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CENTRAL AMERICAN COFFEE FARMERS´ MIGRATION TO THE USA: AN ANALYSIS OF THE MULTICAUSAL NATURE OF CLIMATE-DRIVEN MIGRATION

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Abstract: Unauthorized migration from Honduras, Guatemala, and El Salvador to the United States has become a major worldwide problem in the last 10 years. To disentangle the causes of recent Central American migration, this paper's research on the multi-causal nature of population migrations takes into account economic development, political instability, violence, and crime's impacts, and quickly changing gender roles. Drought has lately been researched as a major driver of migration in Central America's Dry Corridor by researchers and politicians, notably among coffee farmers in the region who have been badly impacted by extreme heat and lack of rain. Climate change intensifies the effects of natural disasters, thus acting as a force multiplier. Using secondary sources, including government reports, non-governmental organizations' briefs, and academic papers to analyze Salvadoran, Guatemalan, and Honduran coffee production, the purpose of this paper is to look into the influence of climate change as a stimulus for migration. Thousands of individuals who rely on coffee cultivation have already had their livelihoods destroyed and have been forced to migrate. With rising temperatures in the region, which is one of the most sensitive to the effects of climate change, the future is unknown. The study begins with an examination of the climate change-migration nexus, which is followed by an examination of the impacts of climate change on coffee production in this region. This paper will discuss how climatic factors along with political instability and the impact of violence explain recent Central American migration behavior to progress toward a comprehensive explanation of climate-driven migration.

Keywords: climate change, migration, Central America, coffee, USA

Introduction

Climate change is one of the most pressing environmental issues in the twenty-first century, as well as one of the most serious risks to humanity (Malhi, 2020). In 2018, the Intergovernmental Panel on Climate Change (IPCC) report stated that humans have significantly contributed to a global temperature increase of 1 degree Celsius (1.8 degrees Fahrenheit) above pre-industrial levels. Rising sea levels and severe weather patterns are among the several effects listed by the Panel (Intergovernmental Panel on Climate Change IPCC, 2018). The IPCC also cautioned that if temperatures rise by 2 degrees Celsius, there would be a greatly higher chance of droughts and precipitation shortages, as well as fewer cold nights, both of which can have long-term implications

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on agricultural productivity (2018:6). The most recent edition of the IPCC research, issued on February 28, 2022, warns that the globe is on track to hit 1.5 degree Celsius during the next twenty years. Only dramatic reductions in carbon emissions beginning now might help avert an environmental calamity (Pörtner et al., 2022).

Rising temperatures, more severe weather events, and increasingly unpredictable patterns — such as rain not falling or pouring when it should — have altered farmed crop growth cycles, reduced crop yield, or wiped out whole crops, leaving poor households impoverished (DeClercq et al., 2018). As climate change continues to endanger the world, one of the reactions to the multitude of effects associated with warmer temperatures is migration, one of the key characteristics of the twenty-first century (Carlarne et al., 2016).

Unauthorized migration from Honduras, Guatemala, and El Salvador to the United States, mainly on the southern border, has become a major political and humanitarian crisis in the last 10 years (Reichman, 2022). Untangling the reasons for current Central American migration patterns necessitates a multicausal examination of the influence brought by economic change, political instability, violence, and the effects of criminality, particularly gangs (Frank-Vitale & Heidbrink, 2021). Scholars and policymakers focus on the impact of drought in Central America's Dry Corridor, a semi-arid region, in this new regional analysis. As a result, the region's drought is a major cause of migration, notably among coffee farmers who have been heavily impacted by extreme heat and a lack of rain across the three nations.[1]

Climate change threatens the political stability of the Northern Triangle Dry Corridor (NTDC), particularly given agriculture's economic importance. As a consequence, this paper analyzes how climate change influences migratory patterns, which is known as the nexus between migration and climate change. This research focuses on the effects of climate change on coffee production in the NTDC, which encompasses El Salvador, Guatemala, and Honduras. Because they are located in the "Dry Corridor" and have major coffee production, among other agricultural businesses, these three nations are particularly sensitive to climate change.

Thousands of Salvadorans, Guatemalans, and Hondurans´ livelihoods have already been negatively impacted as they must contend with the growing severity of natural and man-made disasters, as well as the myriad long-term challenges associated with slow-onset processes (Bergholt and Lujala, 2019). Because migration from the NTDC has received extensive coverage in the public and scholarly research, coffee production as a case study inside the NTDC is analyzed to explain how slow-onset climatic change leads to migration.

Climate Change, Coffee Production, and Migration in Central America

As one of the most traded commodities worldwide, coffee also represents one of the NTDC economies' major exports (Lashermes et al., 2008). According to Mara Baca, Peter Läderach, Jeremy Haggar, Götz Schroth, and Oriana Ovalle's (2014) vulnerability assessment to climate change for coffee-growing families in Central America, over 4 million people in Mexico and Central America

[1] The Dry Corridor is an ecological region extending across the Central American Pacific coast countries including southern Mexico, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, and Panama (Gotlieb et al., 2019).

rely directly on coffee production for living, and the industry employs an estimated 8.5 million people. However, climate change is posing new challenges to global coffee production, especially in Central America since coffee is highly sensitive to weather variations. Over the last few decades, average temperatures in Central America have risen by about two degrees Fahrenheit thus forcing coffee production to move to areas at a higher altitude. Coffee producers in the region have warned that better plants have begun to blossom about two months ahead of schedule as a result of unusually heavy precipitation, thus increasing current worries about the entire growth cycle. As a result, some farmers have been forced to seek higher-altitude land, switch to different crops, change professions — or migrate.

The coffee plant is grown in Arabica and Robusta as the two main varieties (Lynch, 2019). Both are delicate and must be grown with care in specific regions around the world. Arabica accounts for 70% of the world coffee market, with the remaining made up of Robusta (and a few lesser-known kinds) (Haggar & Schepp, 2012). Because Arabica coffee beans are more fragrant and of higher quality than Robusta beans, corporations, and shops all over the world promote Arabica coffee beans as much as possible (Lingle & Menon, 2017). Arabica beans are often planted at greater altitudes than Robusta beans, which are primarily farmed in tropical highlands. Climate change poses a threat to both types of beans; however, Arabica, the more common variety, is more subject to rising temperatures and altering weather patterns (Adhikari et al., 2020).

Crops have lately been plagued by mottled yellow and brown coffee leaves, which indicate the existence of coffee rust, a disease whose growth is impacted by climate change. The spread of Coffee Leaf Rust (CLR) is jeopardizing coffee crops at alarming rates, particularly impacting Arabica coffee, now added to the endangered list drafted by the International Union for Conservation of Nature (IUCN), which notes that known threats are a result of climate change, such as habitat shifting and unprecedented droughts and temperature rises. This fungus has been prevalent in the NTDC region since the 1970s and has ravaged crops all across the world (Ward, Gonthier, & Nicholls, 2017). CLR causes the leaves to become bright yellow, then black, and reduces the quantity of cherries produced, causing the trees to perish within two years (Ogundeji et al., 2019). The intensity of CLR will rise as the planet's temperature warms (Bhutia, Lotha, & Petruzzello, 2018).

For millions of coffee farmers in the Central American region, especially from the NTDC, the only option left once their crops are ruined is to migrate elsewhere. Migration from Latin America and the Caribbean is increasingly travelling north to the United States or Canada as final destinations, according to the International Organization of Migration (IOM) (Audebert, 2017). The migratory corridor from Mexico to the United States is the greatest (transnational) migration route in the world (IOM, 2017). The vast bulk of this "migrant caravan" is made up of Central Americans who regard Mexico as a "transit country" through which migrants pass on their journey to the United States or Canada (IOM, 2017:79). It is worth noting that historical flows from both Mexico and Central America have consistently increased, implying that major migration along this route is not a new phenomenon. What is unusual, though, is the complicated interplay of driving elements of migration from the NTDC due to social, political, and economic factors, as well as less documented environmental causes.

Entrenched and growing systemic poverty, a lack of economic prospects, stifled social mobility, food instability, inequality, crime, violence, and state militarization are all factors driving migration from

El Salvador, Guatemala, and Honduras (Knox, 2018, 2019). The three countries' political histories are marred by authoritarian regimes and political repression, with Guatemala and El Salvador, in particular, having a long history of displacement that increased during times such as Guatemala's civil wars, which lasted from 1960 to 1996, and El Salvador's civil wars, which lasted from 1979 to 1992. At the same time, as a substantial push for migration, the desire for upward mobility in the United States, family reunion, and growing global connection may be solidified (Reichman, 2011, 2022). On the other side, many Central Americans, whether farmers or coming from urban settings are fleeing from their countries as they grapple with debts, the dangers of gang violence, gender inequality, political instability, and political corruption (Clemens, 2021).

The scoping literature review at the base of this research focuses on the climate change-migration nexus, particularly in the NTDC, which is facing severe climate change consequences despite its relatively minor contribution to overall root causes like carbon emissions. Violence is widely stated as the major cause for Central Americans to join "caravans" to seek safety in the United States in the NTDC area. However, depicting migration as a response to violence inside and beyond the area is far from comprehensive. This analysis documents the intricacies and interconnectivity of the different variables that impact people's mobility in this NTDC, with a particular emphasis on the effect of climate change in relation to decreasing coffee output, which resulted in significantly high levels of migration (Baca et al., 2014). In light of this, there are a few ways that coffee growers are being aided; nevertheless, those who are on the move for reasons beyond their control have minimal assistance and little chance of receiving international refugee status under international refugee law.

Materials and Methods

According to pertinent scholarship, climate change causes migration both directly and indirectly. As such, this paper is based on a literature review of the relationship between climate change and migration which needs to be studied further. Since 2014, climate change, namely the effect of drought in the NTDC, has been highlighted as a key cause of migration (Barrios, 2017). Drought-related crop failures, for example, can have extremely localized long-term economic implications for farmers who plant certain crops.

How can we tell whether migration in the NTDC is genuinely triggered by climate change in a setting where the multiple elements outlined above will confound simple explanations of cause and effect? To address the multi-cause character of NTDC migration, this paper conducts a review of the complicated interplay of the numerous elements that may or may not drive migration, in addition to being integrated with interdisciplinary data from social sciences research.

The literature review is combined with a regional framework for the analysis of coffee production in the NTDC to demonstrate how climate change affects people's movement (Ward et al., 2015). Experts from various disciplines have taken various approaches to studying the climate change-migration nexus. This paper incorporates Silja Klepp's (2017) ideas for politicizing and denaturalizing the climate change and migrant nexus by incorporating structural problems and a justice viewpoint presently missing from mainstream narratives and adaptation practice.

The project comprised a study of the literature on the climate change-migration nexus, as well as an emphasis on NTDC's initiative to assess how climate change impacts this region in order to better

understand the relationship between coffee production and its issue, as well as migration (Ward et al., 2015). Reports from governments and non-governmental organizations (NGOs), as well as scientific papers from the social sciences and humanities, were used as secondary sources.

Many researchers are interested in regional case studies that demonstrate how climate change has affected specific populations in order to contribute to the larger study of the climate change-migration nexus and have focused on how specific effects of climate change exacerbate other, more commonly identified drivers of migration (Haggar and Kepp, 2012; Baca et al., 2014; Green & Healy, 2022; Piguet, 2022).

Looking especially at the research on displacement and migration in the NTDC, most of it focuses on reasons like gang violence, extreme poverty, and weak governance all conspiring to compel people to relocate (Spring, 2022; Zittis et al., 2022). Much of this research highlights the difficulties in proving a clear relationship between climate change and population mobility, owing to how much simpler it is to demonstrate a link between armed conflict and migration than between environmental causes (Lynch, 2019). Climate change migration is triggered by sudden disasters such as hurricanes that drive people away from their origins, such as Hurricane Mitch and its impact on the NTDC, or more it could be triggered by gradual disasters such as unusually intense or unprecedented droughts, such as the prolonged period of 5 years (2014-2018) of the El Niño phenomena in the NTDC, and finally, rising temperatures that threaten agriculture.2

Few studies in this region concentrate on a single agricultural business, such as coffee production, to bridge the gap between climate change and migration in the NTDC, owing to the difficulties in acquiring trustworthy data on where people went and why (Haggar and Kepp, 2012; Baca et al., 2014). Finally, according to several sources, the lack of attention on individuals who have migrated due to climate change, notably in international law, is being addressed as people's concept of security shifts. As a result, the Act will be changed to cover people who require international protection because climate change prevents them from returning to their own country (Panebianco, 2022).

Results and Discussion

Many scholars think that establishing a clear connection between climate change and migration is difficult due to the numerous other underlying and well-known factors causing the movement. Because environmental migration is such a broad idea, the language used to characterize it has not been consistent. Already in 2009, Nina Glick Schiller and Thomas Faist, who co-edited “Migration, Development, and Social Transformation,” examined the problem in defining the terms by showing how the discussion developed from the mid-1980s use of the term "environmental refugee" to cover all those who had been moved from their customary home due to environmental disturbance impacting life quality. This term, as well as "climate refugee," is intermittently used in the UNEP, the IPCC, and other institutions in the international community during climate change debates preferring sometimes the terms "ecological migrants" or "climate-related migration" in their communication, research outputs, and reports. At the same time, the United Nations (UN) widely debated and rejected the term “refugee” when applied to those forced to flee their homes due to environmental reasons.

[2] In Central America, the El Niño phenomenon is generally associated with below-average rains, and prolonged dry spells (Briones, 2022).

As these terms are still used in quotations in the literature, they are still ambiguous especially since climate change is affecting every part of the globe, but not equally (Birpinar & Tuğaç, 2022). Small island developing states continue to be disproportionately impacted by natural disasters, according to the IOM's 2018 report on migration indicators, but slow-onset processes such as droughts and sea-level rise also boost worldwide migration phenomena; however, quality data in this area is lacking (44). When studying the complicated topic of human migration, words such as migrant, immigrant, refugee, asylum seeker, and internally displaced person are frequently encountered. As a result, the complex issue of climate change and migration can be examined from a variety of viewpoints and across fields. Climate change and migration are inextricably linked. For example, direct links are unexpected extreme weather events or sea level rise that have caused people to move indefinitely or temporarily. When the factors driving migration are exacerbated by the impacts of climate change, this link is considered more indirect (Lynch, 2019). Prolonged droughts like the El Niño one reduce agricultural production, thus causing widespread economic problems, poverty, and poor governance as further explained by the current example of the CLR epidemic that is impacting the NTDC. As a result, a social environment is created that allows for the violence that drives people from their land in search of personal security.

The NTDC's Coffee Production and Climate Change

Latin American and Caribbean agricultural production is primarily reliant on rain-fed systems for both food and export crops, making it particularly vulnerable to rising temperatures, a lack of rainfall, and altered precipitation patterns (Vergara et al., 2013). Because of its reliance on agriculture, climate change poses a particular threat to the stability of the people in this region. Climate change, in particular, has impacted the NTDC region in a variety of ways throughout the years, including altering weather patterns, stronger storms, and droughts. Despite the fact that the NTDC's dry corridor has historically been arid, the region has seen an increase in the number and severity of droughts since 2014.

Agriculture is a sector that should not be disregarded in terms of its contributions to the NTDC's regional economy: it employs "30-40% of the economically active population" (Baca et al., 2014:1). Honduras is recognized as one of the most sensitive nations to climate change, having been subjected to a series of extreme weather events caused by climate change between 1997 and 2006 (Parks and Roberts, 2006). El Salvador is especially subject to the effects of extreme weather and climate change, both of which have already caused occasional and acute migrations and are anticipated to exacerbate in the future (Knox, 2018). According to International Coffee Organization figures, El Salvador exported an average of 2,220,900 60-kilogram bags between 1990 and 2000 per year, before declining over the next few decades to 506,000 of the same bags in 2017 (International Coffee Organization, 2018). El Salvador's coffee planting area was assessed at 137 hectares in market year 2018/19, down from 141 hectares recorded the previous year, and has not increased ever since. Finally, Guatemala has a history of environmental threats, such as Hurricane Stan in 2005, and has been designated as especially susceptible to climate change by the US FAO (FAO, 2012).

Climate Change in the Region: Assessing the Consequences

While media, literature, and international law extensively study violence connected to armed conflict or gangs, the repercussions of climate change that encourage internal and transnational migration are frequently overlooked. This challenges the NTDC's inclusion of the climate change-migration nexus. When it comes to climate change in the area, assessing the consequences inside countries is challenging since "climate is not spatially homogeneous within a country, and neither are climate anomalies" (Eklund et al., 2016:144). One community may be completely destroyed while another in the same nation is unaffected, even inside the NTDC's comparatively tiny region. Analysing a country's macro-level data always misses crucial regional nuances that could indicate a significant amount of people moving around (Lynch, 2019).

The region's future appears bleak. According to Jeremy Haggar and Kathleen Schepp (2012), most of Central America will see a 1-2 degree Celsius rise in mean annual temperature until 2050, and the quantity of land ideal for coffee production in the Central American region could decline by more than 40% by 2050. Reduced coffee harvests, as well as subsistence products such as maize and beans, have the potential to significantly raise food instability and malnutrition. Arabica bean growth conditions will worsen since the region's desert seasons are projected to be significantly drier as a result of less precipitation, while "higher temperatures improve living conditions for pests and diseases." As pest attacks increase, coffee bean quality declines, or even plants and output are destroyed (Haggar & Schepp, 2012:8).

A study by Rachel Ward, David Gonthier, and Clara Nichols (2017) on coffee rust in the nation shows frightening numbers in the development of viruses in coffee yields as a result of climate change, following a coffee rust pandemic in Honduras in 2011. The epidemic contaminated 80,000 hectares of land in Honduras, wiping out over 10,000 farmers' harvests as well as about half of 30,000 farmers' harvests (Ward et al., 2017:1082). Production is expected to fall by 11.8% in Honduras year on year in 2022, hitting 5.5 million sacks according to the 2022 United States Department of Agriculture (USDA) reports.

Coffee Leaf Rust: a devastating effect

CLR is mentioned in most of the recent USDA reports on NTDC coffee production. coffee exports from Honduras and Guatemala have increased on average over the previous three decades, however, there were significant drops in shipments around 2012, during the notorious CLR epidemic (International Coffee Organization, 2018:3). For example, coffee production in Guatemala fell by 6% between 2017 and 2018. After a disease epidemic in 2012 killed 20% of production, the coffee industry is still recovering today (Tay, 2018). The 2018 USDA report noted that "the fragile cost structure and low coffee prices in Guatemala represent a significant risk for the entire coffee sector" (Tay, 2018:3). According to more recent USDA figures, Guatemala produced about 3.33 million 60-kilogram bags of green coffee in 2021, a decrease of 8.64% from 2020.

Most small farmers cultivate coffee across the three nations. Small farmers struggle to recover quickly, and the issues start to get worse before they can be salvaged for the harvest the following year. For instance, in Guatemala, 97% of coffee growers are categorized as small farmers, and the majority have an average landholding size of 1.2 hectares of land (Tay, 2018:2-3), 104,416 out of

105,171 coffee producers in Honduras were considered small to medium producers (Gomez, 2018:2). Coffee production will drop because to rising expenses brought on by CLR, making small and medium-sized producers unable to compete at current pricing and likely to contemplate moving away (Lynch, 2019). However, because the climate does not influence a nation uniformly, aggregate export data do not represent how individual coffee-growing regions have been impacted by climate change.

Recommendations

CLR outbreaks in a region directly harm far more people than in large-scale cultivation in the United States because so many producers share the land utilized for coffee production in the NTDC (Lynch, 2019). Thousands of people in coffee-producing regions continue to be among the poorest and most vulnerable to market and climate shocks despite the industry's profitability (Eakin et al., 2005). A number of in-situ adaptation strategies for managing the agronomy of coffee plantations were initiated in response to the fungal infection by CLR (Harvey et al., 2018).

The coffee-migration nexus can be approached in a few different ways. The loss of this crucial crop is one of the numerous factors that might cause population shifts and increase conflict. Another method to analyze the coffee-migration relationship is based on a study of how the decline of coffee production adds to other causes of migration, displacement, and forced movement. In some regions, the loss of an essential revenue crop adds to poverty and susceptibility, worsening other variables such as gang violence in the NTDC (Lynch, 2019). Whether regarded as a cause in and of itself or as an amplifier of other factors that add to the departure of coffee makers, there is a pattern of individuals being driven away from their origins (Lynch, 2020).

The relationship between climate change and migration in this setting is depoliticized when the effects of climate change are separated from larger social and political contexts (Ruiz-de-Oa et al., 2019). Policies created from such an apolitical perspective offer advice and support actions that ignore the current political reality in the NTDC.

Action plans to support regional markets or marketing strategies that provide local producers a stronger foothold in a fiercely competitive, constrained market are rarely developed (Ruiz-de-Oa et al., 2019). Through benefit redistribution policies, alternative policies for migration, or both, international political action does not prioritize changing the market power imbalances that characterize the global coffee market.

The creation of more comprehensive policies should be the main focus in order to address climate change and its interactions with production and commercialization variables in all of their forms (Ruiz-de-Oa et al., 2019). The main policy lesson is that current adaptation narratives, which set forth policy directives on migration and climate change, must be updated to take into account the harsh reality of the current forms of movement. A thorough reevaluation of current immigration policy should be the first step in promoting migration as a form of adaptation. If so, to what extent does it cast doubt on the notion that nation-states serve as the fundamental unit of political organization from which political boundaries can be deduced? The issue of adaptation will be critical in every area of policy due to the acceleration of climate consequences in the medium term. Therefore, it is important to take another look at innovative adaptation paradigms that are effective, inclusive, and, most importantly, founded on social and economic justice principles.

Future Trends for Immigration

People moving within the NTDC and across boundaries, mainly to the north, is a significant aspect of twenty-first-century migration patterns. Despite the fact that illegal migration from the NTDC has been consistent, "surges" of Central American migrants in 2014, 2018-2019, and 2021 have tested Presidents Joe Biden has been in office since 2021, followed by Presidents Donald Trump (2017–2021) and Barack Obama (2009–2017). The undocumented immigrant population in the US is currently expanding at the quickest rate, and the US government has focused its efforts on cutting-edge border enforcement techniques. The surges brought the country's immigration policies, which have been plagued by years of ethical, legal, and political issues, to the attention of the world.

The legal system in the United States is mostly founded on identifying and defining particular reasons for movement, and it defines migrant rights by evaluating the underlying factors that lead to mobility. The major criterion for immigrant admissions is the reason for migration, and the secondary criterion is the nation of origin geographically, in order to classify immigrants into distinct legal categories in the United States. The refugee and asylum system, which admits persons to the nation based on proof that they have a genuine fear of attack or persecution in their native country, handles migration prompted by violent or political concerns. As a result, academics from Central America are frequently asked to appear in court as expert witnesses when discussing the driving forces for migration from El Salvador, Honduras, and Guatemala.

A "comprehensive regional framework to address the causes of migration" from Central America was demanded by Executive Order 14010, which was issued by American President Joe Biden in February 2021 (Biden, 2021). The vice president Kamala Harris-led study and analysis phase after the directive led to the creation of the "US Strategy For Addressing The Root Causes Of Migration In Central America" (2021). The report's content emphasized migration's political importance while also stressing its complexity. Fighting corruption, improving democratic governance, advancing labor rights and press freedom, and combating violence, extortion, and other crimes committed by gangs, trafficking networks, and other organized criminal organizations; as well as fighting domestic, sexual, and gender-based violence; economic insecurity; and inequality (National Security Council, 2021:6). According to the (somewhat utopian) "Desired End State" outlined in the report, these five pillars serve as the foundation for a vision of "a democratic, prosperous, and safe Central America, where people advance economically, live, work, and learn in safety and dignity, contribute to and benefit from the democratic process, have confidence in public institutions, and enjoy opportunities to create futures for themselves and their families at home" (National Security Council, 2021:5).

Extreme weather events, natural disasters, or violent conflict do not have a defined admission category, but they are frequently managed on an ad hoc basis through the Temporary Protected Status (TPS) framework, in which the government assigns a temporary suspension of deportations for unauthorized migrants from specific countries for a set period. In reaction to natural calamities, the United States awarded NTDC migration temporary protected status in the circumstances of Hurricane Mitch in 1998 (Puscas, 2018) and the 2001 earthquakes (Knox, 2018).

Despite the absence of protection for people's migration as a result of climate change's slow-onset impacts, the environment is increasingly being acknowledged as a driving element of human mobility worthy of protection under both individual government laws and international treaties in response to

both sudden disasters and the slow-onset effects of climate change. Despite numerous efforts by investors and NGOs to mitigate some of the effects of climate change in coffee-producing communities in the NTDC, international law, for example, does not regulate the relocation of former coffee growers.

As a result, future ideas for the coffee-climate-migration relationship include demonstrating how coffee supply concerns contribute to certain types of violence or other regional migration causes. Further research using technologies such as satellite imaging to examine people's movement from specific coffee growing areas would assist to increase understanding of the climate change-migration nexus and estimate the future of coffee production.

Conclusion

It is difficult to comprehend the link between climate change and migration. Because of the emphasis on multi-causality, establishing a relationship between a discrete variable (such as rainfall variance) and migratory decisions is challenging. Policy interventions, on the other hand, entail a more direct attribution of cause and effect since "long-wave" migratory patterns condition the impacts of "short spikes" throughout the population (Reichman, 2022).

Remittance economies boost land and labor costs while making migration easier. When a transitory shock occurs, families will be affected differently depending on their place in the migration and remittance economy. Farmers' adaptation techniques have evolved substantially as migration has become a prevalent way of life.

The expansion of the coffee business may be both a cause and a consequence of climate-induced migration because high coffee prices create revenue gains that can be used to support movement in the case of a short-term price decline. Policy interventions based on single-cause explanations for migration are limited since migration is induced by both long-term economic development and a crisis (in the near term) in the instances described in this study.

Another restricting strategy has been to categorize migrants for immigration law purposes. Because climate, economics, politics, and security are inextricably linked, these distinct categories are incapable of addressing long-wave migratory trends that are expected to endure in the future. It may be simpler to govern and regulate migration when it is explained by a defined, quantifiable, and nameable reason. However, decades of movement, global interconnectedness, and cultural integration, along with climate change, violence, and political insecurity, necessitate a new policy framework.

Declaration of Interest Statement

The author declares to not have any conflict of interest.

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