022 years.

In Figure 25 below, the difference in means between the treatment group (units with factories, signifying high migration) and the control group (units without factories, signifying low migration) is compared during two distinct periods: 2009 (a period characterized by a

favorable economy based on global food prices) and 2010 (a period marked by an unfavorable economy based on global food prices). This allows for examination of the differing effects of a downturn in the economy on urban unrest in regions with high migration as opposed to regions with low migration.

Figure 25. Differences of Means in Unrest in Units with High and Low Migration



Note: This figures shows the Difference in Means of Unrest in Bangladesh Administrative Level 4 Units that were treated (indicated by high levels of migration) and controlled (indicated by low levels of migration) for the food price shock era spanning between 2009 and 2010. While each group experiences an increase, the effect of the treatment group is much more pronounced. Source: GDELT Realtime Event Database, Mapped in Bangladesh (MiB) Project

The numbers presented in Figure 26 provide support for employing the triple difference model. They indicate that during the period of favorable economic conditions (2009), the difference in urban unrest between the treatment and control groups is minute. However, during the period of adverse economic conditions (2010), the discrepancy in urban unrest between these groups becomes more pronounced, even though each experiences an increase in urban unrest. These results suggest that negative economic shocks have an amplified influence on urban unrest

in areas experiencing high levels of migration.[12] This finding emphasizes the nuanced nature of migration implications and challenges the conventional narrative that attributes urban unrest solely to the presence of migrants.

This analysis demonstrates the causal effect of income drivers on urban migration, specifically the impact of RMG factories in Bangladesh. The emergence of these factories significantly increases urban migration, indicating the influence of income incentives. I also find that negative economic shocks, particularly in areas with significant migration, act as catalysts for urban unrest. These results challenge simplistic narratives of the relationship between migration and conflict and emphasize the complex relationship between migration, economic conditions, and social unrest. These findings contribute to a comprehensive understanding of the motivations and consequences of urban migration and urban unrest, offering insights for policymakers addressing these complex challenges.

Discussion and Robustness

Above, I outlined the primary outcomes of the DID and DDD models, which provided a clear understanding of the findings. I estimated the causal effect of income drivers on urban migration, focusing on the emergence of RMG factories in Bangladesh. I have provided compelling evidence that the presence of RMG factories leads to a significant increase in urban migration. These findings have implications for understanding climate-related migration and destination patterns. Furthermore, I examined the relationship between economic conditions, urban migration, and urban unrest. By analyzing the interaction between urban migration, negative economic shocks, and urban unrest, I found that economic scarcity, represented by food

[12] An exploration of the predictive power of migration alone in relation to unrest revealed no significant association and is denoted in the subsequent section.

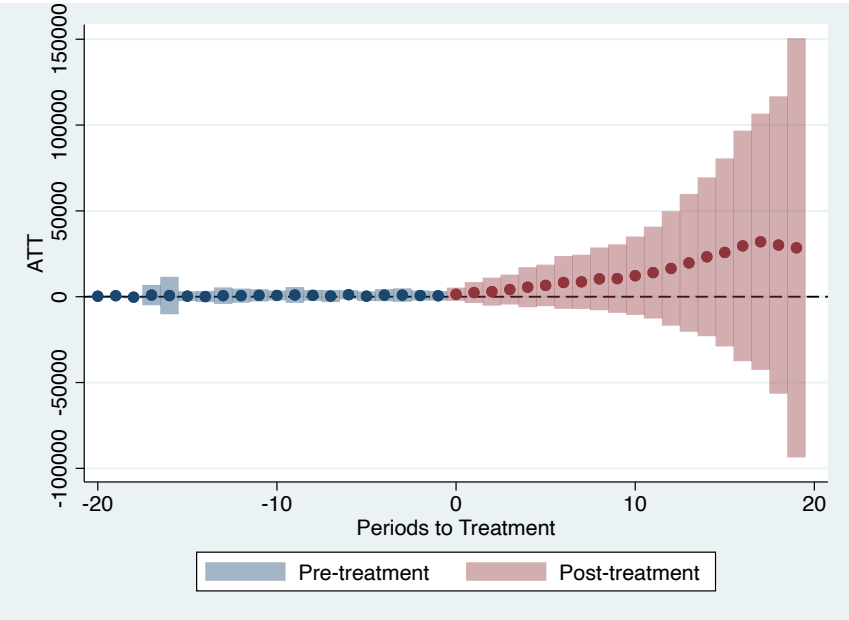
price shocks, contributes to increased urban unrest. This finding challenges the conventional narrative that attributes urban unrest solely to the presence of migrants and highlights the nuanced nature of migration implications.

To strengthen the robustness and accuracy of the observed effects, the following section delves into the utilized measures and models. I begin by discussing the utilization of the Urban Proportion measure to capture urban migration. Subsequently, I examine the year outliers observed in the hypothesis concerning urban migration. Finally, I address the adoption of the Triple Difference model in the analysis of the urban unrest hypothesis, highlighting the inadequacy of the simple DID model (accounting only for migration) in explaining urban unrest. In this discussion, I aim to strengthen the reliability and validity of the research findings.

Urban Migration Measurement. The use of the urban proportion measure to assess urban migration is well-justified. A slight temporal delay in the impact of urban proportion increase following the emergence of factories provides additional evidence supporting the connection between urban growth and subsequent housing demand (see Figure 22 above). Furthermore, alternative geospatial measures for accounting migration pose certain challenges. One such measure involves considering the percent change in population count within a given year, using data from WorldPop. Overall, this measure is less suitable and yields less reliable data, particularly for the small units analyzed in this study, due to the absence of accounting for other population flows such as outmigration and births. Additionally, since the analysis covers a period with only one census despite a significant amount of internal mobility, the data from WorldPop provides only estimates, whereas the ESA Urban Land Cover data offers real-time and precise land cover information, which is more accurate and better aligns with this the conceptualization of urban migration and subsequent urban buildup. However, the WorldPop

Population Count data can still provide supplementary evidence of meeting the parallel trends assumption. Figure 26 demonstrates the stability of the pretrends in the pre-treatment period based on the Population Count data.

Figure 26. Population Count Support for the Parallel Trends Assumption

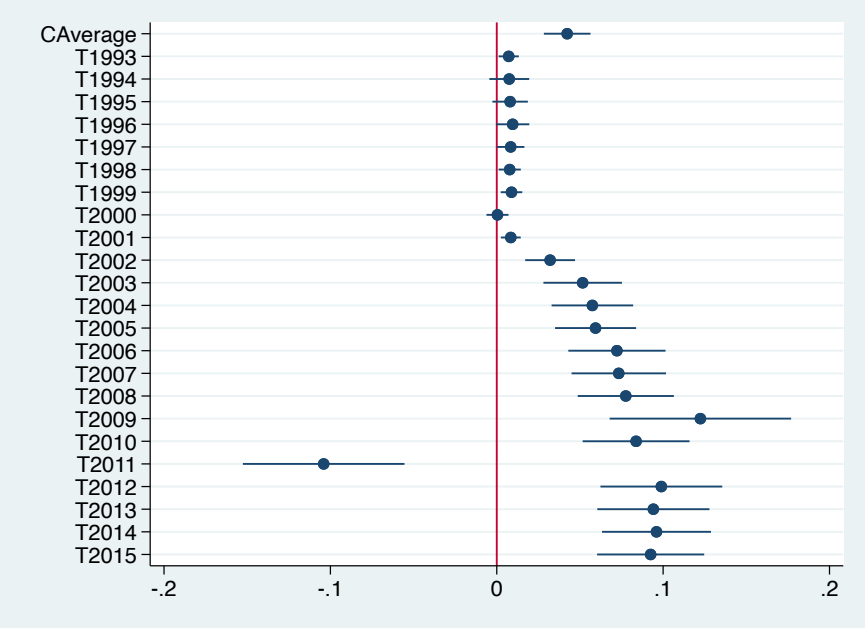


Note: This figure shows the confidence intervals and ATT using Population Count data. While the post-treatment period is unintuitive, the Figure indicates stable pretrends in the pre-treatment period providing support for the parallel trends' assumption in this analysis. Sources: Mapped in Bangladesh (MiB) Project by the Center for Entrepreneurship Development (CED); WorldPop UN-Adjusted Population Counts (100m resolution)

Temporal Variation in Hypothesis 1. The initial motivation behind this research stems from the wage laws implemented in China, which led numerous garment companies to relocate to Bangladesh, particularly during the 2008-2009 period. Examining the coefficients by year in Figure 27, a slightly greater increase in the urban proportion is observed in 2009 when compared to other years. This distinction may be attributed to the price shock experienced by the RMG industry and the subsequent relocation efforts. Furthermore, when examining temporal variation, 2011 appears to be a distinct outlier. The underlying reasons for this marked anomaly are

unclear. There might be some spurious factors influencing this outcome, which could be addressed in future research endeavors to provide a qualitative explanation for this phenomenon.

Figure 27. Hypothesis 1 Pooled ATT by Year

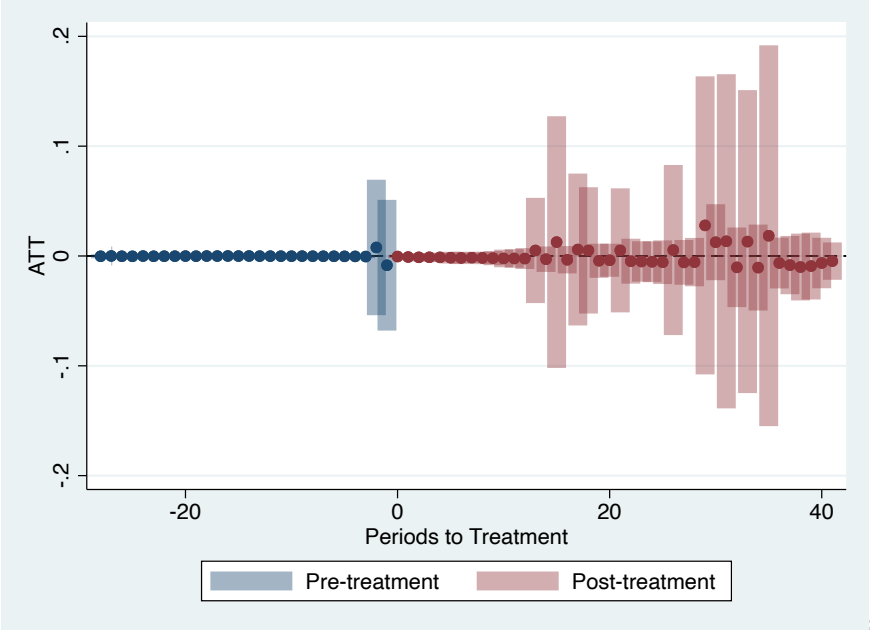


Note: This figure shows the coefficients of the DID analysis in H1 pooled by year from 1993 to 2015. The purpose of this is to show potential outliers in the trends of migration in given years of factory emergence. Sources: Mapped in Bangladesh (MiB) Project by the Center for Entrepreneurship Development (CED); Land Cover data from the European Space Agency (ESA)

Why The Triple Difference Model? Building on prior evidence suggesting that population growth contributes to protests (Dorward & Fox, 2022), the initial estimation involved a simple DID model, where urban migration, as captured by factory emergence, was used to predict instances of unrest. However, Figure 28 indicates counterintuitive trends observed in this basic DID model. The pre-treatment issues arise due to the unique development of time-varying confounding factors that influence urban unrest within the treatment and control groups separately. This finding underscores the need for greater precision in the model. Drawing from existing literature, an additional explanatory factor, namely food price shocks, was introduced to capture the exogenous nature of negative economic shocks contributing to urban unrest

conditions in both areas with and without RMG factories. This resulted in the triple difference model presented in the main analysis above.

Figure 28. Impact of RMG factory presence on Urban Unrest Events



s

Note: This figure shows the results of the DID analysis of factory emergence and unrest. The purpose of this figure is to shoe that there is no direct effect between migration on unrest. Rather, as the DDD shown for Hypotheses 2 indicates, economic scarcity is a necessary condition linking migration to unrest. Sources: Mapped in Bangladesh (MiB) Project by the Center for Entrepreneurship Development (CED); GDELT Real-time Event Database

The findings provide valuable insights into the motivations and consequences of these phenomena, with implications for both academic research and policymaking. First, the study highlights the role of income incentives in driving urban migration. By focusing on the income drivers via the emergence of RMG factories, the analysis demonstrates a clear and significant increase in subsequent urban migration. This finding contributes to our understanding of how economic factors shape migration patterns and provides empirical evidence supporting the link between income drivers and urban migration. This finding adds to the broader literature on the political economy of migration and contributes to debates on the relationship between economic

conditions and population movements. Furthermore, it provides some insight as to when climate-affected populations may also choose to migrate, given situations where migration is optional.

Secondly, the study challenges conventional narratives about migration and conflict by examining the relationship between migration, negative economic shocks, and urban unrest. The analysis reveals that economic scarcity, represented by food price shocks, acts as a catalyst for urban unrest, particularly in areas experiencing significant migration. This nuanced understanding of the factors contributing to social unrest adds depth to our knowledge of the complex interactions between economic conditions, migration, and political and societal stability. It also offers insights into the role of economic factors in shaping social movements and protests, contributing to the broader literature on the political consequences of economic shocks.

Moreover, the study employs rigorous measures and models to enhance the reliability and validity of the findings. By utilizing the Urban Proportion measure and other in-depth novel data, and employing the Triple Difference model as needed, the analysis provides robust evidence of the causal effects in the models. Overall, this study significantly advances our understanding of the relationship between income drivers, urban migration, and urban unrest. By shedding light on these dynamics in the context of Bangladesh, the findings have implications for both academic research and policymaking. They contribute to the broader political science literature by providing causal evidence, challenging conventional narratives, and offering insights into the complexities of migration and social unrest. These contributions will inform future studies and guide policymakers in addressing the challenges posed by urban migration and social stability.

Conclusion

In conclusion, this chapter addresses the question of whether economic factors drive migration and unrest in MIMC countries. Existing research predominantly focuses on emigration

and large-scale conflict, neglecting the distinct nature of economic drivers in MIMC countries and their impact on recently industrialized urban centers. While climate-related disturbances in rural communities play a role in migration decisions, this study demonstrates that economic conditions are a significant causal driver, as evidenced by cases in Lebanon, Benin, and Guatemala (see Chapters 3 ad 4).

The findings contribute to the broader scholarship on migration and unrest by providing causal evidence of the impact of positive and negative market shocks on migration and unrest challenging existing theories and expanding our understanding of when climate-affected populations choose to migrate and potential consequences of migration depending on economic conditions. The study validates the economic scarcity framework as a key determinant of migration for both climate-affected and non-climate-affected migrants. Moreover, it causally reveals that income-related market drivers play a crucial role in migration decisions, making a significant contribution to our understanding of gradual climate events and their driving forces. This insight has implications for adaptation policies aimed at stabilizing income for these vulnerable groups.

The study highlights the underdeveloped literature on gradual climate refugees, which primarily focuses on climate disasters causing immediate displacement. However, it is crucial to address the significant proportion of climate refugees who are economically affected by climate change. Furthermore, the study reveals that even in countries like Bangladesh, where climate displacement is prevalent, external market shocks can exacerbate economic scarcity and contribute to urban unrest. These findings challenge the effectiveness of urban migration as a self-adaptation tool in response to climate events and underscore the need for external funding

and economic stabilizing measures to mitigate the precarious migration crises faced by countries like Bangladesh.

The research sheds light on the broader causal pathway emphasizing the role of economic discontent and unrest, particularly in areas with recent urban migration and a strong factory presence, indicating income-related motivations for migration. This finding aligns with the theory that migrants, primarily seeking economic security and stability, may experience heightened grievances and a propensity for unrest when these expectations are not met due to disruptions in their income security, especially considering the initial costs associated with migration. This underscores the causal link between income-related factors and migration decisions, as presented in the theoretical framework of Chapter 2. It also underscores the significance of this understanding when examining how climate-related events can exert pressure on local income sources, making migration a more attractive option.

In conclusion, this chapter fills a crucial gap in clarifying the role of economic factors in driving migration and unrest in MIMC countries, and how migration does not alone explain unrest. The findings contribute to the broader political science literature by providing empirical evidence, challenging existing theories, and emphasizing the need for targeted policies to address economic stability and urban unrest in the context of climate-related migration and urban migration in general. These contributions have significant implications for policymaking and call for increased attention and support for countries facing complex migration challenges.

CHAPTER 6

CONCLUSION

In an era dominated by the looming threat of climate change, understanding the complex relationship between climate events, migration, and conflict has become an imperative task. This dissertation aimed at filling critical gaps in our understanding of this intricate nexus by disentangling the causal pathway in the climate-conflict relationship and refining causal mechanisms and measurements. By adopting a mixed methods analysis, this research has provided a comprehensive and interdisciplinary understanding of how climate change interacts with socio-political and economic factors to shape urban unrest patterns. Particularly, this study has aimed to shed new light on the role of economic drivers in the climate-migration-unrest interplay, recognizing their significance in shaping social outcomes. By integrating economic scarcity as a central component, this research has advanced our knowledge of the climate-conflict relationship and its underlying complexities.

The findings of this study have demonstrated that, while climate change itself may not directly cause large-scale armed conflict, the competition for scarce resources resulting from climate events can produce conflict of a specific nature. Certain climate events, particularly those related to water scarcity, have the potential to deplete critical resources for livelihoods and development, creating conditions conducive to conflict. However, resource depletion alone is insufficient to trigger conflict. Migration, driven by economic factors and the availability of opportunities, plays a crucial mediating role in transforming resource scarcity into conflict dynamics. By bridging the gap between climate events and unrest outcomes, migration amplifies the discontent and tensions arising from economic scarcity, ultimately leading to social unrest and conflict.

Theoretical Contributions

This dissertation has made significant theoretical contributions to the field of? by building upon the theory presented in Chapter 2. It expands on the existing literature by incorporating economic scarcity as a central tenet in the causal pathway linking climate events, migration, and conflict. By recognizing the significance of economic drivers in shaping social outcomes, this analysis goes beyond the predominant emphasis on resource scarcity in previous studies. It highlights how economic factors compel individuals and communities to move following a climate event, with migration acting as a key driver in the climate-conflict relationship. This finding underscores the indirect nature of the effect, as migration serves as a response to economic challenges arising from climate-induced scarcity. Moreover, the research underscores the critical role of governments in mitigating the effects of economic scarcity following climate events. It emphasizes the government's responsibility in addressing discontent and ensuring equitable redistribution during times of scarcity. By highlighting the government's role in managing economic challenges, this analysis draws attention to potential policy interventions and actions that can prevent or alleviate conflicts arising from climate-induced economic scarcity. Additionally, the research approach used contributes methodologically to the field. The combination of within-case analyses and quasi-experimental analyses allows for a comprehensive examination of the mechanisms at play in the relationship between climate events, migration, economic scarcity, and conflict. This mixed-method approach provides robust and nuanced insights into the complex dynamics of the climate-conflict nexus, particularly emphasizing the mediating role of migration and the predominance of economic drivers.

Overall, this dissertation makes significant theoretical contributions by identifying economic scarcity as a central condition linking climate and conflict. It recognizes migration as a

crucial mediating factor, primarily influenced by economic considerations, and emphasizes the government's role in responding to economic challenges. These distinctions enhance our existing understanding of the subject matter and provide valuable insights for policymakers and researchers aiming to comprehend and mitigate the potential repercussions of climate change on urban unrest. Additionally, the incorporation of quasi-experimental analysis in this study fills a crucial gap in previous scholarship by allowing for causal inference. This approach goes beyond the traditional focus on case-level relationships and provides a broader understanding of the interplay between climate change, migration, and unrest. By adopting this rigorous analytical framework, the study contributes to a more comprehensive exploration of the topic, further advancing our knowledge in this field.

Attending to the Mechanism

In Chapters 3 and 4, an array of diverse case studies from countries with varying levels of climate change vulnerability, migration, and urban unrest have been examined, providing valuable insights into the intricate dynamics of this relationship. These case studies have shed light on the underlying mechanisms and contextual factors that determine the diverse outcomes of climate-related events and their potential to incite social unrest.

For example, countries such as Bangladesh, highly susceptible to climate disasters, have witnessed large-scale climate migration, which has strained limited resources and contributed to social tensions and unrest. The case of Bangladesh demonstrates how the combination of climate vulnerability, economic scarcity, and rapid urbanization has created a complex web of challenges. The influx of climate migrants seeking refuge in already densely populated urban areas has exacerbated competition for resources and led to heightened social tensions. These pressures have contributed to various forms of urban unrest, highlighting the need for effective

policies and interventions to address the multifaceted consequences of climate-induced migration.

Conversely, other countries like Guyana, despite facing similar climate challenges, have managed to mitigate the effects of climate events and minimize climate-induced migration and subsequent unrest or conflict. Guyana's proactive measures, including investment in water management systems, mangrove rehabilitation, and effective resource allocation, have helped alleviate the pressures of climate change on its population. By recognizing the importance of targeted interventions and adaptive strategies, Guyana has successfully reduced the likelihood of climate-induced migration and the potential for unrest arising from resource scarcity.

By synthesizing the insights from these case studies, a more comprehensive understanding of the interplay between climate, migration, and unrest emerges. Economic factors and sector-specific vulnerabilities play a crucial role in shaping the outcomes of climate-related events. For instance, the agricultural sector's vulnerability to drought in Guatemala has led to rural-urban migration, contributing to urbanization pressures. Similarly, Croatia's tourism industry, affected by rising sea levels and coastal erosion, has experienced economic challenges that, if not addressed through government policies and interventions, could have led to migration-driven unrest.

Furthermore, the case of Lebanon highlights how urban migration can strain economic resources and foster government discontent and unrest, even in the absence of climate-induced scarcity. Tunisia underscores the significance of economic-related grievances as drivers of urban unrest, demonstrating that conflict dynamics can be shaped by factors beyond climate alone. These case studies emphasize the intricate relationship between economic scarcity, migration,

and unrest, illustrating that migration acts as a mediating factor in exacerbating existing grievances and tensions.

Overall, the diverse case studies examined in Chapters 3 and 4 of this dissertation have provided invaluable insights into the complex interplay between climate, migration, and unrest. Countries with varying levels of climate vulnerability and adaptive capacities have demonstrated diverse outcomes, highlighting the importance of context-specific interventions. Economic factors, sector-specific vulnerabilities, government responses, and proactive measures have emerged as key determinants in shaping the consequences of climate-related events. By synthesizing these findings, policymakers and stakeholders can develop targeted strategies and interventions that address the multifaceted challenges posed by climate change, migration, and urban unrest.

Main Findings

Chapter 5 of this study presents a noteworthy examination of the refined causal pathway, particularly focusing on the economic scarcity component. It sheds light on the complex interplay between economic conditions, urban migration, and urban unrest, challenging existing narratives that oversimplify the connection between migration and conflict. By employing difference-in-differences models, the chapter provides a robust causal analysis, offering compelling evidence of these relationships and facilitating a nuanced understanding of the underlying mechanisms at work. The insights provided in Chapter 5 contribute significantly to our understanding of the intricate dynamics involved, moving beyond surface-level assumptions, and enriching the discourse on migration and conflict.

The chapter begins by examining the significance of income-related drivers in shaping urban migration decisions and their subsequent implications for urban unrest. Specifically, it

highlights the causal role played by economic conditions, emphasizing the emergence of factories as influential income-related drivers of migration. The study reveals how economic opportunities provided by factories act as incentives for individuals to migrate to urban areas in search of better livelihoods. By unpacking the motivations and consequences of urban migration and their connection to urban unrest, these findings provide crucial insights for policymakers grappling with the complexities of these challenges.

Moreover, the chapter delves into the analysis of the interaction between urban migration, negative economic shocks (specifically food price shocks), and urban unrest. In contrast to prevailing beliefs that solely attribute urban unrest to the presence of migrants, the study uncovers a more nuanced understanding. It highlights the role of economic scarcity resulting from adverse economic shocks as a significant contributor to heightened levels of urban unrest. By revealing the crucial role of economic scarcity, driven by negative economic shocks, in exacerbating urban unrest, the research emphasizes the need to move beyond simplistic explanations and consider the complex interplay between economic factors and social tensions.

By illuminating the relationship between economic conditions and urban unrest, this chapter challenges prevailing assumptions and opens new avenues for understanding the multifaceted nature of unrest in urban areas. The research contributes to a comprehensive understanding of the motivations and consequences of urban migration and urban unrest, providing policymakers with a deeper understanding of the complexities they must address. By recognizing the role of economic scarcity and income-related drivers in shaping migration decisions and subsequent social tensions, policymakers can develop more effective strategies to mitigate the risks of urban unrest. The use of difference-in-differences models in this analysis

strengthens the causal evidence and enhances the robustness of the findings, enabling a more confident assessment of the relationships at play.

Policy Implications

The contributions of this research are many. By addressing measurement complexities, reevaluating causal mechanisms, and exploring alternative explanations, this dissertation has provided a more comprehensive understanding of the climate-conflict relationship. The integration of mixed methods analysis, combining qualitative insights with quantitative data, has offered a holistic and robust understanding of this complex phenomenon. Moreover, this research has advanced existing knowledge by incorporating data innovations, refined causal pathways, and models which allow for causal inference.

These findings have significant policy implications. Policymakers need to prioritize proactive measures that address resource availability, employment opportunities, and income disparities. By recognizing the economic dimensions of climate change and incorporating them into climate change adaptation efforts, policymakers can foster climate resilience. This includes investments in sustainable industries, the creation of employment opportunities, and the implementation of social protection measures to alleviate discontent arising from economic scarcity. This is mostly in response to the idea of mitigating tangible resource scarcity while ensuring income stability.

To this end, policymakers could consider implementing policies such as:

1. Developing renewable energy initiatives and supporting the growth of green industries to create employment opportunities and reduce dependency on finite resources. This follows with the income diversification finding.

2. Implementing social safety nets and income support programs to mitigate the impact of economic shocks caused by climate events, particularly in vulnerable communities. This could also be in the case of forced climate displacement and the subsequent urban buildup.
3. Enhancing education and skill-building programs to equip individuals with the necessary capabilities to adapt to changing economic conditions and promote livelihood diversification.

Furthermore, the role of governance and institutions in shaping the outcomes of climate-induced migration and urban unrest is imperative. Effective governance, responsive policies, and well-functioning institutions play a crucial role in addressing the challenges posed by climate change and promoting economic stability and resilience. This stability works to mitigate both migration and unrest. Policymakers should focus on strengthening governance mechanisms, enhancing institutional capacity, and implementing measures that foster adaptive capacity and sustainable development.

In this regard, policymakers could consider the following policy proposals:

1. Establishing robust mechanisms for monitoring and early warning systems to anticipate and respond to climate-related migration patterns and potential conflict risks.
2. Investing in capacity-building initiatives for local governments and communities to enhance their ability to manage migration flows, provide adequate infrastructure, and ensure inclusive urban planning.
3. Promoting participatory decision-making processes that involve local communities and stakeholders in shaping policies related to migration, resource management, and conflict prevention.

By implementing these policy proposals, policymakers can begin to effectively manage the complexities of urban migration and urban unrest, creating sustainable and inclusive urban environments while addressing the challenges posed by climate change.

While this study has primarily focused on rural to urban internal migration, which is the most prevalent form of climate migration, it has not yet explored the dynamics of rural-to-rural migration. Further investigation into this type of migration is warranted. However, the policy proposals outlined in this work, such as increasing adaptive capacity, engaging community-level decision making, and implementing social safety nets, should also be applicable to address the challenges associated with rural-to-rural migration. Furthermore, with the escalating severity of climate migration, it is probable that there will be an increase in transnational migration. The implications of this trend are already under debate, particularly considering the limitations of the current refugee and asylum system. Therefore, it is crucial to conduct empirical analysis to gain a more comprehensive understanding of the intricacies of transnational climate migration in future research. By exploring these dynamics, effective strategies and policies can be developed to address the needs of individuals impacted by climate-induced displacement on a broader scale.

In conclusion, this dissertation fills critical gaps in our understanding of the climate-conflict nexus, migration, and policy responses. It highlights the role of economic drivers in shaping social unrest patterns and emphasizes the mediating role of migration in transforming resource scarcity into conflict dynamics. By analyzing the interplay between climate events, migration, and unrest, the research provides insights into the complexity of these relationships. Diverse case studies and my empirical analyses illustrate the importance of economic factors and sector-specific vulnerabilities in shaping outcomes. The findings challenge simplistic narratives and reveal the causal role of economic conditions in shaping migration decisions and urban

unrest. This research emphasizes the need for proactive measures to address resource availability, employment opportunities, and income disparities. Strengthening governance mechanisms and promoting participatory decision-making processes are crucial for managing the challenges of climate-induced migration. Ultimately, this research enhances our understanding of the climate-conflict nexus and provides valuable knowledge for scholars, policymakers, and other stakeholders. The mixed methods analysis and diverse case studies contribute to the robustness and comprehensiveness of the findings. Scholars, policymakers, international organizations, NGOs, and local communities must collaborate to address the challenges posed by climate change and foster sustainable outcomes in the face of migration and unrest.

APPENDIX A

SPECIFICATION OF ‘MIDDLE INCOME-MIDDLE CAPACITY’

MIDDLE INCOME

- Source: World Bank
- Measurement
    - The world's Middle Income Countries (MICs) are a diverse group by size, population, and income level. They are defined as lower middle-income economies - those with a GNI per capita between $1,036 and $4,045; and upper middle-income economies - those with a GNI per capita between $4,046 and $12,535 (2021).

MIDDLE CAPACITY

- Source: The Worldwide Governance Indicators, 2020 Update
- Measurement
    - Voice and Accountability; Political Stability and Absence of Violence/Terrorism; Government Effectiveness; Regulatory Quality; Rule of Law; and Control of Corruption
    - In each category, I took the middle two quartiles (the middle 50%) of countries and then took each of these lists of countries within each category and synthesized them into one list if that were included in at least 4 of the 6 categories.

I then took my middle income and middle capacity lists and created a union list of countries that were shared by each. These are the cases that I drew from when categorizing my climate, migration, conflict grid. I also looked at my cases in my middle-income/middle-capacity list to narrow down the countries listed in that they didn't fully complete their industrial revolutions yet.

APPENDIX B

VARIABLE AVERAGES IN MIMC COUNTRIES VS. WORLD

	Middle Income, Middle Capacity Countries	All Countries
RESOURCE VARIABLES		
Annual freshwater withdrawals in agriculture	57.06	53.56
Annual freshwater withdrawals, total	209.4	124.55
URBAN VARIABLES		
Urban population (% change of total population)	57.38	57.3
Urban Unrest	1.94	1.88
GOVRNMENT CAPACITY VARIABLES		
Control of Corruption	-0.25	-0.03
Government Effectiveness	-0.07	-0.03
Political Stability	-0.19	-0.02
Rule of Law	-0.19	-0.03
Voice and Accountability	-0.07	-0.02

APPENDIX C

ARAB BAROMETER WAVE V SELECTED SURVEY QUESTIONS, LEBANON

Lebanon, Arab Barometer Wave V (2018)

- Climate Change
    - Q108. How serious a problem do you think the following issues are: Is [Climate change] a very serious problem, a somewhat serious problem, not a very serious problem, not at all a serious problem?
        - Climate Change
            - 26%-a very serious problem, 15%-a somewhat serious problem, 8%-not a very serious problem,2%- not at all a serious problem 49%-no answer
        - Air Quality
            - 28%-a very serious problem, 14%-a somewhat serious problem, 8%-not a very serious problem, 2%- not at all a serious problem 49%-no answer
        - Water Pollution
            - 33%-a very serious problem, 13%-a somewhat serious problem, 4%-not a very serious problem, 1%- not at all a serious problem 49%-no answer
- Migration
    - Q104a. People want to emigrate for different reasons. Why have you thought about emigrating?
        - 15% For economic reasons 1% For political reasons 0% Religious reasons 1% Security reasons 3% Education opportunities 0% Reunite with family 2% Corruption

- Protest
    - Q502_1. Here is a set of activities that citizens may take part in During the past three years, did you … Attend a meeting to discuss a subject or sign a petition.
        - 7% Once 8% More than once 85% I have never participated
    - Q502_2. Here is a set of activities that citizens may take part in During the past three years, did you … Participate in a protest, march or sit-in
        - 7% Once 9% More than once 84% I have never participated
    - Q502_4. Here is a set of activities that citizens may take part in During the past three years, did you … Used force or violence for a political cause
        - 3% Once 5% More than once 92% I have never participated
    - Q521. To what extent do you think that [Freedom to participate in peaceful protests and demonstrations] is guaranteed in your country?
        - 9% Guaranteed to a great extent 31% Guaranteed to a medium extent 31% Guaranteed to a limited extent 28% Not guaranteed at all
- Government Attitudes
    - Q201a. 1. I'm going to name a number of institutions. For each one, please tell me how much trust you have in them. Government (Council of Ministers)"
        - 2% A great deal of trust 17% Quite a lot of trust 34% Not a lot of trust 47% No trust at all
- Economic
    - Q2061A. What is the most important challenge facing [COUNTRY] today?
        - 44% Economic situation; 13% Financial and administrative corruption; 5% Democracy and representation/governance; 15% Public services

- Q2061B. What is the second most important challenge facing [COUNTRY] today?
    - 27% Economic situation; 19% Financial and administrative corruption; 3% Democracy and representation/governance; 19% Public services
- Q101. How would you evaluate the current economic situation in your country?
    - 5%Very good 13% Good 44% Bad 42% Very bad

APPENDIX D

WORLD VALUE SURVEY WAVE 7 SELECTED SURVEY QUESTIONS, BANGLADESH

Bangladesh, World Value Survey Wave 7 (2017-2020)

- Protecting the environment vs. economic growth
    - 48%- A: Protect environment 52%- B: Economic growth 1%- Other answer
- The government should take more responsibility to ensure that everyone is provided for
    - 27%- The government should take more responsibility to ensure that everyone is provided for, 13%- 2, 6%- 3, 7%- 4, 14%- 5, 7%- 6, 9%- 7, 7%- 8, 5%- 9, 5%- People should take more responsibility to provide for themselves

APPENDIX E

AFROBAROMETER ROUND 8 SELECTED SURVEY QUESTIONS, TUNISIA

Tunisia, Afrobarometer Round 8 (2020)

- Climate Change
    - Q72A. Have you heard about climate change, or haven't you had the chance to hear about this yet?
        - 62.5%=No, 33%=Yes,
    - Q72B. Do you think climate change is making life in Tunisia better or worse, or haven't you heard enough to say?
        - 2%=Much better, 4%=Somewhat better, 1%=Neither/no change/about the same, 14%=Somewhat worse, 12%=Much worse
- Migration
    - Q86D. For each of the following types of people, please tell me whether you would like having people from this group as neighbors, dislike it, or not care: Immigrants or foreign workers.
        - 13%=Strongly dislike, 8%=Somewhat dislike, 71%=Would not care, 5%=Somewhat like, 2%=Strongly like
    - Q68A. How much, if at all, have you considered moving to another country to live? "Not at all 0 A little bit 1 Somewhat 2 A lot 3"
        - 57%=Not at all 8%=A little bit 7%=Somewhat 28%=A lot
- Protest
    - Q11C. Here is a list of actions that people sometimes take as citizens when they are dissatisfied with government performance. For each of these, please tell me whether you, personally, have done any of these things during the past year. If not, would you do this if you had the chance: Participated in a demonstration or protest march?

        - 54%=No, would never do this, 34%=No, but would if had the chance, 6%=Yes, once or twice, 4%=Yes, several times, 1%=Yes, often

- Economic Attitudes
    - Q4A. In general, how would you describe: The present economic condition of this country?
        - 53%=Very bad, 21%=Fairly bad, 18%=Neither good nor bad, 5%=Fairly good, 3%=Very good
    - *Q50A. Now let's speak about the performance of the present government of this country. How well or badly would you say the current government is handling the following matters, or haven't you heard enough to say: Managing the economy?
        - 43%=Very badly, 24%=Fairly badly, 14%=Fairly well, 3%=Very well,

APPENDIX F

WORLD VALUE SURVEY WAVE 7 SELECTED SURVEY QUESTIONS, PERU

Peru, World Value Survey Wave 7 (2017-2020)

- Climate Change
    - Confidence in Environmental Organizations
        - 10%- A great deal, 34%- Quite a lot, 38%- Not very much 18%- None at all
- Migration
    - Immigrants:
        - Increase unemployment
            - 17%- Disagree 2%- Hard to say 81%- Agree
        - Lead to social conflict
            - 17%- Disagree 4%- Hard to say 79%- Agree
- Government
    - Confidence in government
        - 2%- A great deal 9%- Quite a lot 31%- Not very much 58%- None at all
    - Does the political system allow you to have a say?
        - 9%- A great deal 23%- A lot 36%- Some 17%- Very little 15%- Not at all

APPENDIX G

RANDOMIZATION INFERENCE TEST

Resampling: Permuting Treatment						
Clusters: 232200						
Strata variable: Administrative Unit 1						
Strata: 8						
T	**T(obs)**	**c**	**n**	**p=c/n**	**SE(p)**	**[95% Conf.Interval]**
_pm_1	0.000	978	1000	0.978	0.005	.967 .986
Note: Confidence interval is with respect to p=c/n.						
Note: c = #{|T| >= |T(obs)|}						

APPENDIX H

HYPOTHESIS 1 POOLED ATT

	Coef	Std. err.	t	[95% conf.	interval]
ATT	0.054	0.009	6.130	0.037	0.072

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VITA

Dr. Elisa D'Amico attended the University of Loyola Chicago receiving her Ph.D. in 2023. She also attended Iowa State University from 2014 to 2018 receiving both her B.A. in Political Science and International Studies minoring in Spanish and Advocacy and her M.A. in Political Science with a certificate in Pubic Policy. During this time, she studied abroad at la Universitat de València and the University of Edinburgh where she also interned with the Scottish Parliament.

While at Loyola, Dr. D'Amico served in several roles including as the Vice President for the Graduate Student Advisory Council (GSAC) and as the Vice President for the Political Science Graduate Student Organization (PSGSA). She was also a Graduate Research Fellow at the Loyola Rule of Law Institute, a Research Affiliate at the Loyola Private Enterprise and Peace (PEP) Lab, a Gannon Center Graduate Research Fellow, and a Quantitative Research Fellow at the Institute for Racial Justice. She has also served as an invited speaker at Loyola's Solutions to Environmental Problems (STEP): Climate Action program. She has also served as a mentor in the Loyola Undergraduate Research Mentoring Program. Outside of Loyola, Dr. D'Amico has volunteered at RefugeeOne in the Chicagoland area and serves as an organizer for the Junior Scholars in International Security, Etc. (JSISE).

Currently, Dr. D'Amico works as a data scientist with Chicago Public Schools, as a consultant with St. Andrews University's PeaceRep team for the Global Fragmentation project, and on a project on the future of fisheries conflict under climate change with the World Wildlife Fund.