Climate Change and Moving Intentions:
Experience, Perceptions, and Action Regarding Wildfire Threat in Alberta

by

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Abstract

In the province of Alberta, wildfires have been growing in severity and frequency for decades and are expected to worsen. These wildfires threaten an increasing number of individuals and families with poor air quality, destruction of property, and displacement. The effects of natural disasters fueled by climate change, such as wildfires, on migration have been studied in international contexts, however climate migration *within* Canada has been largely understudied. This research utilizes survey data from the June 2023 Viewpoint Alberta Survey (n = 1439) containing self-reports of attitudes and experiences regarding wildfire and climate change, future moving intentions, and socio-demographic and socio-economic characteristics of respondents. Inspired by frameworks rooted in social psychology and migration theory including the theory of planned behaviour and protection motivation theory, I investigate the relationships between wildfire experience, perceptions of wildfire and climate change, and intent to move amongst Albertans.

This research revealed disproportionate exposure to severe wildfire among more vulnerable individuals including racialized, young, and socio-economically disadvantaged Albertans. I highlight the relationships between wildfire experiences and socio-demographic characteristics with perceptions of risk and intentions to move. Particularly, I present findings showing that poor health outcomes (both mental and physical) from wildfire were significant predictors of concern regarding both wildfire and climate change and are predictive of intentions to relocate. I suggest that this relationship is important for public health policy and provision planning, as better access to health services and/or better proactive public health strategies may influence migration to or from a region.

The results of this thesis are consistent with other literature that positions political beliefs as, in many cases, more influential to one's perceptions of climate change and climate disasters than first-hand experience with that disaster. As such, the political landscape of certain regions may best predict their perceptions of wildfire, although they will not necessarily provide insight on moving intentions related to disaster. Reporting intentions to move was more likely among non-homeowners, a group that also experienced higher levels of severe wildfire impact than their counterparts. I discuss the need for future in-depth research on rental-market housing and its placement and vulnerability to wildfire, and subsequent policy to ensure future housing developments consider the costs of wildfire for homeowners and non-homeowners alike.

Overall, I found that Albertans generally are not planning to move because of their experiences with wildfire, except for those with health implications. This means that future policy must prioritize supporting and protecting a population in an often treacherous landscape, including a focus on public health, housing, and supports for vulnerable people who are most affected by wildfires.

Preface

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Chapter 1: Introduction

The climate crisis is upending community life in areas across Canada that are touched by extreme weather. From the devastating 2016 wildfire in Fort McMurray, Alberta, to Hurricane Fiona in Atlantic Canada in 2022, communities are coming face-to-face with a new age of climate severity. Climate events like fires and floods affect the lives and livelihoods of those impacted on a scale of intensity ranging from lingering wildfire smoke to property damage to displacement to injury and loss of life (IPCC, 2022). All the while, these conditions worsen existing precarities in stricken communities (Dorow, 2016), adding additional layers of hardship to the trauma of experiencing a climate disaster. It is predicted that in coming years the conditions that exacerbate these disasters will persist. In Alberta, for example, fires are expected to become more frequent and severe due to increasing warmth and dryness in the region (Whitman et al., 2022, p. 4).

Canadian residents' experiences with these events have the potential to shape their perceptions of climate change and the actions they take to mitigate their risk, including in some cases, relocation. Early investigations into the potential migratory consequences of climate change were largely driven by a fear of rapid international migration and the explosion of a "climate refugee" crisis (R. McLeman et al., 2016; Piguet et al., 2011). Although these fears have proven to be unfounded (Entwisle et al., 2020; Feng et al., 2010), very little work has focused on documenting the prevalence of, or potential for, *internal* climate induced migration within Canada.

Both behavioural theories and select migration theories help shape understandings of what drives relocation. Individual experiences and perceptions, in addition to broader social attitudes and socio-demographic constraints, can contribute to decision-making surrounding migration and can be applied to both international and internal moves. As climate change persists, Canadians who

experience climate events may respond using frameworks that weigh observed threats against their ability to cope (Rogers, 1975), and that consider subjective norms, their individual attitudes, and perceived control over the situation as it arises (Ajzen, 1991). Intentions to relocate will be informed by these considerations, alongside canonical migration theories of economics and other push/pull factors, to determine whether relocation is necessary to mitigate their exposure to wildfire. In Canada, a nation regarded as relatively safe from the worst effects of climate change, it is unlikely that people will leave the country to escape climate fallout. Rather, we may see internal movement across county and provincial borders if people relocate as a response - otherwise we may see no movement at all as residents determine their risk is not sufficient to uproot their lives.

1.1 Research questions and approach

This thesis explores the relationships between Albertans' experiences with wildfire, the way that those experiences relate to perceptions of wildfires and climate change, and the way both experiences and perceptions relate to future migration decisions. Wildfires have caused widespread damage to forests, agricultural lands, and communities across Alberta, causing both property damage and displacement. These fires are worsening, leaving many communities in dense forest regions in the increasingly precarious position of being swallowed by flames (Parisien et al., 2020). Aside from the risks associated with other natural disasters, including immediate and localized property damage and displacement, wildfires uniquely generate plumes of toxic smoke which can have detrimental health outcomes for those exposed to it (Qiu et al., 2024). Wildfire smoke can be harmful to humans even in small concentrations, and in windy conditions is able to travel hundreds of kilometers from its origin, crossing international borders

and afflicting even those who could be considered safe from all other effects of wildfire (Groff, 2021).

This research aims to uncover the ways that the climate change induced wildfires of tomorrow may impact domestic migration, while considering the potential policy implications of either outcome: widespread out-migration from high fire risk regions, or residents who overwhelmingly choose to remain. Regardless, the results of this study will help inform policymakers and risk management professionals on the direction they might take in preparing for and actively combating wildfires in Alberta. I approach this topic considering several conceptual frameworks, including push-pull migration theory, which accounts for the many varying factors that may pull someone towards a particular place or drive them away from it, underpinned by understandings of life course migration patterns, attributing movement to major, age-based, milestones (Clark & Lisowski, 2018; Dommermuth & Kluesener, 2019; Willekens, 2016). Push-pull theory addresses how migration is not unimodal, and that people weigh the many pros and cons of moving versus staying in place while making their decisions; for this project I investigate the extent to which climate events such as wildfire act as push factors.

More specific to disaster responses, my research questions and analytic approach were inspired by the theory of planned behaviour (Azjen, 1991) and protection motivation theory (Rogers, 1975) which consider the social and psychological responses that lead to decision-making, in this case, specifically decisions about moving. These theories highlight the importance of intentionality, and how personal attitudes, subjective norms, perceived behavioural control, and threat appraisals are involved in influencing intentional behaviour. My approach, including my empirical models, do not explicitly test the efficacy of either of these theories, rather they are utilized as touchstones for understanding 1.) intentions as good predictors of future decisions,

and 2.) concern (or fear) as motivating both attitude changes and protective measures (including relocation).With these theories in mind, my thesis investigates the intentions of Albertans to move, considering their experiences with, and perceptions of, wildfire and climate change, along with socio-demographic characteristics that shape their attitudes and ability regarding disaster response. This investigation is guided by three research questions, as follows:

1.) How have wildfires impacted Albertans, and who has been most affected?

2.) How do Albertans' experiences with wildfires affect their perceptions of both wildfire and climate change?

3.) How do Albertans' experiences with wildfire affect their future moving intentions?

My data was sourced from the June 2023 wave of the Viewpoint Alberta Survey, an online survey collected by Common Ground Politics (Common Ground Politics, n.d.) at the University of Alberta. This survey covered a broad range of topics including attitudes on wildfire, climate change, and political issues in addition to questions concerning wildfire impact and potential future moving plans, making the data ideal for addressing my research questions.

1.2 Motivation and positionality

My decision to research moving intentions and wildfire impact in Alberta was influenced by my experiences growing up in a heavily forested region of Northern Alberta. I was fortunate to never experience the direct impacts of fire there; however, as recently as 2023, I was forced to contend with the very real possibility of my parents' home being threatened as wildfires quickly approached the City of Grande Prairie, my hometown. Although the city was physically unscathed, a thick orange smoke swallowed the sky, and many neighbouring communities were issued prepare to evacuate and evacuation notices. Nearby, a fire jumped the highway which

delayed my return journey to Edmonton by several hours. My father was forced to evacuate his work site. The Sturgeon Lake Cree Nation (~100 km East of Grande Prairie) sent evacuees across the province.

The scale of wildfire in 2023 was felt widely across Northern Alberta, yet what struck me the most were the obvious signs that some people did not see these fires for the threat they were. Many people I spoke to were convinced the fire would not reach the city, despite the very real possibility it could. The precedent for destruction in urban centers, set by the 2016 fire in Fort McMurray, did not cause their confidence to waver. Among all the chaos I wondered, how bad will things have to get before everyone chooses to leave? Is it even possible for things to get that bad? This thesis is an investigation of that feeling, my own fear, and fear for my friends and family who continue to reside in at-risk regions of the province.

Beyond my own personal motivation, climate events threaten to affect groups of people in different, and often inequitable ways. The effects of climate change are entrenched in socio-economic systems, including systems of power and politics, where vulnerable populations often experience the harshest consequences of climate change fallout (Davidson, 2020). The inequity of climate change has been addressed in a global context, identifying that nations in the Global South are often experiencing harsher fallout from climate events compared to those in the Global North (Ahmed, 2018). Meanwhile, studies on the effects of major hurricanes in the United States have found that vulnerable populations are likewise affected by climate change at disproportionate rates in the Global North (Fussell, 2015). Understanding the ways that climate change fuelled wildfires have been, and will be, affecting the population of Alberta will shed light on regionally specific inequities. Understanding the associated moving intentions of this

same group provides insight on how those experiences and inequities may manifest as a response to climate change, and how those responses may reshape communities, or leave people at risk.

1.3 Thesis structure

This document is structured into seven chapters. Chapter 1, this chapter, presents the topic, research questions, and motivation for this study. Chapter 2 reviews the classic migration and climate migration literature that foreground this project, embedded with information on the key theories that shape my study. The second chapter also includes a review of relevant empirical studies on climate migration in other regions of the world that situate my research topic, as well as the relevant history of Alberta and the industrial and political context that led to the creation of settlements in remote areas, a mistrust of government, and surge of climate denialism.

In Chapter 3, I discuss my methodology, including my data, sourced from the Viewpoint Alberta Survey. I describe the specific survey questions that were included for the benefit of this research, provide a brief overview of the sample, and discuss its limitations. Beyond this, I discuss my analytic strategy, including my use of multinomial logistic regression, the software with which I fulfill this approach (RStudio), and the key measures of my study including the dependent, independent, and control variables used.

My results begin to take shape in Chapter 4 where I outline the descriptive and bivariate statistics for each of my key measures, answering my first research question: how have wildfires impacted Albertans and who has been most affected? I present findings that air quality degradation as a result of wildfire smoke, as well as negative physical and mental health outcomes as a result of wildfires, are widespread across Alberta. Vulnerable populations, including those who identified as being Indigenous, or part of a visible minority group reported receiving more prepare to

evacuate and evacuation notices, while economically disadvantaged households reported experiencing higher rates of home, property, and community damage, and work disruption. Furthermore, young adults faced higher rates of home, property, and community damage, as well as evacuation and prepare to evacuate notices.

Next, Chapter 5 presents multinomial logistic regression analysis results that address my latter two research questions regarding risk perception and moving intentions. I present results that indicate that people who experience poor health outcomes, both mental and physical, were more likely to express concern about wildfire and climate change and were more likely to indicate they are planning to move in the near future. Another significant predictor of intentions to move was homeownership status – non-homeowners were significantly more likely to consider moving compared to people who own their homes. Beyond this, there were strong associations between political beliefs and perceptions of climate change, where people with right-wing beliefs were less likely to be concerned about wildfire and climate change, and those with left-wing beliefs were more likely to be concerned about those same issues. These beliefs, however, were not associated with moving intentions.

I discuss the connections and broad themes of these findings along with potential policy implications and limitations of the study in Chapter 6. Primarily, I discuss the importance of public health and housing policies as they relate to my findings.

Chapter 2: Literature Review and Theoretical Background

Across the world the risk of weather and climate disasters is increasing each year due to climate change (IPCC, 2022), and Canadian forests are at a heightened risk due to their northern latitude, which is projected to experience an aggressive temperature increase in the years to come (Whitman et al., 2022; Williamson, 2009). Since the 1970s there has been an observed trend of intensified wildfire frequency and severity in Alberta (Whitman et al., 2022, p. 7), likewise, the risk of these fires affecting human health and safety has increased. In the worst-case scenarios, climate disasters encroach on communities and result in mass evacuations that can last for days, weeks, or months. These evacuations are jarring, disruptive, and expensive, justifying the attention they receive in many studies on climate change and migration. However, the kind of relocation that will most profoundly reshape the Canadian demographic landscape are those that are permanent, and while evacuations displace many people, they represent only temporary moves. Permanent moves within Canada are most often associated not with forced relocation (like evacuations), but with premeditated *intention* to move (Dommermuth & Klüsener, 2019). Therefore, understanding how climate change influences people's moving intentions will in turn help to reveal any potential for permanent climate-based migration in Alberta.

2.1 Perceptions of climate change and wildfire

Individuals' intentions to move can be informed by their perceptions of the causes, severity, or likelihood of climate change. The way someone perceives a threat is based on a number of factors; in the case of climate change and natural disasters, numerous studies have attempted to pinpoint what exactly informs those perceptions (Brügger et al., 2021; Cutler, 2015; Lee et al., 2015). One's understanding that climate change is a real, tangible problem and their concern for their own personal safety in the event of a natural disaster are, in many cases, two separate

considerations. Furthermore, there may be a disconnect between one's experience and their perception of that experience, influenced by a myriad of socio-economic, socio-demographic, social, and cultural forces.

Social scientists, psychologists, and policy professionals have worked to understand the nuanced connections between how people perceive both climate change and personal risk associated with climate change in order to better understand the public's future behaviour surrounding climate issues (Ameztegui et al., 2018; Bates et al., 2009; Hornsey et al., 2016; Winter & Fried, 2000). Much of the relevant literature focuses on perceptions of climate change as a nebulous idea that many consider to be separate from the reality of the natural world around them. Climate denialists suppose that climate change is not happening at all, while others simply think it is not happening yet, or at the very least not happening to *them* yet. Studies have investigated how personal experience with extreme weather has influenced perceptions of climate change, finding, in many cases, that politics and ideology have the strongest predictive power (Ameztegui et al., 2018; Fownes & Allred, 2019; Hornsey et al., 2016). Beyond this, type of climate event (Sloggy et al., 2021), and socio-demographic factors including gender and region were found to be influential for perceptions of risk, with competing claims regarding the importance of one's age and education. What remains consistent is the small size of these effects compared to the influence of political ideology (Fownes & Allred, 2019; Hornsey et al., 2016). A lack of methodological homogeneity leaves this field of study open to such divergent findings.

The literature on how people perceive climate change and wildfire risk is vast and somewhat messy. These studies are driven by different theories, measuring different types of impact, different outcomes, and different communities of focus. What can be gleaned is that the influence of politics and ideology, along with the influence of direct and recent exposure to

natural disasters, shapes perceptions of climate change, especially in studies based in North America.

The province of Alberta is situated at a crossroads of the two above major factors of influence. Alberta is a region of increasingly extreme fire activity (M. R. Ahmed & Hassan, 2023) and political conservatism, entrenched by a fossil fuel industry that has maintained the economy of the region for decades (Holowach & Parkins, 2023). The unique geographic, political, and economic situations suggest that many Albertans may reject the notion of climate change outright, despite being at risk of its effects (Boulianne & Belland, 2019). Studies focused on other regions have looked at how these perceptions may influence support for climate policy (Ameztegui et al., 2018; Hazlett & Mildenberger, 2020), personal mitigation efforts (Winter & Fried, 2000), and coping strategies (Bernardo et al., 2019). Findings from these studies assert that political beliefs are, indeed, important determinants for perceptions and subsequent action. More left-leaning stakeholders in the Alberta forest sector are more likely to consider the impacts of climate change to pose a threat to forest ecosystems (Ameztegui et al., 2018, p. 8), and support for environmental policies in the United States increases in areas affected by wildfire, except in areas that vote mostly Republican (Hazlett & Mildenberger, 2020). Mitigation and coping behaviours were found to be affected by perceptions of control over wildfires; rural homeowners who viewed wildfire as inherently uncontrollable were less likely to support firefighting policies or to implement personal safeguards to protect their property (Winter & Fried, 2000), and individuals who had recently been affected by wildfire had both a higher perception of risk, and were more likely to utilize coping strategies that highlight personal control and prevention in the event of another fire, pointing to the power of personal experience (Bernardo et al., 2019). These studies highlight the effects of both politics on perceived risk, and perceived risk on action,

separately. Similarly, in this thesis I explore connections between experiences with wildfire, perceptions of climate change and wildfire, and the adoption of migration as a coping strategy in Alberta, paying mind to how the political culture of the province may influence outcomes. Theories of migration then help to situate this understanding of risk perception in the broader context of migration and migratory decision-making frameworks.

2.2 Theories of Migration

Migration has been studied within several disciplines including, but not limited to, sociology, anthropology, geography, and economics. Established frameworks for understanding mobility consider both international and internal contexts, but often separately. The field has been criticized for stagnancy in theorization since the 20th century (de Haas, 2021), which has led to disjointed research on internal mobility, international migration, and novel causes of migration, like climate change. In the following sections I briefly review early theories and critiques of international and internal migration, and applicable frameworks from outside traditional migration theory, namely, life course theory, protection motivation theory, and the theory of planned behaviour, all of which provide helpful frameworks for understanding climate migration in Alberta.

2.2.1 International Migration

Many early theories of migration were centered on international migration, as its scale is of consequence not only to individuals but multiple nation-states (Wimmer & Glick Schiller, 2002). While there is no all-encompassing theory of international migration, the phenomenon has been studied at micro, meso, and macro levels of analysis, addressing an array of potential motivating factors. Most migration literature is rooted within these early theoretical frameworks (de Haas,

2021; Massey et al., 1993), making them relevant to studying both international *and* internal migration alike.

Early migration frameworks highlight a unimodal desire to optimize wellbeing via income (neoclassical economic theory), opportunity (push-pull), and household economic risk diversification (new economics of labour migration) as the driving factors of migration. Neoclassical economic theory (Harris & Todaro, 1970; Todaro, 1969), serves as the most prominent, and limited, theory of migration, which focuses on labour and wage differentials as the primary driving motivation for movement (de Haas, 2021; Massey et al., 1993). New economics of labour migration (NELM) (Stark & Bloom, 1985), and push-pull theories expand beyond basic income differentials, although they continue to embrace economic opportunity as the prominent driver of migration, ignoring the structural constraints that drive and direct cross-border migration flows (de Haas, 2021). Dual labour market theory (Piore, 1979), and world systems theory (Wallerstein, 2011a, 2011b) introduce macroeconomic factors as driving migration flows, acknowledging global capitalist forces, and nation-states as heavy influences on international migration.

Additional factors that shape international migration include family, community, and broader social networks. These influences are addressed by network theories, which argue that networks facilitate migration through the spread of information and resources (Massey et al., 1993). Cumulative causation theory (Massey, 1990), further asserts that migration begets migration, and that migration alters sending areas through the removal of workforces, changing population structures, and/or creating situations of relative deprivation, especially when families of migrants receive remittances. Migrant networks, kinship, income equality, and land distribution within communities informs subsequent outward mobility (Massey et al., 1993, p.

462). Network frameworks of understanding migration manifest in diaspora communities across the globe, as well as within nations. Although unable to offer a complete understanding of international migrant decision-making, these theories helped to build the groundwork of the field of migration studies; beyond the frameworks I discuss in this section there is still a vast literature of approaches to understanding international migration. Next, I will discuss internal migration, both broadly and in the Canadian context, and theories which inform our understanding of this kind of movement.

2.2.2 Internal Migration

The above theories were developed to explain factors that influence international migration and are often too narrow to address the social processes that inform migration patterns across time and place (de Haas, 2021). What these theories offer to our understanding of internal climate migration are pieces of a complex puzzle that inform mobility decisions for internal and international migrants alike. Internal migrants usually face fewer logistical, legal, and bureaucratic challenges—unlike those pursuing international migration which is, by nature, closely tied to policy and bureaucratic relationships between sending and receiving countries (Weiner, 1985, p. 453). Nonetheless, internal migrants face structural and personal barriers to movement on a different scale—these moves occur within one nation where migrants cross provincial, territorial, or municipal lines, or move residentially within a municipality. Even at its smallest scale, internal mobility has a considerable impact on population distribution, housing availability, and quality of life (Dommermuth & Kluesener, 2019, p. 3).

In Canada, internal migration is considered within a hierarchy of inter-provincial migration, intra-provincial migration (movement within a province but between distinct regions such as Census Metropolitan Regions or Census Divisions), and residential mobility (movement between

dwellings while staying in the same region or municipality). Largely, migration scholarship focuses on long-distance movement, and is less focused on same-municipality dwelling changes. This is likely due to the higher frequency with which people move within their own city or town and the relatively minimal impact this has on policy, demographics, and labour markets on a national level.

Historically, inter-provincial migration in Canada has been linked to labour market opportunities, (Denier, 2017; Finnie, 2004; Serlenga & Shin, 2021), unemployment rates (Coulombe, 2006; Day & Winer, 2006), and movement from rural to urban centers (Coulombe, 2006). Even as Canadian society has transitioned the majority of its population out of rural areas and into urban metropolitan regions in the 20th century, themes of population diffusion, urbanization and counterurbanization, intrametropolitan population distribution, structure of migration streams, and policy concerns remain when studying internal migration (M. J. White & Lindstrom, 2005, p. 312). Despite the decline of internal migration in Canada over the past 35 years (Beine & Coulombe, 2018), it is still happening, and driven by novel factors. The current themes of migration listed above suggest that internal migration is more complex than simple rural-to-urban and economically driven migration, which is supported by additional work highlighting the influence of immigration of permanent residents (Beine & Coulombe, 2018), public policy (Day & Winer, 2006), and demographic determinants (White & Haan, 2021). Multi-faceted decision-making frameworks are likewise applicable to internal migrants as they are to international migrants (M. J. White & Lindstrom, 2005; Zhang et al., 2018), and internal migrants in Canada are no exception to this rule.

Frameworks of internal migration have utilized life course theory to understand migration patterns surrounding age milestones (Dommermuth & Kluesener, 2019; Willekens, 2016). The

perspective of life course theory allows demographers to analyze culturally recognized life course changes as primary motivating factors for mobility and migration intentions (Clark & Lisowski, 2018). These life events include decisions surrounding marriage, fertility, work, and lifestyle changes. Studies on mobility consider the life course as both an underlying and explicit determinant of migration (or lack thereof). Life course theory assumes that certain events are more likely to trigger movement, while others reduce it, and that these factors are closely tied to culturally recognized, age-based life stages.

Four distinct life stages cover the adult life course—the young adult phase, the family phase, the middle age phase, and the retirement phase—all of which have differing moving intentions and realizations (Dommermuth & Kluesener, 2019, p. 2). Those in the young adult phase are most affected by milestones associated with family formation and employment, which both play an important role in the likelihood that a household will move. Meanwhile, middle-aged individuals place less emphasis on family-oriented decisions as children age out of the home, and retirees are mainly motivated to move for retirement optimization purposes (Clark & Lisowski, 2018). In addition to these motivators, exogenous forces can inform migration intent at all life stages. These forces may limit mobility (through economic restrictions) or encourage it (through threat to safety, potentially via natural disaster) (Clark & Lisowski, 2018). As climate events such as wildfire persist, migration intentions and realizations across the life course may be altered to adjust for the risk that they pose in different areas, and those changes are likely to be unequally distributed by age due to compounding life course events.

2.2.3 Climate Migration

Literature on climate migration has primarily investigated the international implications of dealing with so-called “climate migrants,” spurring for many years a debate on the related policy

and human rights implications of climate-based displacement. Discussions have centered on the dissonance between which nations have been most severely impacted by climate change and which are causing the bulk of the harm, the "polluters." This has raised many questions regarding the level of responsibility top polluting nations should have for sending humanitarian aid and accepting climate refugees (Ahmed, 2018; Reuveny & Moore, 2009). These discussions have received undue attention given that out-migration from heavily impacted countries is less likely than initially assumed (Entwisle et al., 2020; Feng et al., 2010; McLeman & Ploeger, 2012). With this knowledge, climate migration research has shifted focus to internal mobility, often in regions that face the harshest weather, such as Southeast Asia (Entwisle et al., 2020; Hassani-Mahmooei & Parris, 2012; Zander et al., 2016), and disaster-prone regions in the United States that experience hurricane and flooding damage (Curtis et al., 2015; Sheldon & Zhan, 2022; Yun & Waldorf, 2016) and severe wildfires (McConnell et al., 2021; Nawrotzki et al., 2014; Winkler & Rouleau, 2021).

Scholars have investigated the "adaptive responses" individuals have to environmental stress including mitigation techniques, as well as migration (Black et al., 2011; McLeman, 2018; McLeman & Smit, 2006). The decision-making process behind climate induced moves is important for explaining why people do or do not undertake relocation as an adaptive strategy. Theories guiding this understanding include *protection motivation theory* and the *theory of planned behaviour*, which help explain how people rationalize their decisions to move (or not move) through risk assessment, attitudes, and social norms. In applying these theories to migration in a climate context, perceptions of climate change and wildfire (discussed above in section 2.1) are paramount.

Protection motivation theory (PMT), adapted from social and health psychology (Rogers, 1975; Zander et al., 2019), aims to explain migration intentions or behaviours based on "threat and coping appraisals" (Holley et al., 2022, p. 617). These appraisals involve a series of personal calculations where individuals weigh their perceptions of vulnerability against the severity of their potential consequences (known as threat appraisals), and the difficulty or self-efficacy of risk reduction, against their response efficacy, and cost of response (known as coping appraisals) to make an informed decision (Holley et al., 2022; Oakley et al., 2020; Zander et al., 2019). From this appraisal process individuals determine how concerned they are about threat at hand, and how they intend to respond to that threat. PMT considers risk perception and adaptation strategies that are widely understood to be important in climate affected migration decisions and utilizes a framework that acknowledges that much of permanent climate migration is, and will be, a result of these premeditated risk and reward assessments.

In addition to PMT, the theory of planned behaviour assumes that choices to perform a certain behaviour, such as moving, are directly linked to intention (Dommermuth & Kluesener, 2019). Moving intentions are affected by three factors under this theory: 1) attitudes, 2) subjective norms and 3) perceived behavioural control (Ajzen, 1991; Dommermuth & Kluesener, 2019; Speelman et al., 2017). Clark and Lisowski (2018) discuss the interconnectedness of residential mobility intentions and intentions to undertake a series of life course desires in the sphere of family formation, family structure changes, and work (p. 2), marrying the concepts of PMT and life course theory. As individuals plan to undertake certain life milestones, they will plan to move to an appropriate new home, city, province, or even country, as necessary. It is possible that climate events, such as wildfires and hurricanes, will affect these planned behaviours, acting as exogenous forces that disrupt life course events, potentially impacting certain events

differently than others. Next, I discuss hurricanes, then wildfires, as two unique climate disasters, and literature on the post-disaster migration undertaken in communities they strike.

Hurricanes

Hurricanes can cause varying levels of destruction, with more severe storms displacing thousands of coastal dwellers in countries across the world. The severity of a storm, along with socio-economic and socio-demographic characteristics of those affected, can impact whether someone must evacuate and how long they are displaced (Asad, 2015). Although some people may settle down somewhere new following a disaster, hurricane evacuees do not necessarily take part in long-term, permanent relocation.

Two of the most studied hurricane disasters in North America are the 2005 hurricanes Katrina and Rita that struck the Gulf Coast of the United States causing significant damage and, for some, months of displacement. Curtis et al. (2015) examined the in-flows to the coastline counties that were impacted finding that the in-flow migration to counties affected by the storm outweighed out-migration from those same areas. About four years following the storm the Bureau of Labor Statistics (2009) estimated that about 63% of evacuees had returned to their pre-Katrina counties. A different longitudinal study, also on recovery migration from Katrina, found that members of vulnerable populations who had evacuated to neighbouring counties following the disaster were likely to return over time (Asad, 2015). This suggests that although there are cases of permanent out-migration, climate change will not drastically displace populations across the country, as people often relocate to nearby counties or return to (or close to) their pre-disaster home. This study is one of many which researched the impact that hurricane events have on migration, a popular disaster to study in the context of the United States (see: Ahmed, 2018; Curtis et al., 2015; Fussell et al., 2014; Sheldon and Zhan, 2022; Yun and Waldorf, 2016).

Wildfires

Alongside hurricanes, wildfire disasters also drive temporary migration events, and are becoming increasingly prevalent in North America especially in the West and Northwest regions of the United States and Canada. Exacerbated by climate change, wildfires now pose an increased risk to communities as fire mitigation and management teams find it increasingly difficult to maintain aggressive wildfires. Many studies on community-level wildfire impacts focus on mitigation, recovery efforts, and the experiences of residents rather than migration (Arvai et al., 2006; Dorow, 2016; McGee et al., 2009; Schumann et al., 2020). Some research in the United States has studied the impact of wildfire on migration including fires in Colorado (Nawrotzki et al., 2014) and California (Jia et al., 2020; Sharygin, 2021). Other studies have focused on how fires in different parts of the country affect migration (McConnell et al., 2021; Winkler & Rouleau, 2021).

Extreme heat and wildfires have been associated with both an increase of out-migration and decrease of in-migration as counties with natural amenities are increasingly perceived as risky (Winkler & Rouleau, 2021). Other scholars believe that despite increased out-migration after the disaster, wildfires are not a significant deterrent and that desirable amenities, such as low-density housing close to wildlands, will retain their pull-factor status for migration (McConnell et al., 2021). In post-wildfire Boulder and Larimer counties, Colorado, socio-demographic factors did not significantly influence whether respondents intended to move or stay following the fire, and that risk perception was a major contributing factor in residential moves post-disaster (Nawrotzki et al., 2014, p. 221). I was unable to find similar studies looking at wildfire migration in Canada, nor was I able to locate research focusing on recovery migration for wildfire-stricken areas in North America that were similar to studies done on regions affected by hurricanes.

Direct experience with wildfire through property damage or evacuation are not the only possible drivers of wildfire-influenced migration. In addition to the onset effect of wildfire damage, other related quality of life issues should be considered including the unique threat of air quality degradation from wildfire smoke, as well as the prolonged hot temperatures and dry weather that fuel these fires.

2.3 Climate migration in Canada

Little research has focused on internal Canadian migration driven by climate. McLeman and Ploeger (2012) investigated the links between drought and rural migration in a historical context, reviewing movements associated with Dust Bowl conditions in 1930s rural Saskatchewan, finding that poor soil conditions exacerbated by drought likely contributed to rural out-migration, but did not dictate it (p. 326). Additionally, Yang et al. (2023) studied the relationship between migration influxes on cities and the environment, framing migration as impacting the environment rather than the environment impacting migration. Aside from these examples, there is a dearth of population research on the impact of climate events on contemporary Canadian internal migration.

Country and region-specific research on climate change induced migration is worthwhile due to the unique topographic and socio-economic characteristics that are implicated in shaping migration patterns (Hoffmann et al., 2023, p. 17). Canada is a vast and diverse geographic landscape, susceptible to a variety of environmental risks whose impact on internal migration has thus far been under-addressed. Economic production developed in Canada in such a way that many residents live in rural and remote areas with increased vulnerability to natural disasters (Innis, 1937). Canada's economy, especially in Alberta, is based heavily on natural resources, particularly oil and gas extraction, which has necessitated the existence of remote communities

to function. These industries have significant influence over migration to and from the region; oil sands development in Alberta continues to contribute to population growth (Coulombe, 2006; Davidson & Haan, 2012), providing employment to 84,500 individuals directly, and an estimated 50,500 more indirectly in 2021 (Government of Canada, 2023a). By the month of June, the 2023 wildfire season had a measurable negative impact on the industries in these areas including crop production, forestry and logging, fishing, hunting, and trapping, and mining, quarrying, and oil and gas extraction (Government of Canada, 2023b). In addition to the economic impact, these fires displaced thousands of workers, families, communities, and First Nations in these remote forest areas, who were put at increased risk by their location.

Wildfires and their impact on Albertans are far from the only climate related consideration for Canadians. Fire, drought, hurricanes, floods, extreme heat, and extreme cold have all impacted Canadians in different regions of the country. The Government of Canada acknowledges the effect of climate change through policy, including their Emergency Management planning through Public Safety Canada, under which they allocate resources to initiatives such as a task force on flood insurance and relocation (Public Safety Canada, 2020). In this task force, the federal government commits to the creation of a "new, low-cost national flood insurance program to protect homeowners" with considerations for relocating those who face the greatest risk (Public Safety Canada, 2020). This policy would address just one of many environmental hazards in Canada and acknowledges that human mobility through permanent relocation may be required in high-risk areas. There is considerable room for policy improvement to assist and protect those at risk of different climate-induced hardship.

Canada has unique territorial agreements with Indigenous nations that complicate policies surrounding permanent relocation from disaster areas that coincide with Indigenous reserves or

unceded land. Meanwhile, many Indigenous communities are at an elevated risk to climate disaster, with 60% of First Nation reserves in Canada located in high-risk wildfire zones (McGee et al., 2019) Additionally, First Nations "remote and coastal locations, lack of access to Emergency Management (EM) services, and reliance on natural ecosystems" increase their overall risk for natural disasters. Although this study does not focus on Indigenous nations and communities specifically, nor the impact of climate events on migration to or from Indigenous reserves, it is nonetheless an important consideration for future climate migration research in a Canadian specific context.

2.4 Bringing it all together

This thesis examines the interplay between wildfire in Alberta and people's reaction to the threat it poses. By understanding the perceptions of risk that Albertans have towards climate change and wildfire I hope to better understand the decision-making process for their potential relocation. Perceptions of climate change and wildfire are influenced by some of the most identifiable aspects of Alberta: the proximity of individuals to natural disasters (wildfires) and strong political beliefs.

With this knowledge I approach my research questions similar to Bates et al. (2009) and Dommermuth and Kluesener (2019) by centering Ajzen's theory of planned behaviour (1991). This theory asserts the relevance of *intention* to perform behaviours (such as moving), and the different aspects of attitude, subjective norms, and perceived behavioural control in informing that intention. Supplemented with concepts from protection motivation theory that highlight the weight of threat and coping appraisals on decision-making in threatening situations, my theoretical framework considers heavily the importance of behavioural and cognitive responses to risk (Holley et al., 2022; Oakley et al., 2020; Rogers, 1975; Zander et al., 2019). For these

reasons I investigate both attitudes and perceptions of climate risks and intentions to move in the future.

From the dense canon of migration theory, I draw primarily on push-pull and life course theories to inform my analysis, considering how these theories intersect with the behavioural theories above and how exogenous climate events may disrupt preconceived migration patterns. Together, behavioural and migration theories combine to inform my investigation of the ways wildfire experiences and perceptions may influence migration in the context of Alberta, while considering the implications of existing socio-demographic, socio-economic, political, cultural, and geographic determinants. This work melds a vast literature of climate migration focusing on other regions of the world and vast literature on perceptions of climate change in Alberta to reflect the potential demographic consequences of an ablaze boreal forest.

Chapter 3: Methodology

This chapter outlines my analytic strategy for addressing each of my three research questions including the data, measures, and methods used to arrive at my results and conclusions. First, I describe my data, including the dataset, collection method, and an overview of the sample. Next, I discuss the pertinent measures used to address my research questions, including all dependent, independent, and control variables, including if and how they were manipulated between collection and analysis. Finally, I review the methods used, including descriptive statistics, bivariate analysis, and multinomial logistic regression. By the end of this chapter, it will be clear how exactly I arrived at my results, to be discussed in Chapter 4 and Chapter 5.

3.1 Data

To analyze the relationship between wildfire exposure, climate change and wildfire perceptions, and moving intentions, I draw on cross-sectional survey data from the June 2023 wave of the Viewpoint Alberta Survey (n=1,481) (Snagovsky et al., 2024), an online quota-based survey distributed by Common Ground Politics (Common Ground Politics, n.d.) at the University of Alberta. The Viewpoint Alberta Survey was developed with the goal of understanding the political pulse of Alberta as a province. As a result, a large proportion of the survey questions aim to understand the political orientation of its respondents by asking about voting, trust in government, and support for different government policies. I was fortunate to have the opportunity to add questions to the existing survey material to investigate the effect of wildfire on moving intentions for this thesis research.

The Viewpoint Alberta Survey was deployed online by Leger, a leading survey research company that targets registered panelists that meet demographic criteria for the surveys they distribute. Leger utilizes online panels, and contacts panelists eligible for the survey by email or

through their proprietary mobile application, inviting potential respondents to participate. Panel selection and sampling is based on Canadian census data to generate representative samples of the population based on age, gender, and region. Weights are then applied benchmarked to the 2021 Canadian Census data.

Responses were captured between July 4 and August 5, 2023, shortly following a severe start to the 2023 Alberta wildfire season, which began in late-April, displacing thousands of Albertan residents across the province via evacuation (Salahieh et al., 2023), and impacted many more indirectly. It is notable that the 2023 wildfire season is regarded as the worst that Canada has endured in recent history eliciting international headlines in publications including the New York Times (e.g., Bilefsky & Austen, 2023) for its outsized impact on Canadians, and the far-reaching effects of wildfire smoke. The season further prompted the publication of "The Summer Canada Burned" (Zurowski, 2023), a collection of journalistic reporting done on the fires by Postmedia. The distribution of this survey during such a monumental wildfire event likely influenced some responses related to wildfire due to recent or ongoing exposure.

The responses to the survey totalled 1,481, with 254 variables for potential analysis. Survey weights are available for the full sample based on gender, race, and age characteristics of the province, calculated by the team at Common Ground Politics. These weights are used for all analysis in this thesis, save for the raw proportions displayed in Chapter 4. All respondents were residents of Alberta (with no additional restrictions on location), aged 18 to 95 years old at the time of the survey. All respondents were of an age that they could reasonably move of their own volition (no minors), and there was no maximum age cap imposed for respondents.

The final sample used in my analysis differs slightly from the above, including only 1,439 cases. In total, 42 cases (2.84% of the sample) were removed due to missing data in key variables (gender, ethnicity, or homeownership). Across these three variables there were a total of 45 missing cases. Listwise deletion was performed to remove all data points for any case missing data from one of the above variables, meaning there were three instances in which missing data did not come from a unique respondent.

3.1.1 Limitations

As with most research, there are limitations to my dataset and what it can truly reveal about the sample. First, questions regarding wildfire impact are not specific when considering *which* wildfire season the respondent was impacted by. It is possible that some of the respondents who reported experiencing wildfire-induced property damage, or evacuations did so many years in the past. Second, it does not shed light on the total number of different instances that a respondent experienced any given impact of wildfire. For example, people who experienced wildfire smoke did so for differing durations of exposure, and at different concentrations.

Third, this data is temporal in that it provides information regarding only current residence, meaning that in addition to uncertainties regarding *when* a respondent was impacted by fire, we also cannot know with certainty *where* they were impacted by that fire. It is possible that some respondents experienced wildfire in previous residences and moved as a result. We can assume that some responses are based on experiences during the 2023 wildfire season, and others are not. The inclusion of more specific questions would provide deeper insight into the history of wildfire impact and related migration but were omitted from the survey largely to prevent respondent burnout from the survey length.

Finally, because the sampling method for this survey matched Census benchmarks, only a small proportion of respondents lived in rural areas compared to urban or suburban areas. Wildfire experience is regionally specific; proximity to forest areas influences the level of risk for individuals and communities, the experiences of urban dwellers is markedly different from those in rural areas. By adhering to benchmarks and normative weighting for the demographics of the province individuals who may have more direct experience with wildfire (such as living in a rural community) are outnumbered by urban dwellers.

3.2 Measures

This section reviews each of my dependent, independent, and control variables used for my analysis. Explanations for my variable choices, including their corresponding survey questions and any additional recoding of those responses are detailed below.

3.2.1 Dependent (Outcome) variables

I analyze two sets of dependent variables: a person's degree of concern regarding both wildfires and climate change and their moving intentions.[1] Below I outline how I measure each of these variables including the original survey questions and the ways they have been recoded for analysis in RStudio.

Wildfire and Climate Change Concern

The variables of wildfire and climate change concern are pertinent to answering my research questions about how Albertans' perceptions of climate change and wildfire affect their moving intentions by collecting information on those very perceptions. Because attitudes are considered

[1] I utilize questions gauging general concern about wildfire and climate change to approximate perceptions of those issues. While these questions do not directly measure specific risk perceptions, I do use the language of risk at times in this thesis.

to influence people's risk perception and their subsequent actions surrounding that risk (Rogers, 1975; Zander et al., 2019), I included questions in the survey asking respondents about their level of concern about both wildfire and climate change. These questions were embedded in a list of eight issues they may be concerned about, including other weather-related issues (flooding, heatwaves) and several political issues (government budget deficits, inflation, government overreach, and drug overdose deaths). Each of these issues was presented to respondents with the question "how concerned are you about the following, if at all?" and prompt the respondent to indicate whether they were not concerned, somewhat concerned, or very concerned. This question is worded to collect respondent's level of general concern about these issues and does not necessarily represent their concern that they may be personally affected. I do, however, assume that individuals who responded that they were very concerned would have a higher perception of risk. Responses to these questions were not altered during analysis.

Moving Intentions

The focal variable of my analysis in this thesis concerns the mobility of Albertans, measured by reported moving intentions. Relocation may be studied retrospectively, by analyzing data on households who have already moved, or by predicting patterns of relocation based on people's plans, otherwise, their intent to move. Studying realized moves could have been accomplished by several means such as analyzing Census Canada data, or otherwise obtaining administrative data from institutions including the Canadian Mortgage and Housing Corporation (CMHC), or other tax documentation/credit reporting (see, McConnell et al., 2021). Instead, in this project I ask participants if they plan to move in the future.

I use a predictive measure for this research for a combination of conceptual and practical reasons. As detailed in Chapter 2, intention to move is considered to be a reliable predictor of

realized moves (Ajzen, 1991), and has also been found to result in more permanent moves, compared to individuals who were forced to relocate (i.e., evacuated) due to disaster (Dommermuth & Kluesener, 2019). Practically, this measure helped to eliminate the hardship of locating individuals for the sample who may have moved vast distances (some of which may include international emigration from Canada). Using this forward-looking method I can determine how each respondent was impacted by wildfires, ask if they plan to move, and statistically determine a relationship between those variables.

In the survey, moving intentions were measured using two primary questions developed drawing insight from the Panel Study of Income Dynamics (2021) and Clark and Lisowski (2018). The first question asks, "Are you thinking about moving in the next five years?" with options of yes, no, and maybe. The following question asks, "What is the likelihood that you will move in the next five years?" with the options definitely, probably, and uncertain. These questions align with other demographic surveys, that view thinking about moving and planning to move as two distinct considerations (Clark & Lisowski, 2018, p. 7). Potential movers are also asked "Where are you thinking of moving?" where respondents could choose from: within Alberta, outside Alberta, and considering both options. This question assesses the preferred destination of migrants in a way that broadly illustrates the potential impact on the population of Alberta, without delving too deep into the specifics of people's moving plans.

The questions that follow include ten potential reasons a person might choose to move and ask respondents to indicate if those reasons were considerations for them or not. The list includes a selection of wide-ranging push and pull factors that include relocation due to a natural disaster or extreme weather event (e.g., wildfire, floods), forced relocation by a bank or government, moving for a new school or job opportunity, or to upgrade or become a homeowner (full list

available in Appendix). Respondents are then prompted to disclose which of those reasons was their main motivation for moving or to specify using a fill-in-the-blank response with the primary reason they intend to move. The questions discussed above provide key information to understand who in the sample is a potential mover, and further details as to how likely, where, and why they may move that helps paint a picture of how the relocation may manifest.

3.2.2 Independent (Predictor) Variables

Different wildfire impacts are the key predictor variables in this project for addressing all three of my research questions. Wildfire impact was addressed in the survey by outlining a number of potential experiences with wildfire and prompting the respondent to indicate whether they had, or had not, experienced wildfire in that way. Formatted as a single question, respondents were asked: "Have you or people in your household been affected by wildfire in any of the following ways? (select all that apply)" with a list of potential responses that read: 1. Poor air quality from wildfire smoke; 2. "Prepare to evacuate" advisory issued for my area; 3. Evacuated from home due to wildfire; 4. Hosted wildfire evacuees in my home; 5. Home damaged or destroyed in wildfire; 6. Other property (not home) damaged or destroyed in wildfire; 7. My community suffered fire damage (structures or land were damaged, including warehouses, stores, parks, farms, or fields); 8. Work disrupted by wildfire; 9. Negative physical health outcomes due to the wildfire; 10. Negative mental health outcomes due to the wildfire; 11. I have not been personally impacted by wildfire; 12. Other (Please specify). This question targeted an array of non-mutually exclusive experiences with wildfire. By including each of these eleven unique responses the above question captures both the frequency of different experiences each person had with wildfire, as well as the severity of those experiences. While impossible to know the consequences of each response fully, we can assume that evacuation is more severe than poor air

quality or that property damage is more severe than hosting evacuees due to the material impact of temporary displacement including the financial burden of those experiences. While it is true that air quality degradation can have long lasting health impacts, individuals experiencing an air quality advisory are not necessarily experiencing a loss of shelter or stability in the same way evacuees do, and often evacuation and property damage are compounding experiences in addition to poor air quality.

Text-based responses were not included in any analysis due to their irrelevance to pre-existing categories (unable to fold in), irrelevance to the question (nonsense answers), or statistically insignificant due to the low frequency of response. For example, one respondent indicated they were a firefighter, another noted their cousin was a firefighter, and another yet mentioned the rising cost of insurance; each of these respondents constitute less than one percent of the sample, therefore these responses were not included in analyses. Next, I explain how responses to this question were consolidated for multinomial logistic regression modeling.

Wildfire Experiences, Recoded Variables

I applied multinomial logistic regression to determine the effects that different experiences with wildfire had on moving intentions (discussed in further detail in section 3.3). My regression models were built using four variables as the primary criterion variables. These variables, listed in Table 1, are composites of similar wildfire impacts from the original survey question. Due to the ubiquity of poor air quality in the sample, I coded this variable on its own. Evacuation, all forms of property or community damage, and work disruption have been coded together as a variable due to the high likelihood that an individual who experiences evacuation, would likely experience one or more of the other fallout impacts from an encroaching fire. Finally, the two health related impacts (physical and mental) have been coded together to determine the impact of

health consequences on the outcome variable. I opted to exclude responses indicating whether a respondent had hosted evacuees from the models due to the indirect nature of the impact. None of the listed categories are mutually exclusive.

Table 1 Wildfire Experiences, Recoded as a Composite Variable for Multinomial Logistic Regression Analysis

Original Impact Variable	New Composite Variable
Poor air quality from wildfire smoke	Poor air quality
"Prepare to evacuate" advisory issued for my area	Prepare to evacuate
Evacuated from home due to wildfire	Direct wildfire damage
Home damaged or destroyed in wildfire	
other property (not home damaged or destroyed in wildfire	
My community suffered fire damage (structures or land were damaged, including warehouses, stores, parks, farms, or fields.)	
Work disrupted by wildfire	
Negative physical health outcomes due to the wildfire	Poor health outcomes
Negative mental health outcomes due to the wildfire	

3.2.3 Control Variables

In my models I control for socio-demographic, geographic, socio-economic, and political belief characteristics. These variables were incorporated in both bivariate and multinomial logistic regression analyses in order to understand their relationships with my outcome variables, including how they may isolate the effects of wildfire experience on both perceptions and moving intentions.

Socio-demographic characteristics: I control for age, gender, visible minority status, and household composition (presence of children or a life partner) to assess how impacts and attitudes are distributed across, and potentially shaped by, the life course and identity.

I measure age differently in descriptive analysis and multinomial logistic regression analysis, where it is measured in age groups (18-24, 25-34, 35-44, 45-54, 55-64, 65-74, and 75+) for the

former and in years for the latter. Age groups better represent life course trends, which are not generally linear with age (Dommermuth & Kluesener, 2019; Willekens, 2016); however, in regression models, I mean-center age for analysis, requiring its measurement in years. Gender is measured as male or female with any other gender categories removed due to low response. Visible minority status is measured comparing people who identified as white (reference group), as Indigenous, or as a member of a visible minority ethnic group (any group that was not white or Indigenous).[2] The Viewpoint Alberta Survey originally included a list of 14 racial or ethnic backgrounds to select, including the option to respond with a fill-in text response – most respondents indicated being white or of European descent from a primarily white country (e.g., Irish, Ukrainian) and the remaining selections each comprised such a small proportion of the sample that I elected to collapse them into the two categories: visible minority and Indigenous.

Household composition characteristics include two variables presence of children under the age of 19 in the household, and partnership status which denotes if an individual is currently married or cohabiting with their life partner, not married or cohabiting (including individuals who never married, were widowed, divorced, or separated), or if they prefer not to disclose their relationship status.

Life course theory posits the importance of age and life milestones including marriage and child-rearing in mobility decisions (de Groot et al., 2011; Dommermuth & Kluesener, 2019). Likewise, studies on climate impacts have found that both age and gender are significant factors in terms of how people perceive and experience weather events (Ndlovu & Chungag, 2024; Zander et al., 2019). Visible minority groups are often marginalized, especially regarding housing, where

[2] Indigenous identity was important to keep distinct from other ethnic groups because of the specific historic, cultural, and legal specificities that apply to this group as opposed to others.

disaster-prone neighbourhoods (such as those in floodplains) are constituted largely by racialized people and families (Asad, 2015; Bittle, 2023).

Geographic characteristics: I account for rural/urban status to consider how place, particularly rurality, affects one's experiences with, and attitudes toward, wildfire and climate change. Rural/urban status is measured by self-report identification as to whether someone resides in a rural, urban, or suburban area.

Socio-economic characteristics: I control for income and homeownership to consider how movement is constricted or aided by financial capital. Respondents' household annual income is measured in groups based on self-reports. The original income categories bottomed out at less than $20,000 annually and increased in increments of $20,000 until the top-out income of $300,000 or more, resulting in sixteen unique income categories. These categories were reduced to a low-end income of less than $20,000 and top-out income of greater than $140,000, with each group representing a $20,000 increase in household income (i.e., $20,000 - $39,999, $40,000 - $59,999, etc.). Homeownership is measured as individuals who own their home (outright or with a mortgage) or people who do not own their home (renting or living rent free).

Political Beliefs: I account for political beliefs to determine how ideology is associated with perceptions of wildfire and climate change, in line with previous research by Davidson & Haan (2012). Political ideology is measured using individual self-reports to a survey question asking respondents to rate themselves on the left-right political scale with 0 being very left-wing, and 10 being very right-wing. This 0-10 scale was re-coded for ease of interpretation into five groups consisting of Far Left (0-1), Center Left (2-4), Center (5), Center Right (6-8), Far Right (9-10). The Viewpoint Alberta Survey included a number of variables regarding political affiliation and

ideology including questions about party identification (with provincial political parties), voting history, and future voting intentions for both provincial and federal elections, feelings of identity related to political parties, and feelings of identity related to political groups (e.g., conservative, moderate, libertarian, socialist). Ultimately, I chose to utilize the left-right political scale to determine politics in this analysis; this choice eliminated the possibility that respondents may not fully comprehend the characteristics of different political groups mentioned above, and it somewhat divorces their beliefs from their voting habits, which some people may be hesitant to reveal in earnest.

3.3 Methods

The analysis strategy to answer my three research questions includes both descriptive statistical analysis, bivariate analysis, and multinomial logistic regression analysis. All analyses were completed in R 4.2.2 using RStudio software. I first use descriptive statistics to explore the relationships between each of my predictor, outcome, and control variables. Using bivariate analysis and cross tabulations I examine how people with different socio-demographic and socio-economic characteristics experienced wildfires in different ways. This analysis addresses my first research question – how have Albertans' been impacted by wildfire and who has been most affected? – the results of which are presented in Chapter 4.

Next, I focus on research questions two and three – how do Albertans' experiences with wildfire affect their perceptions of both wildfire and climate change? and how do Albertans' experiences with wildfire affect their future moving intentions? – using multinomial logistic regression models. I explore the interactions between experience and perception, then experience and moving intentions in two separate models. The results of these models are presented in Chapter 5, and findings for all three questions are elucidated further in my discussion chapter, Chapter 6.

3.3.1 Descriptive and Bivariate Analysis

I begin my analysis descriptively, exploring how the sample responded to questions addressing both my predictor and outcome variables. From there, I investigate the bivariate relationships between my key variables and the control variables. The analysis of these bivariate relationships provides information on the relationships between key demographic variables and each of my outcome variables to determine not only who has been impacted by wildfire in Alberta and how, but also if those people experience concern or intent to move at a higher frequency.

3.3.2 Multinomial Logistic Regression Modelling and Analysis

Due to the categorical nature of my variables, I utilized multinomial logistic regression analysis to determine the relationship between my independent and dependent variables. The regression models address relationships between the independent variables (experiences with wildfire), and each of my dependent variables: perceptions of wildfire and climate change, and future moving intentions. These empirical models were inspired by the theory of planned behaviour (Ajzen, 1991) and protection motivation theory (Rogers, 1975), though they do not attempt to test these theories. The theory of planned behaviour justifies the importance of intentionality in decision-making, and protection motivation theory provides a framework for understanding that both the severity of an event and concern regarding that event play important roles in people's responses to that event. These touchstones of each theory are incorporated in my models as I test the relationships between wildfire experience and moving intentions, and concern and moving intentions. All multinomial models were fitted using the nnet package in R (Venables & Ripley, 2002).

My analysis utilizes multinomial regression rather than binomial regression models because multinomial logistic regression models allow for variables with three or more categories to be

used as outcome variables. The structure of my variables may have also been suitable for ordinal logistic regression, a technique specifically for variables with ordered categories, however this method assumes that the coefficients between each of the categories in the model are equal. When tested using multinomial logistic regression, coefficients varied across categories, indicating that a multinomial model was a better fit than an ordinal model. In these models the reference category used for variables assessing risk perception was "not concerned" and for variables assessing moving intentions was "no."

Results from my models were interpreted as relative risk ratios and average marginal effects for ease of comprehension. Relative risk ratios were calculated to determine differences in odds of being in either outcome categories, and average marginal effects were calculated using the marginaleffects package in R (Arel-Bundock et al., Forthcoming) to address differences between categories in any given predictor variable.

3.4 Summary

My analytic approach to this thesis is quantitative, utilizing descriptive, bivariate and multinomial logistic regression analysis techniques. Inspired by previous theoretical and empirical works on migration, climate change, and understandings of Alberta's political and geographic context I use these methods to explore how differences in identity factor into individual wildfire exposure, and how that exposure may influence perceptions of wildfire and climate change, and potential migration decisions. Descriptive and bivariate results are discussed next in Chapter 4, and results from my regression models are presented in Chapter 5.

Chapter 4: Wildfire Impacts, Perceptions, and Moving Intentions of Albertans – A Snapshot

This chapter addresses each of my three research questions, answering the first question in full: how have wildfires affected Albertans, and who has been most affected? The results pertinent to each of my questions are presented in order, starting with the question above, followed with my second: how do Albertans' experiences with wildfire affect their perceptions of both wildfire and climate change? Then the third: how do Albertans' experiences with wildfire affect their moving intentions? These results are preceded by a short section outlining some of the general demographics of the sample. While the data presented below answers my first question, they only serve to provide important contextual information about responses pertinent to the latter two, while the remainder of the results for these questions, presented in Chapter 5, are predictive. All data tables not embedded in the chapter are available in Appendix B for reference.

4.1 Survey demographics

Table 2 summarizes the sample, presenting both the sample frequency and weighted percentages for each of my control variables.

Table 2 Descriptive Statistics, Viewpoint Alberta, June 2023 Survey (cont. next page)

	Sample Frequency	Percentage or Mean (Weighted)			
		Estimate	Standard Error	95% Confidence Interval	
				Lower	Upper
Age Groups					
18-24	91	9.6	1.1	9.58	9.62
25-34	218	17.5	1.2	17.48	17.52
35-44	220	19.8	1.3	19.78	19.82
45-54	239	16.7	1.1	16.68	16.72
55-64	272	16.5	1	16.48	16.52
65-74	270	13.3	0.8	13.28	13.32
75+	129	6.5	0.6	6.49	6.51
Gender					
Men	616	47.6	1.5	47.57	47.63
Women	823	52.4	1.5	52.37	52.43
Visible Minority Status					
White	1132	75.9	1.3	75.87	75.93
Visible Minority	278	22	1.3	21.98	22.02
Indigenous	29	2.2	0.5	2.19	2.21
Partnered					
Not Partnered	516	36.3	1.4	36.27	36.33
Partnered	911	62.5	1.4	62.47	62.53
Prefer not to say	12	1.2	0.4	1.19	1.21
Parenthood Status					
Not a parent	1058	68.4	1.4	68.37	68.43
Parent	381	31.6	1.4	31.57	31.63
Annual Household Income					
less than $20,000	81	6.6	0.8	6.58	6.62
$20,000 to $39,999	184	11.5	0.9	11.48	11.52
$40,000 to $59,999	222	14.6	1	14.58	14.62
$60,000 to $79,999	200	13.7	1	13.68	13.72
$80,000 to $99,999	206	14	1	13.98	14.02
$100,000 to $119,999	165	11.7	1	11.68	11.72
$120,000 to $139,999	94	6.8	0.7	6.79	6.81
>$140,000	287	21	1.2	20.98	21.02
Homeownership Status					
Homeowner	1042	70.2	1.4	70.17	70.23
Non-homeowner (renters and individuals living somewhere rent free)	397	29.8	1.4	29.77	29.83

	Sample Frequency	Percentage or Mean (Weighted)		95% Confidence Interval	
		Estimate	Standard Error	Lower	Upper
Tenure in Canada					
Newcomer	34	2.7	0.5	2.69	2.71
Some of their life in Canada	121	8.7	0.8	8.68	8.72
Most of their life in Canada	234	16.1	1.1	16.08	16.12
All of their life in Canada	1050	72.5	1.3	72.47	72.53
Tenure in Alberta					
Newcomer	57	4.3	0.6	4.29	4.31
Some of their life in AB	311	20.8	1.2	20.78	20.82
Most of their life in AB	484	32.4	1.4	32.37	32.43
All of their life in AB	587	42.5	1.5	42.47	42.53
Urban/Rural Status					
Urban	730	49.4	1.5	49.37	49.43
Suburban	486	33.4	1.4	33.37	33.43
Rural	223	17.2	1.2	17.18	17.22
FSA Region					
Calgary (City)	496	31.5	1.3	31.47	31.53
Calgary (CMA)	49	4	0.7	3.99	4.01
Edmonton (City)	373	23.9	1.2	23.88	23.92
Edmonton (CMA)	111	9.5	0.9	9.48	9.52
Other AB	410	31.2	1.4	31.17	31.23
Politics					
Far Left	52	3.7	0.6	3.69	3.71
Center Left	346	22.5	1.2	22.48	22.52
Center	479	33.1	1.4	33.07	33.13
Center Right	473	34	1.4	33.97	34.03
Far Right	89	6.7	0.8	6.69	6.71

SOURCE: June 2023 Viewpoint Alberta Survey, n = 1439

NOTES: Unweighted sample frequencies. Weighted means, percentages, and 95% confidence intervals. NA values not included in analysis.

All respondents of the Viewpoint Alberta Survey resided in the province of Alberta at the time of the survey, with about half (49.4%) living in urban regions, 33.4% in the suburbs, and 17.2% in rural areas. This distribution is similar to the 2021 Census where the rural population of Alberta

made up about 15.2% of the population of the province (Statistics Canada, 2022b).[3] Physical location of residence is important to the outcomes of both wildfire risk and moving intentions due to a myriad of place-based implications. For example, in Alberta many rural communities are situated in dense forest regions and consequently are more likely to be confronted with wildfire damage and evacuations than densely populated urban centers such as Edmonton and Calgary. Furthermore, many residents of rural areas are tied to their land through industry. Individuals who work in agriculture and natural resources are likely to live in more remote areas to facilitate their work and are often not at liberty to relocate without also changing their jobs, as their profession is heavily location-based.

The age of respondents ranges from 18 to 95 years old, with the mean age being 51.47 years and median being 53 years old. As mentioned in section 3.2 I re-coded age from numeric values into ten-year age groups (save for the youngest category, representing a seven-year group of 18–24-year-olds) to better represent how transitions are mapped across the life course in a non-linear fashion, per life course theory (Dommermuth & Kluesener, 2019; Willekens, 2016). Those aged 18-24 make up the smallest proportion of the sample, followed by those aged 75 and older. There is a fairly even distribution of respondents in the middle age groups, with a slight spike in representation for those 55-64, and 65-74. High representation of those in middle age and retirement is unsurprising given that they are more likely to have exited the workforce and/or have fewer childcare responsibilities, thereby granting them the free time to complete opt-in surveys, such as the Viewpoint Alberta Survey used in this study.

[3] Statistics Canada does not measure urban and suburban areas, rather they calculate all non-rural areas based on their population size, therefore I cannot compare urban and suburban distributions to Census data.

The gender distribution of the sample is slightly skewed toward women, who represent a little over half of respondents (52.4%). Due to the scarcity of responses indicating transgender, non-binary or other gender identities (1.1%), the few that were received have been removed from the analysis. Analysis focused on the impact of wildfire on people with another gender identity is an area for future study.

Ethnic background and identity have been categorized as white, those who identify as part of a visible minority group (non-white, excluding Indigenous respondents), and Indigenous respondents (counted separately from other visible minority groups). Of the sample, 75.9% identify as white or having ethnic roots in Europe, 2.2% of the sample identified as Indigenous (Metis, Non-Status and Status Indians), with the remainder identifying as members of one or more visible minority groups (e.g., Black, South Asian, Arab, or Mixed/Multi-ethnic). Most respondents (72.5%) have spent their entire lives in Canada, and 42.5% have lived their whole lives in Alberta, indicating that although a minority of respondents have immigrated internationally, the majority have, at the very least, immigrated across provincial borders at some point in their lives.

In terms of household composition, most respondents (62.5%) reported being in a partnered relationship, constituting a marriage or cohabiting non-married with their partner. The remainder of the sample was made up of 36.3% of people identifying as unpartnered (never married, widowed, divorced, or separated) and 1.2% of respondents selecting that they prefer not to say. The majority of respondents reported that they were not actively parenting children with 68.4% of people having no children under the age of 19 in their household, and the remaining 31.6% having at least one child living at home. Marital status and presence of children in the household

each have consequences for migration decisions, introducing familial-based decision-making and indication of where they fall in the life course.

Household income was measured categorically, in groups, with the lowest category representing households that earned less than $20,000 annually, and the highest category being those who reported making $140,000 or more. About 21% of the sample reported a household income greater than $140,000, making it the income category with the highest frequency. High representation for high income is to be expected in Alberta, as the median household income in the province is the highest amongst all of the Canadian provinces at about $77,000 per year in 2021 (Government of Canada, 2023a). The next most represented income category was between $40,000 and $59,999 with 14.6% of the sample falling in this category. Only 6.6% of respondents reported earnings in the lowest category, less than $20,000. Overall, Albertans in this sample are financially well off.

Homeownership is a reality for 70.2% of respondents, including both paid off and mortgaged homes, consistent with Statistics Canada data from 2021 stating that 70.9% of Albertans are homeowners (Statistics Canada, 2022c). Both homeownership status and household income are important indicators for potential migration decisions. Owning property makes relocation more burdensome, including the process and financial undertaking of selling a home (and potentially purchasing a new one). Renters are less encumbered when making the decision to move. Money, of course, allows individuals and families to cover the expenses associated with moving therefore household income may impact one's choice to move. Likewise, a lack of funds may lead to a move driven by the need to downsize, reduce housing costs, or to pursue economic opportunity elsewhere (consistent with neoclassical economic theory, amongst others). As noted

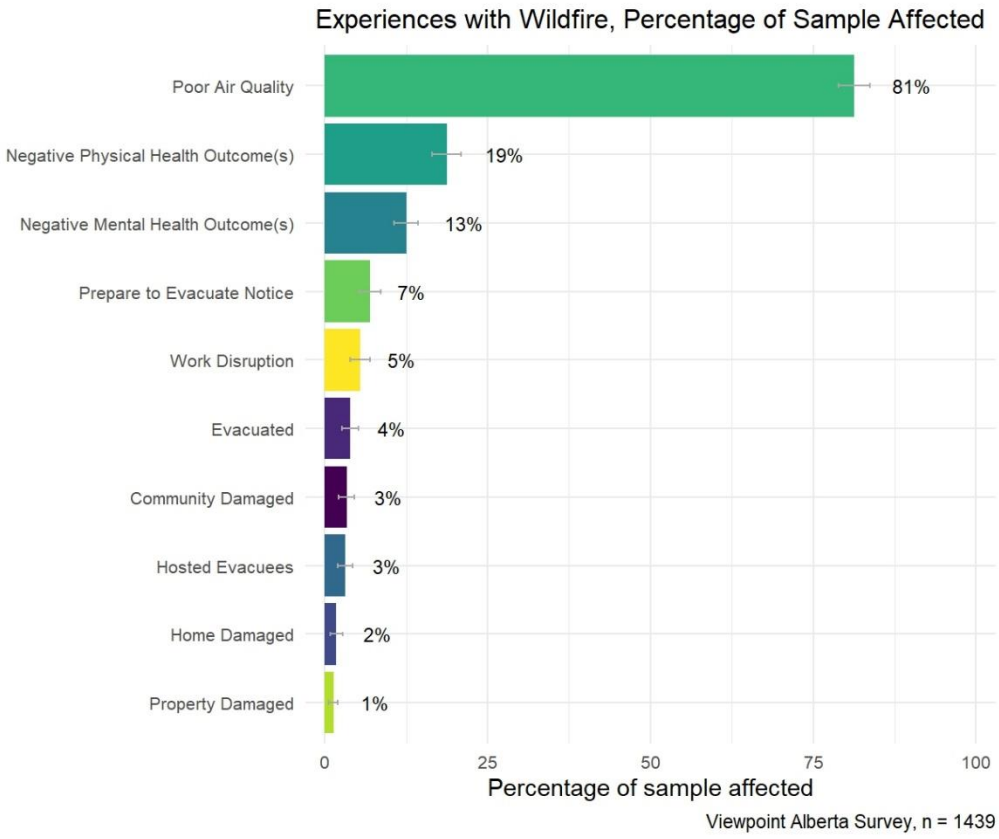
in Chapter 2 unemployment rates have been linked to Canadian migration, an example of how employment status and income are consequential for migration decisions.

4.2 Who was impacted and how?

4.2.1 General impacts

Analyzing the intersection between wildfire experiences and socio-demographic characteristics provides insight into who has faced the most adversity from wildfire, revealing inequalities in the distribution of harm across groups. The following section discusses the notable interactions between respondents' socio-demographic characteristics and their reported interactions with wildfire, beginning with the broad scope of wildfire impacts, then focusing on the relationship of wildfire experience with each pertinent demographic characteristic.

Figure 1 Experiences with Wildfire, Percentage of Sample Affected



Presented in Figure 1 are the distributions for each type of wildfire effect on the sample. The vast majority of respondents (81.3%) reported having experienced poor air quality as a result of wildfire smoke. This finding is unsurprising following the international buzz surrounding Canada's 2023 wildfire season and the associated smoke pollution that travelled across the continent. Although the survey did not implore respondents to specify during which year's wildfire season they were exposed to smoke, it is likely that many people were drawing on their most recent, and potentially ongoing, exposure in 2023.

Following poor air quality, the next most common wildfire experiences related to health outcomes. Negative physical health outcomes were reported by nearly 19% of the sample, and negative mental health outcomes by about 13%. Although the survey requested no additional information regarding the specific details of these health outcomes, the physical health outcomes of acute wildfire smoke exposure are well-documented and include asthma, bronchitis, heart disease, and hypertension (Duncan et al., 2023). It is further possible that respondents indicated they experienced negative physical health outcomes for less severe symptoms such as headaches, fatigue, and general respiratory irritation triggered by wildfire smoke. Similarly, exact mental health outcomes are unknown, and the impacts that wildfires may have on mental health have not historically been as well-documented in existing research compared to physical health issues (Eisenman & Galway, 2022). Nevertheless, an increase in wildfire activity seems to have inspired new research on the mental health effects associated with their damage. Mental health outcomes such as anxiety, insomnia, PTSD, and depression have been identified in wildfire survivors in Canada, the United States, and Australia (Isaac et al., 2024). Further, Mao et al. (2024) identified significant upticks in major depressive disorder (MDD) in Alberta and Nova

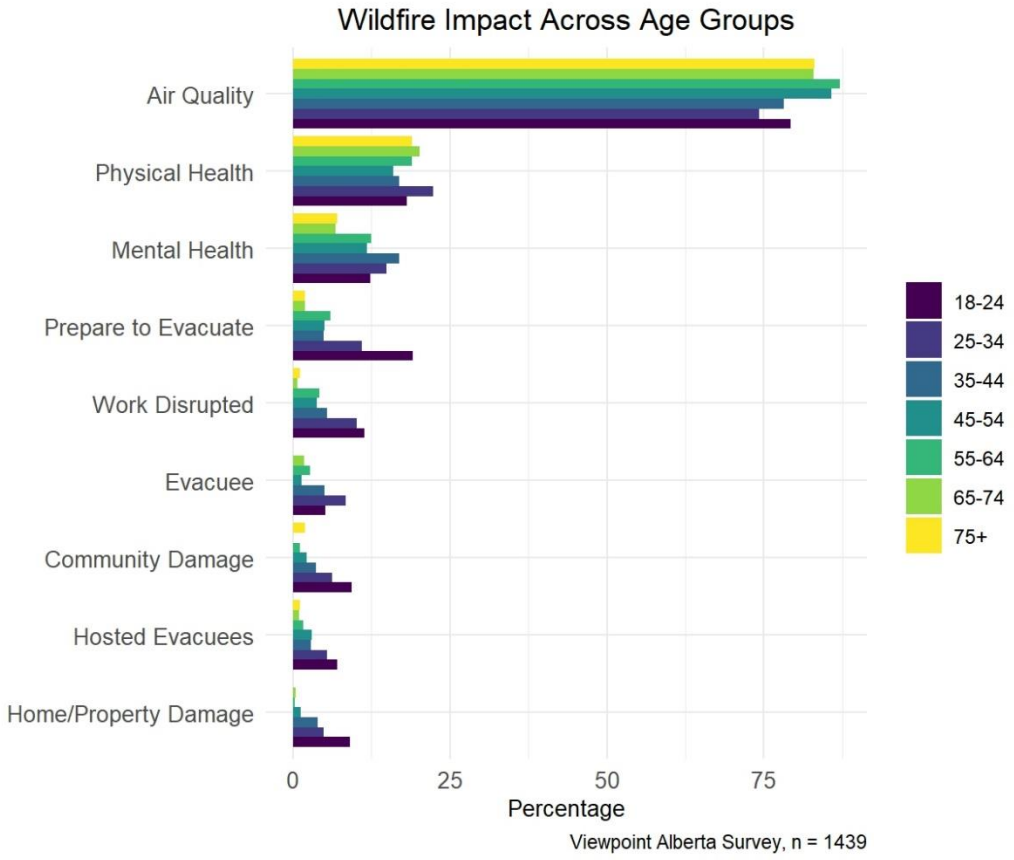
Scotia residents following the 2023 wildfire season with 56.1% of their participants reporting moderate to severe depression as a result (p. 13), and similar results from a similar study by Adu et al. (2024).

4.2.2 Age

In general, I found that wildfires affected young adults at a higher frequency than older adults. Figure 2 compares wildfire experiences across age groups, providing the percentage within each age category who reported a specific experience with wildfire. This figure illustrates that 18–24-year-olds reported higher instances of being issued a "prepare to evacuate" warning (19%), hosting evacuees (7.1%), incurring home or property damage (9%), having their community damaged (9.4%), and experiencing a work disruption (11.4%). In addition, they reported the second highest frequency for undergoing an evacuation (5.2%), followed by 25–34-year-olds for whom 8.4% reported receiving an evacuation order. Compared to older age groups who report far fewer evacuations and damage related impacts, young people appear to receive the brunt of severe wildfire impact. Part of this disparity could be due to a generational digital divide – Canada utilizes a wide-scale SMS based system for its emergency alerts, responsible for distributing alerts including evacuation order to compatible cell phone (Government of Canada, 2016). As a result of this alert system selects for individuals with smartphones, and it is possible that discrepancies by age have to do with the absence of these devices in the lives of older Canadians.

The age discrepancy shrinks when considering the effects of wildfire smoke on air quality, as well as physical and mental health outcomes, which were more evenly distributed across age groups.

Figure 2 ***Wildfire Impact Across Age Groups***



4.2.3 Gender

Men and women had slight differences in their experiences with wildfire, with women reporting poor air quality and negative health outcomes at notably higher frequencies. Experiences with poor air quality was reported by 84.6% of women, but only 77.7% of men; this 6.9% discrepancy between the two groups is the largest of all the different wildfire impacts. This discrepancy may be explained by different exposure; but it is also possible that women have a higher sensitivity to reporting experiences with wildfire smoke compared to men. The next largest gap between men and women is related to their reporting of mental health, where 14.3% of women, and 10.6% of men indicated they experienced a negative mental health outcome as a result of wildfires; less

surprising given that women are known to be more likely to seek help for mental health issues and to participate in mental health surveys (Obuobi-Donkor et al., 2024, p. 10).

4.2.4 Visible Minority and Indigenous status

Respondents who identified as members of a visible minority group faced higher proportions of direct wildfire damage in almost every category. Visible minority respondents reported proportionally higher instances of receiving prepare to evacuate notices, undergoing evacuation, hosting evacuees, sustaining general property damage, home damage, community damage, and experiencing a work disruption compared to those who did not identify as part of a visible minority group. White respondents reported poor air quality, physical, and mental health symptoms at a higher rate than visible minorities, with a discrepancy of 9.4 percentage points regarding exposure to poor air quality.

Indigenous respondents, categorized separately from other visible minority groups, reported being impacted by prepare to evacuate and evacuation orders at disproportionately high rates compared to the entire sample; 27% were issued prepare to evacuate orders and 19.2% evacuation orders, compared to 6.9% and 3.9% respectively among the entire sample. They also reported work disruption at a higher frequency, which is consistent with higher frequencies of evacuation. These findings are in line with expectations regarding wildfire impacts on Indigenous communities due to the rurality and remote locations of Indigenous reserves in Alberta. I did not sample reserves specifically in this study. Only one individual in my study reported being a status Indian living on reserve, this however does not preclude other Indigenous respondents from being on or near reserve or traditional lands during the time of a wildfire evacuation.

4.2.5 Household Income

Individuals with a household income of less than $20,000 per year reported home/property damage at the highest rate, with 7% reporting damage. This income group also reported the highest rate of community damage (6%), work disruption (10%), and hosting evacuees (5%). They also reported the highest rate of receiving notices to prepare to evacuate (tied with those earning $60,000-$79,999 at 9%). Curiously, however, no one with this income reported being evacuated despite their otherwise outsized experiences with wildfire.

4.2.6 Homeownership status

Homeowners reported all experiences with wildfire at a lower rate compared to non-homeowners with the exception of exposure to poor air quality, where 81.8% of homeowners indicated exposure compared to 80.2% of non-homeowners. This small discrepancy is not surprising given the sprawling reach of wildfire smoke. There were, however, higher levels of prepare to evacuate and evacuation orders for non-homeowners, suggesting that wildfires may disproportionately affect non-homeowners. The cause for this discrepancy is not immediately clear but may be related to the location of rental communities as opposed to neighbourhoods with higher instances of homeownership.

4.2.7 Household composition

There were no notable differences in wildfire impact between people with children under 19 at home, or across marital status (single vs cohabiting couples).

4.2.8 Region

Region has an obvious effect on wildfire impact. In the same way that individuals living in floodplains are at an increased risk of flooding, the risk of wildfire is higher for individuals who live in more dense forest areas or in regions experiencing a drought. In Alberta many of the most

at risk regions for wildfire are remote and rural areas, especially those located in designated forest areas in Northern Alberta. Consistent with this understanding of risk allocation by region, bivariate descriptive analysis of wildfire impact across urban, suburban, and rural areas revealed that rurally located respondents received prepare to evacuate, and evacuation notices at a much higher frequency. Surprisingly, no respondents living in rural regions indicated incurring any home or property damage due to wildfires, as opposed to 4% of urban dwellers and 3% of suburban households who indicated that they had. Other impacts were relatively evenly distributed by region.

4.2.9 Politics

Left leaning respondents reported much higher instances of exposure to poor air quality from wildfire smoke, with 97% of those on the far left, and 90% of those who are center left reporting exposure. Comparatively, only 76% and 70% of respondents who indicated they were center right or far right politically (respectively) reported exposure to poor air quality. At face-value these discrepancies offer a reality where individuals who are more conservative experience less air quality degradation from wildfire smoke; this is counterintuitive given that individuals on the political right report experiencing the fallout of wildfire at slightly higher rates for several other categories including evacuations and home and property damage. What is more likely, in this case is that political values are related to one's likelihood of reporting exposure, and that left-leaning people are more likely to report experiences with poor air quality, or that urbanites are more likely to report smoke exposure than those living in rural areas.

4.3 Perceptions of Wildfire and Climate Change

4.3.1 General perceptions

To get a sense of how Albertans perceive both wildfire and climate change, the survey asked how concerned respondents were about each issue with potential responses being not concerned, somewhat concerned, and very concerned. Across the sample, 89% of respondents reported some kind of concern regarding wildfire, but only 71.5% reported concern regarding climate change. This is consistent with responses regarding the perceived effect of climate change on wildfire activity where approximately 26.4% of the sample indicated that they think climate change has no impact on the intensity or frequency of the fires; 23.8% think it is equally likely that climate change does, or does not, influence wildfire activity; and 5.2% are unsure. These findings suggest that even though there is significant concern for both wildfire risks and (to a lesser extent) climate change, there is a disconnect between the cause and effect of wildfires in the minds of many Albertans. The implications of this cognitive uncoupling may have long term impacts on the adaptation strategies that Albertans undertake in pursuit of mitigating the negative impacts of wildfire, which could include their inclination to relocate.

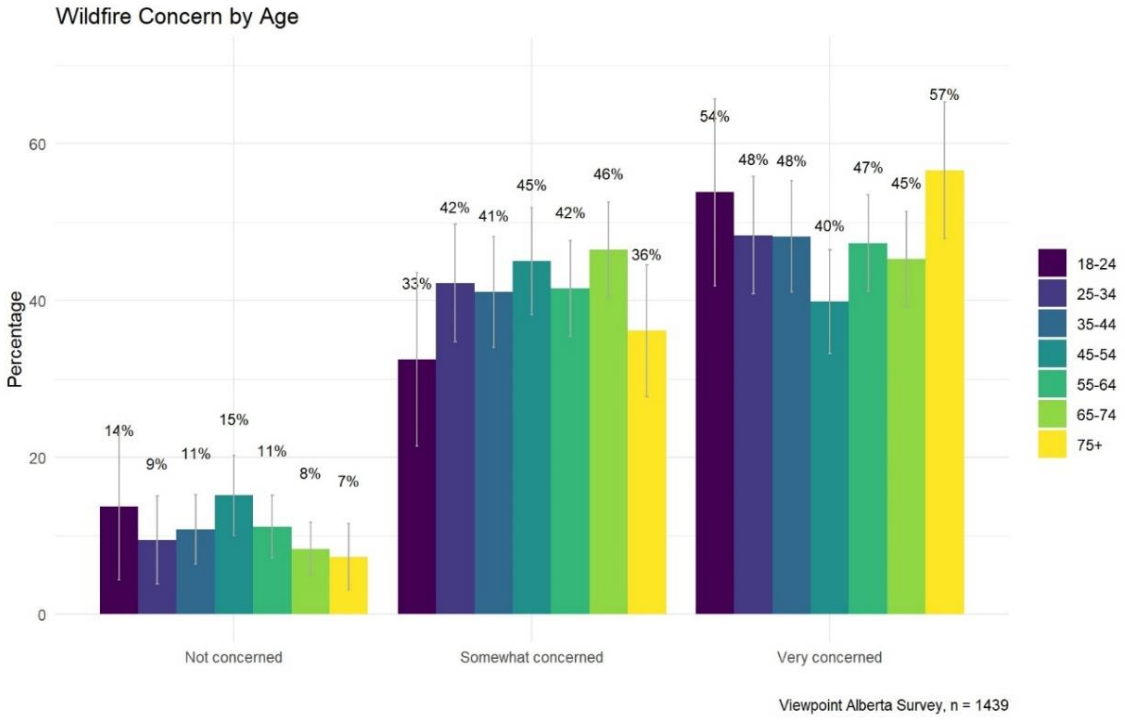
The remainder of this section reviews the notable bivariate relationships between perceptions of wildfire and climate change, and different socio-demographic characteristics of the sample.

4.3.2 Age

Levels of concern regarding wildfire are generally quite high among all age groups. Figure 3 displays the conditional distribution of concern about wildfire across different age groups. The two age groups reporting the highest degree of concern were at either end of the spectrum; those aged 18-24 and those aged 75 and older. Over half of the respondents in each of these age groups indicated that they were very concerned about wildfire, with only 7.3% of those aged 75 or older

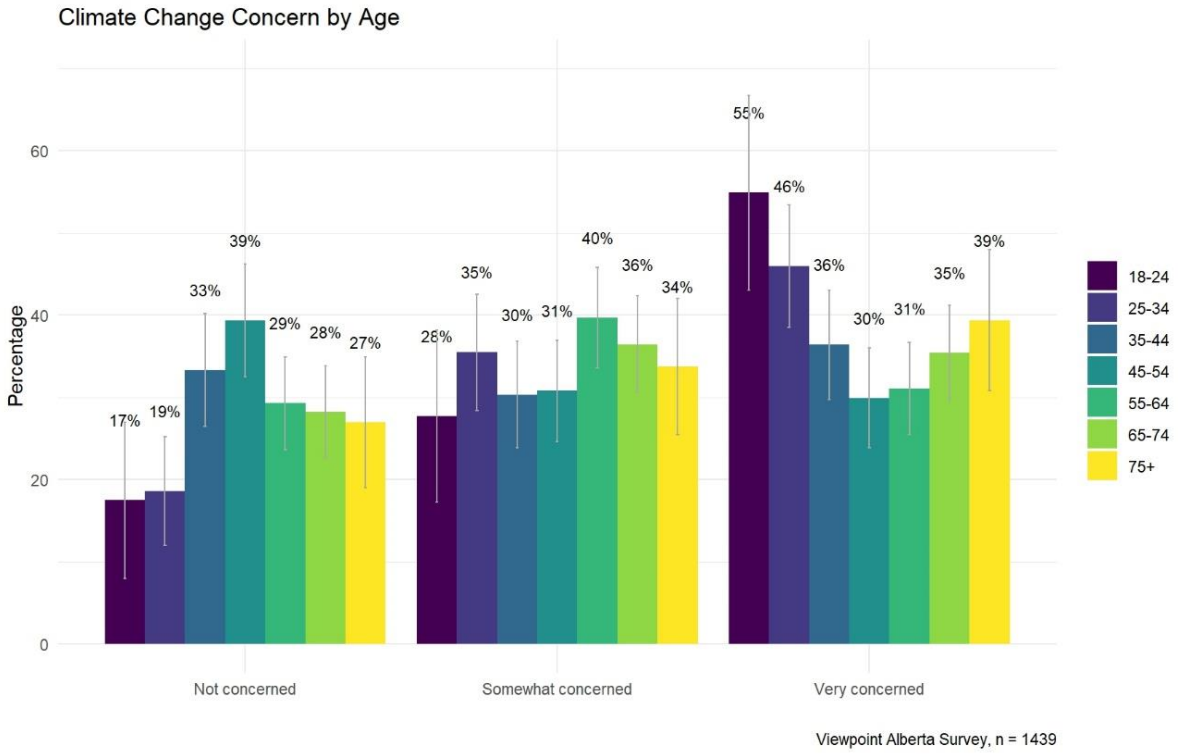
reporting that they were not concerned. There are many reasons why the eldest age cohort may be the most concerned about wildfire risk. Health issues exacerbated by smoke pollution, decreased mobility complicating evacuation procedures, or the potential financial consequences of losing property from wildfire while in retirement could all play a role.

Figure 3 Wildfire Concern by Age



Regarding climate change concerns, there was a relatively even distribution across age groups; about one third of respondents in each age group indicated that they were either not, somewhat, or very concerned about climate change. This was true for all groups except for younger respondents who perceived climate change to be a risk at higher frequencies. As illustrated in Figure 4, concern regarding climate change was highest among 18–24-year-olds, with only 17% of respondents in that age group indicating they were not concerned about it, followed by 19% of 25–34-year-olds.

Figure 4 Climate Change Concern by Age



4.3.3 Gender

Perceptions of wildfire varied slightly by gender with more women reporting being concerned about wildfire than men. Women more often indicate that they are very concerned as opposed to somewhat concerned. Furthermore, while 15.7% of men indicated they were not concerned about wildfires, only 6.9% of women said the same. Although most respondents are concerned about wildfire in some capacity, women reported being more concerned, and more severely concerned than men.

In addition to their heightened concern compared to men, women also reported being impacted by wildfire related fallout more than men in every category (see section 4.2.3). In these cases, it is difficult to ascertain whether this discrepancy is related to a realized difference in effect, or if women are more likely than men to identify, remember, or report these interactions with wildfire

fallout. It is also possible that these discrepancies are tied to other factors, such as political affiliation, which influences the perception of climate change as a threat and has been found to have gendered effects, particularly in Alberta (Davidson & Haan, 2012).

4.3.4 Visible Minority and Indigenous Status

Given the high rate at which visible minorities were affected by wildfire (see section 4.2.4) it was not surprising to find that they report a high level of concern regarding those fires—55.1% of visible minority respondents reported being very concerned about wildfire, and 36.6% reported being somewhat concerned. These proportions are higher than those reported by white respondents of whom only 45% were very concerned and 43.3% were somewhat concerned. There is an even greater discrepancy between these groups regarding their concern surrounding climate change. Those with visible minority status report significantly higher levels of concern regarding climate change, with only 14.9% indicating they are not concerned as opposed to 32.7% of white respondents. These discrepancies suggest that visible minorities may be subjected to the fallout of climate change more often or more severely than their counterparts, causing them to feel greater concern. Alternatively, there may be a difference in culture or politics informing beliefs regarding the risk of these events, or disparity in resources (economic or social) that places visible minorities at an increased risk compared to white respondents.

Most Indigenous respondents reported being either somewhat or very concerned about wildfire (83.2%) and climate change (74.9%). This is consistent with white and visible minority respondents who also reported proportionally higher levels of wildfire concern than climate change concern, however Indigenous respondents do so at much higher rates.

4.3.5 Household Income

Although the proportion of people who expressed being concerned as opposed to not concerned was relatively even across income categories, degree of concern differed. Households earning less than $20,000 a year indicated that they were *very* concerned, rather than somewhat concerned, about each of wildfire and climate change at a much higher rate, compared to individuals with higher incomes. For example, 60% of individuals making less than $20,000 a year reported being very concerned about wildfire and 47% of that same group was very concerned about climate change, the highest proportion for both issues across all income groups. This suggests that socio-economically vulnerable households perceive wildfire and climate change as more concerning than households with higher incomes.

4.3.6 Homeownership status

Overall, respondents who indicated owning their home reported lower levels of concern regarding both wildfire and climate change compared to those who did not own homes; homeowners reported at rates of 11.4% and 31.3% being unconcerned about wildfire and climate change, respectively. Meanwhile, for non-homeowners the rates were 10.4% and 21.7%. These discrepancies suggest that, consistent with the general sample, more people are concerned about wildfire than climate change. Notably, the percentage of non-homeowners who report that they are very concerned is about ten percentage points higher than homeowners for each wildfire and climate change.

4.3.7 Household composition

There was essentially no difference between parents and non-parents regarding concerns about wildfire or climate change. Marital status, likewise, made very little difference. The biggest discrepancies laid between people who disclosed their marital status and those who did not; individuals who selected that they prefer not to disclose had the lowest frequency for being

unconcerned about both climate change and wildfire, with zero respondents in that group indicating they were not concerned about wildfire and the highest frequency of being very concerned for both risks. Unfortunately, due to the low case count for this group the standard errors are very high, and the nature of this response reveals little about household composition, and rather enlightens us more to the trust or otherwise comfort that these respondents have in disclosing their relationship status in an online survey.

4.3.8 Region

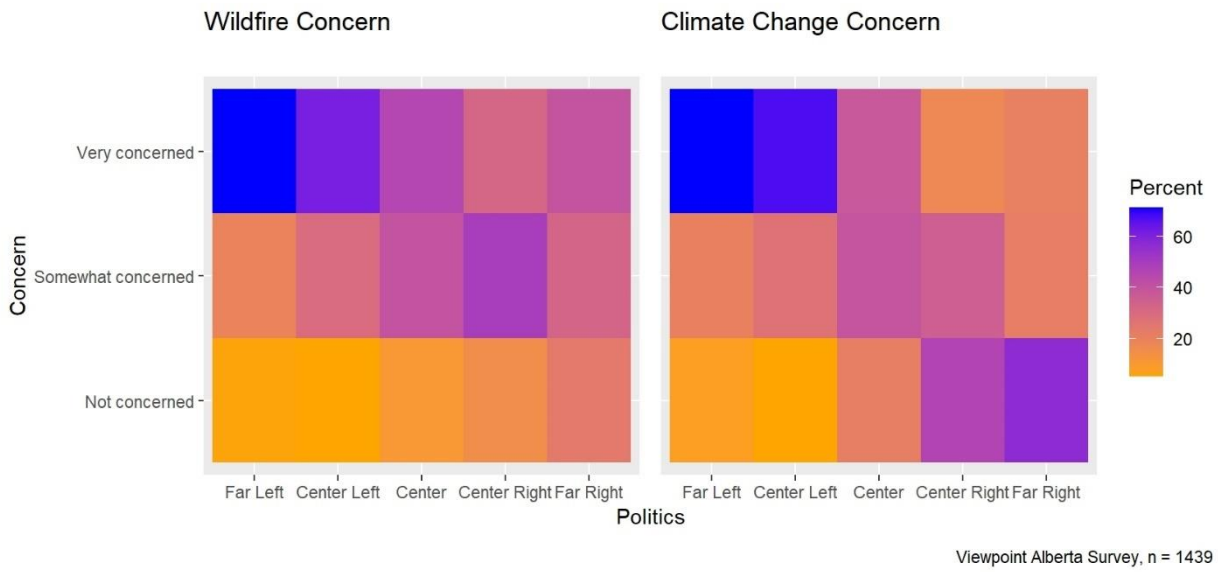
Respondents living in rural areas reported at the highest frequency the level of least concern, with 44% of them saying they were not concerned about climate change (compared to 25% and 26% by urban and suburban dwellers) and 13% not concerned about wildfire (compared to 9% and 12%, urban and suburban). According to these findings, urbanites are more concerned about wildfires and climate change even though they do not necessarily experience displacement at the same rates as those in rural areas. This suggests that risk perception may be informed by experiences other than evacuation; the urban/rural divide regarding levels of concern suggests that perceptions of wildfire and climate change may also be influenced by cultural (and political) norms which differ across degrees of urbanization.

4.3.9 Politics

Bivariate analysis exploring the relationship between politics and risk perceptions in this sample reveals, much like other works, that these characteristics are closely linked. A large proportion of individuals who identified as being right of center on the political spectrum expressed that they were not concerned about wildfires, including 15.1% of those who were center right and 24.2% of those on the far right. Comparatively, very few individuals left of center expressed no concern with only 4% and 4.6% of those who were center left and far left, respectively. For the most part,

degree of concern for wildfire declines from left to right across the political spectrum. Trends for perception of climate change were likewise divided across the political spectrum, as shown side-by-side with wildfire perceptions in Figure 5, where the density for concern appears inverted across the spectrum. Across both wildfire and climate change, those on the right were always less likely to be concerned than those on the left. This data supports the understanding that there is an ideological and/or political slant to perceiving climate change as a threat, and that this perception may impact on how people view individual climate disasters, such as wildfire. The consequences for this could include the rejection of wildfire being tied to the ongoing effects of climate change, resulting in inaction from more conservative Albertans in the face of these disasters.

Figure 5 ***Wildfire and Climate Change Concern by Political Beliefs***



4.4 Moving Intentions

4.4.1 General moving intentions

When asked whether they plan to move in the next five years, 52.4% of respondents indicated that they will not, 30.9% indicated they might, and 16.8% indicated that they do intend to move. Of those who indicated that they did, in some capacity, intend to move (n = 657) about half (45.1%) were uncertain of their likelihood to realize their intentions to move, 35.5% thought they would probably move, and only 19.4% indicated they would definitely move. Of those same potential movers 31.6% indicated they were planning to leave Alberta when they move, 40.1% were planning to stay, and 28.3% were considering both options. Moves within the province of Alberta would encompass both residential moves within the same city or town or relocation to a new region of the province and moves out of Alberta may constitute moves to other provinces, or international relocation.

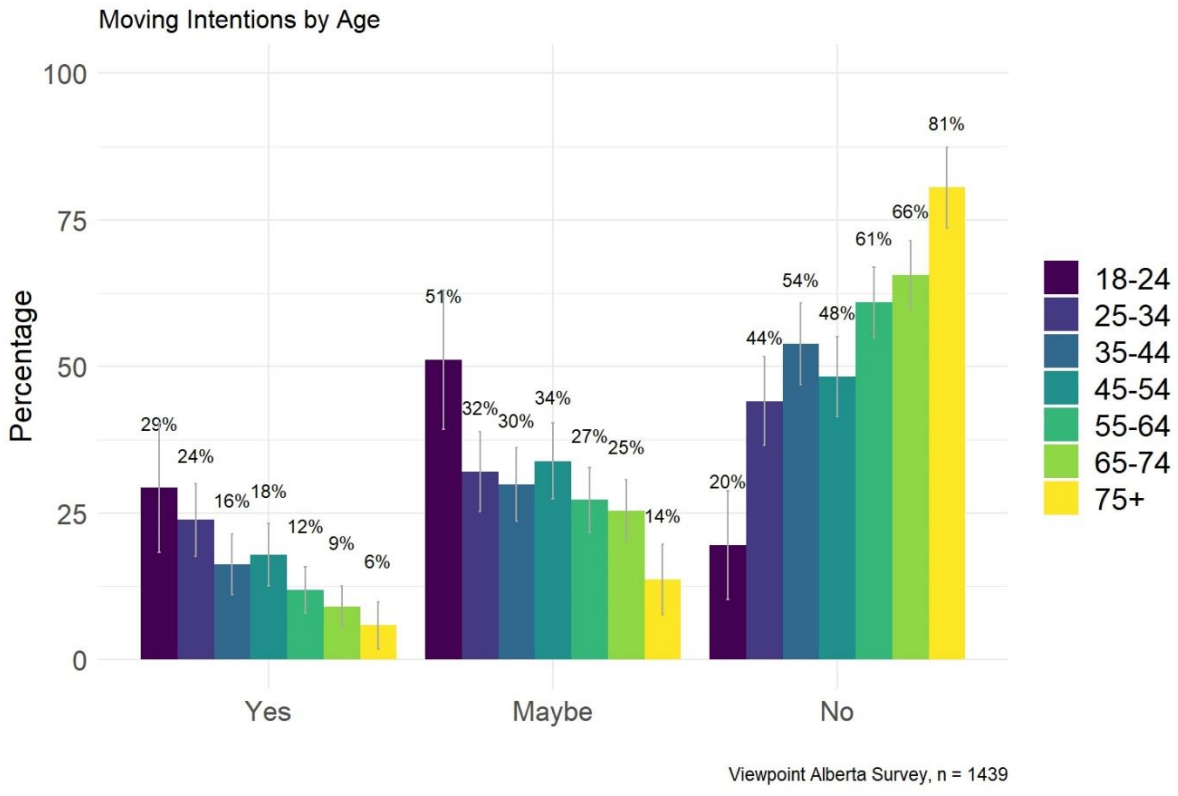
Although an overwhelming majority of the sample was impacted by wildfire or concerned about the risks it posed, when respondents were asked about their main reason for wanting to move, natural disaster/extreme weather was the least represented category chosen. Only 1.2% of potential movers indicated it as their main reason for moving, and only 3.2% of respondents indicated that it played any part in their decision making. Rather, financial strain was the most common reason for considering relocation. Despite these findings, it is reasonable to assume that for many people climate change may underpin their stated reasons for moving, even if they are not cognizant of the relationship. For example, one of the secondary effects of natural disaster is financial strain, including increased insurance premiums, the cost of repair and rebuilding, and lost income for industries including agriculture in the case that crops are damaged, and potentially resource extraction in the case that work must be disrupted for employee safety.

Otherwise, these statistics reinforce existing literature that people are not moving en masse due to severe climate events (de Haas, 2023).

4.4.2 Age

Literature drawing on life course theory predicts that people are most likely to move as young adults and retirees (Dommermuth & Kluesener, 2019), yet my data represents a nearly linear relationship between age and moving intention where fewer people choose to move as they progress through life, with just a slight deviation for those in the 45-54 age range. Unsurprisingly, age groups 18-24 and 25-34 have the highest frequencies of individuals contemplating relocation and those aged 75 and older have the lowest frequency. Figure 6 illustrates the differences across age groups, clearly showing the trend for younger people to indicate plans to move at a higher rate.

Figure 6 Moving Intentions by Age



Although those aged 75 and older were the most concerned, they also reported the lowest levels of intention to relocate, with 80.5% of respondents in that age group indicating they had no plans to move in the next five years. Conversely, 18–24-year-olds, while also reporting high levels of concern, report the highest frequency of individuals with possible intent to move in the next five years, with only 19.5% indicating that they will remain at their current residence. These findings suggest that concern or risk identification regarding wildfire is not as important for predicting relocation as age. Young adults are generally more mobile than other age groups as they are often moving away from home, for school or work for the first time, meanwhile those 75+ are often settled into retirement and are less likely to move again in their lifetime; seemingly their perceived wildfire risk will not disrupt these assumptions.

While life course theory would suggest that those aged 55-64 would have an increased frequency of relocation or intent to relocate as they enter retirement (with 65 being the standard age of retirement in Canada), the data actually shows that 45–54-year-olds have an uptick in moving intentions, making them the group with the third highest proportion of potential movers (with 51.8% considering moving). This could be a result of several life circumstances, potentially empty nesters moving in advance of retirement, or early retirees. It is also possible that a contingent of these people were previous interprovincial migrants who moved to Alberta during the oil boom around the turn of the century, now planning to make their way home. Overall, this distribution of moving intentions by age is similar to what is reported in the literature. Age does not appear to influence *where* people intend to move, only *if they do* intend to move.

4.4.3 Gender

There are no substantial differences between the moving intentions, likelihoods, or destination between men and women. Slightly more women than men (3.1 percentage points) indicate their

intention to move however there are relatively similar proportions across other moving related questions suggesting that gender is not an important factor for deciding whether someone will move and whether that move will be in-province, or interprovincial.

4.4.4 Visible Minority and Indigenous Status

Individuals who identify as part of a visible minority group report intending to move in the next five years at a slightly higher frequency than their white and Indigenous counterparts. Despite having been closely impacted by wildfire via evacuation at much higher rates than the rest of the sample, Indigenous respondents do not report that they intend to move at a higher rate. Visible minorities report at the highest rate that they do, or might, intend to move at 55% as opposed to 45% of white respondents and 48% of Indigenous respondents. It is important to note that many Indigenous peoples in Canada have deep cultural attachments to place (Asfaw et al., 2019), in addition to place-based provisions of rights through the reserve system across the country that introduce barriers to leaving said reserve lands (*Indian Act*, 1985).

Visible minorities are also more confident in their ability to follow through with a potential move than white respondents, reporting slightly higher instances of either definitely (24%) or probably (34%) completing their move. Most Indigenous respondents who wanted to move indicated they would probably move (64%), but had the lowest proportion of definite movers, with only 11% indicating they would definitely move. Destination is not drastically different between the three groups, however Indigenous respondents report at a higher level wishing to move within Alberta versus leaving the province, with about 58% of potential movers indicating they would remain.

4.4.5 Household Income

Again, respondents who reported having the lowest income stand out; 58% of people in households earning less than $20,000 responded that they *might* move in the next five years, with

17% saying they would and only 25% saying they would not. When asked, 62% of respondents in this income group reported uncertainty about the likelihood of their move. This is the highest degree of uncertainty among any income group which is unsurprising given the uncertainty associated with financial instability. Respondents with lower incomes may be more likely to need to move for work, to be priced out of their living arrangement, or perhaps to be early-career youth who are trying to decide where they will move during the highly transitional period of life. Uncertainty in those moves may be because low-income individuals are unable, or unsure of how, to realize this move. Respondents with a higher income may report intentions to move for opposite reasons, such as upgrading residence rather than downgrading or moving to a more desirable neighbourhood since they have the means to do so.

4.4.6 Homeownership status

Approximately 40% of homeowners report some degree of intent to move in the coming five years compared to about 63% of non-homeowners. Of the homeowners who indicated that they intend to move, only 14.7% of them indicate they will definitely move, as opposed to 25.3% of non-homeowners. These findings are consistent with place-based understandings of migration, particularly that homeownership creates an incentive to stay, and/or a financial and logistic barrier to relocation when individuals must first successfully sell their home before moving. There were no distinct differences between the two groups regarding where they wanted to move.

4.4.7 Household composition

As with wildfire impact and risk perception, household composition (parenthood and marital status) does not present large differences in moving intentions. Individuals who are cohabiting with their partner indicate that they will not move at the highest frequency (57%), suggesting that

the presence of another individual in the household introduces barriers to relocation, in line with theories of migration that acknowledge the power of household, as opposed to individual, decision-making (Massey et al., 1993).

4.4.8 Region

Moving intentions were lowest among rural respondents, with 57% of them indicating they have no intention of moving compared to 51% of suburban households and 52% of urban households. Suburbanites indicate their desire to move within Alberta at the highest rate (43%), while rural households indicate a desire to move out of the province at the highest rate (40%). This suggests that although rural households intend to move at lower rates, when they do move it will likely be out of the province.

4.4.9 Politics

A person's political leaning seems to have little effect on whether they anticipate moving, however it does impact the type of move they anticipate. Respondents who rated themselves to be more right-wing indicate at a higher frequency that they would move within Alberta, while those who rate themselves as being more left-wing indicate they would move out of the province.

4.5 Summary of descriptive statistics

This chapter presents the descriptive statistics for each of my key variables: wildfire impacts, perceptions of wildfire and climate change, and moving intentions. Further, it details some of the discrepancies in experience and intention across key individual demographic characteristics. The results in section 4.1 answer my first research question: how have wildfires affected Albertans and who has been affected? Most Albertans experienced air quality degradation caused by wildfire smoke, and a sizable number of people reported negative physical and mental health outcomes. This data revealed disproportionate harm across ethnicity and age. Specifically, those

who identified as Indigenous, and to a lesser extent other visible minorities, experienced higher levels of receiving prepare to evacuate and evacuation notices. Young adults also experienced these notices at a higher rate than older participants, in addition to other severe wildfire impacts including home, property, and community damage. Individuals who were in the most economically disadvantaged households (earning less than $20,000 annually) experienced higher rates of home, property, and community damage, and work disruption. Given that younger adults tend to make less money, it is likely that there is some overlap in these two categories. These findings suggest that there is, in fact, an unequal distribution of harm when it comes to wildfire, and young, racialized, economically disadvantaged Albertans are most affected. Results also show that politically left-leaning Albertans report wildfire harm at a higher rate.

This chapter also explores perceptions, revealing that overall, more Albertans are concerned about wildfire than climate change. Young people and individuals who identified as being a part of a visible minority or Indigenous group reported higher rates of concern in both categories. Beyond this, political beliefs appear to play a large role in perception; aligned with other literature on the topic (Ameztegui et al., 2018; Fownes & Allred, 2019; Hornsey et al., 2016) my bivariate analysis reveals that higher rates of left-leaning individuals perceive wildfire and climate change to be a risk compared to those on the political right.

Finally, moving intentions also seem to be associated with youth and racialization. Young people report the highest rate of intending to move soon, in line with life course theory, which suggests that young adulthood is a time of massive transition in people's lives as they move for school, work, and other life experiences (Clark & Lisowski, 2018).

Chapter 5: Determinants of Perceptions and Moving Intentions Amongst Albertans

The previous chapter outlined some of the relationships between my key variables of wildfire experience, perceptions of wildfire and climate change, and moving intentions with different individual characteristics. Although these analyses presented notable relationships, they did not test the strength or significance of those relationships. This chapter presents the results of multinomial regression models that provide deeper insight into the associations between the effects of wildfire and people's perceptions of threat and intentions to move. I begin this chapter by discussing the multinomial models that address my second research question: How do Albertans' experiences with wildfires affect their perceptions of both those wildfires and climate change? Followed by the analysis of a separate model for my third research question: How do Albertans' experiences with wildfires affect their moving intentions? The results of my analyses are presented as relative risk ratios (RRR's) and average marginal effects (AME's) for clarity of interpretation. Relative risk ratios present the differences between an outcome category with the reference category, in this thesis I interpret RRR's as percentages, indicating the percent increase or decrease in the relative risk of a given category being chosen, compared to the reference category. Average marginal effects represent the average difference in the probability of selecting each outcome category (compared to the reference group), allowing for comparisons between all options. Average marginal effects values are represented in their raw form in my tables and explained as a difference in percentage points in the text, these percentage point values are calculated by multiplying the AME's by one hundred. In all models I control for age (mean centered), gender, visible minority status, indigeneity, tenure in Alberta, parental status,

partnership status (i.e., marital status), income, homeownership status, region (i.e., urban/suburban/rural), and political beliefs.

5.1 Perceptions

Table 3 shows the results for my first multinomial logistic regression model predicting perceptions of wildfire, Table 4 shows the same results for perceptions of climate change.

Table 3 Results from Multinomial Logistic Regression Predicting Wildfire Perceptions

	Wildfire Perceptions							
	Somewhat Concerned v Not Concerned				Very Concerned v Not Concerned			
Variable	b		SE	RRR%	b		SE	RRR%
Poor Air Quality	0.67	*	0.229	95.495	1.187	***	0.246	227.824
Prepare to Evacuate	1.35	*	0.675	285.873	1.61	*	0.674	400.235
Direct Damage	-0.932	*	0.379	-60.618	-0.47		0.375	-37.481
Poor Health Outcomes	0.861	*	0.362	136.652	1.562	***	0.358	376.857
Age (mean centred)	0.002		0.008	0.208	0.012		0.008	1.188
Gender (ref. men)	0.697	***	0.209	100.718	1.005	***	0.213	173.274
Visible minority status (ref. white)								
Visible Minority	0.433		0.319	54.253	0.855	**	0.32	135.059
Indigenous	-0.328		0.759	-27.974	0.116		0.743	12.333
Tenure in Alberta (ref. all of life in AB)								
Newcomer to AB	0.61		0.611	84.105	0.716		0.619	104.616
Some of their life in AB	0.089		0.286	9.345	0.323		0.29	38.085
Most of their life in AB	-0.196		0.23	-17.802	-0.067		0.236	-6.502
Parenthood	-0.292		0.263	-25.308	-0.162		0.269	-14.93
Partnership (ref. single)								
Partnered	0.392		0.241	47.959	0.454		0.246	57.513
Prefer not to say	12.122	***	0.34	399244245.7	12.708	***	0.34	717242378.8
Income Level (ref. <$20,000)								
$20,000 to $39,999	1.129	*	0.501	209.301	0.541		0.49	71.85
$40,000 to $59,999	0.826		0.468	128.361	0.26		0.456	29.638
$60,000 to $79,999	1.271	*	0.51	256.518	0.726		0.498	106.744
$80,000 to $99,999	0.815		0.482	126.015	-0.166		0.476	-15.331
$100,000 to $119,999	0.776		0.494	117.255	-0.113		0.489	-10.693
$120,000 to $139,999	0.54		0.54	71.55	-0.391		0.542	-32.364
$140,000 or more	0.695		0.469	100.324	0.025		0.46	2.554
Homeownership status (ref. homeowner)	0.059		0.279	6.073	0.207		0.281	23.051
Rurality (ref. urban)								
Suburban	-0.237		0.223	-21.122	-0.305		0.229	-26.3
Rural	-0.339		0.293	-28.762	-0.289		0.299	-25.125

	Somewhat Concerned v Not Concerned				Very Concerned v Not Concerned			
	b		**SE**	**RRR%**	**b**		**SE**	**RRR%**
Political Beliefs (ref. center)								
Far Left	-0.102		0.804	-9.66	0.965		0.767	162.514
Center Left	0.396		0.353	48.645	1.067	**	0.35	190.607
Center Right	-0.272		0.238	-23.792	-0.724	**	0.245	-51.52
Far Right	-1.103	**	0.351	-66.803	-1.159	**	0.357	-68.616

*p<0.05; **p<0.01; ***p<0.001
b = Coefficient, SE = Standard Error, RRR % = Relative Risk Ratio calculated as a percent
Source: Viewpoint Alberta Survey, June 2023, n = 1439
Note: Of the twelve respondents that selected that they "prefer not to say" what their partnership status was zero said they were not concerned about wildfire, leading to extraordinary coefficients.

Table 4 Results from Multinomial Logistic Regression, Predicting Climate Change Perceptions

	Climate Change Perceptions							
	Somewhat Concerned v Not Concerned				Very Concerned v Not Concerned			
Variable	**b**		**SE**	**RRR%**	**b**		**SE**	**RRR%**
Poor Air Quality	0.394	*	0.195	48.243	0.455	*	0.218	57.623
Prepare to Evacuate	-0.407		0.357	-33.454	-0.173		0.366	-15.899
Direct Damage	0.456		0.302	57.836	0.115		0.325	12.191
Poor Health Outcomes	0.77	***	0.211	116.054	1.301	***	0.216	267.246
Age (mean centred)	0.012	*	0.006	1.204	0.011		0.006	1.077
Gender (ref. men)	0.221		0.155	24.735	0.149		0.166	16.106
Visible minority status (ref. white)								
Visible Minority	1.08	***	0.247	194.266	1.601	***	0.255	395.629
Indigenous	-0.018		0.645	-1.789	0.954		0.598	159.732
Tenure in Alberta (ref. all of life in AB)								
Newcomer to AB	0.147		0.417	15.851	0.477		0.431	61.216
Some of their life in AB	0.076		0.208	7.889	0.148		0.223	15.925
Most of their life in AB	-0.287		0.174	-24.968	-0.247		0.188	-21.853
Parenthood	-0.083		0.197	-7.924	-0.082		0.211	-7.849
Partnership (ref. single)								
Partnered	-0.069		0.18	-6.669	-0.186		0.191	-16.977
Prefer not to say	1.55		1.156	372.115	1.187		1.199	228.594
Income Level (ref. <$20,000)								
$20,000 to $39,999	0.007		0.39	0.711	0.099		0.391	10.416
$40,000 to $59,999	0.209		0.377	23.242	-0.146		0.385	-13.526
$60,000 to $79,999	0.446		0.39	56.148	0.351		0.397	42.14
$80,000 to $99,999	0.196		0.394	21.633	-0.001		0.402	-0.124
$100,000 to $119,999	0.562		0.4	75.411	-0.084		0.422	-8.105
$120,000 to $139,999	0.432		0.445	53.958	0.055		0.469	5.705
$140,000 or more	0.571		0.382	76.938	0.311		0.393	36.454
Homeownership status (ref. homeowner)	0.113		0.201	11.942	0.09		0.209	9.396
Rurality (ref. urban)								
Suburban	-0.026		0.169	-2.524	-0.034		0.182	-3.304
Rural	-0.695	**	0.217	-50.1	-0.575	*	0.229	-43.739

	Somewhat Concerned v Not Concerned				Very Concerned v Not Concerned			
	b		SE	RRR%	b		SE	RRR%
Political Beliefs (ref. center)								
Far Left	0.198		0.567	21.992	1.41	**	0.514	309.777
Center Left	1.171	***	0.303	222.415	2.151	***	0.297	759.583
Center Right	-0.848	***	0.171	-57.15	-1.463	***	0.193	-76.844
Far Right	-1.672	***	0.3	-81.208	-1.934	***	0.333	-85.537

*p<0.05; **p<0.01; ***p<0.001

b = Coefficient, SE = Standard Error, RRR % = Relative Risk Ratio calculated as a percent
Source: Viewpoint Alberta Survey, June 2023, n = 1439

5.1.1 Key predictor variables

Poor Air Quality

Table 3, above, shows that people who experienced poor air quality had a 95% higher relative risk of indicating they were somewhat concerned about wildfires as opposed to unconcerned than people who did not experience poor air quality. The same group's relative risk of indicating that they were very concerned as opposed to not concerned was 2.2 times higher. As average marginal effects (Table 5) this means that individuals who experienced poor air quality due to wildfire were 8.4 percentage points less likely to report being not concerned about wildfires, 5.2 percentage points less likely to report they were somewhat concerned, and 13.6 percentage points more likely to report that they were very concerned about wildfires when compared to individuals who did not report experiencing poor air quality. These results suggest that Albertans' perceptions of wildfire are impacted by their exposure to wildfire smoke, and that those who experience poor air quality are more likely to express strong levels of concern than those who were not.

For the same group of individuals impacted by poor air quality, there were differing levels of concern for climate change. Shown in Table 6, those who experienced poor air quality were 6.5 percentage points less likely to be not concerned about climate change, 2.9 percentage points

more likely to report being somewhat concerned, and 3.6 percentage points more likely to report being very concerned than those who did not experience poor air quality. These results, while still indicative of a positive relationship between wildfire smoke exposure and increased concern about climate change, are weaker. This, alongside descriptive statistics from the previous chapter, suggests that some people do not consider wildfire and climate change as analogous threats, despite research that has linked more severe wildfires in Alberta to conditions caused by climate change (Whitman et al., 2022). Being that air quality degradation from wildfire smoke was the most common experience with wildfire, and that under half of the sample think that climate change influences wildfire activity, this disconnect is not surprising.

Table 5 Average Marginal Effects, Perceptions of Wildfire

		Not Concerned		Somewhat Concerned		Very concerned	
term	**contrast**	**estimate**		**estimate**		**estimate**	
Poor Air Quality	1 - 0	-0.083	***	-0.054		0.138	***
Prepare to Evacuate Notice	1 - 0	-0.074	***	-0.014		0.087	
Direct Damage	1 - 0	0.067		-0.123	*	0.056	
Poor Health Outcomes	1 - 0	-0.072	***	-0.108	***	0.18	***
Age (mean centered)	dY/dX	0		-0.002		0.002	*
Gender (Ref: Men)	Women	-0.066	***	-0.026		0.092	***
Homeownership (Ref: Homeowner)	Non-homeowner (renters and individuals living somewhere rent free)	-0.01		-0.025		0.034	
Tenure of residence in Alberta (Ref: All of their life in AB)	Newcomer	-0.041		0.002		0.039	
	Some of their life in AB	-0.014		-0.039		0.054	
	Most of their life in AB	0.012		-0.032		0.021	
Income Level (Ref: <$20,000)	$20,000 to $39,999	-0.066		0.143	*	-0.077	
	$40,000 to $59,999	-0.047		0.128	*	-0.082	
	$60,000 to $79,999	-0.076		0.14	*	-0.064	
	$80,000 to $99,999	-0.032		0.204	***	-0.172	**
	$100,000 to $119,999	-0.032		0.185	**	-0.153	*
	$120,000 to $139,999	-0.008		0.179	*	-0.171	*
	$140,000 or more	-0.032		0.141	*	-0.109	
Parenthood (Ref: No children)	Parent	0.019		-0.037		0.018	
Partnered (Marriage/cohabitation) (Ref: Not partnered)	Partnered	-0.034		0.007		0.027	
	Prefer not to say	-0.122	***	-0.055		0.176	

		Not Concerned		Somewhat Concerned		Very concerned	
term	**contrast**	**estimate**		**estimate**		**estimate**	
Urban/Suburban/ Rural Status (Ref: Urban)	Rural	0.025		-0.024		-0.001	
	Suburban	0.021		0.002		-0.023	
Visible Minority Status (Ref: White)	Visible Minority	-0.043	*	-0.062		0.105	*
	Indigenous	0.01		-0.093		0.082	
Political Beliefs (Ref: Center)	Far Left	-0.031		-0.198	**	0.228	***
	Center Left	-0.041	*	-0.121	***	0.162	***
	Center Right	0.039	*	0.072	*	-0.111	***
	Far Right	0.12	**	-0.053		-0.067	

*p<0.05; **p<0.01; ***p<0.001
Source: Viewpoint Alberta Survey, June 2023, n = 1439

Table 6 Average Marginal Effects, Perceptions of Climate Change

		Not Concerned		Somewhat Concerned		Very concerned	
Variable	**contrast**	**estimate**		**estimate**		**estimate**	
Poor Air Quality	1 - 0	-0.065	*	0.029		0.036	
Prepare to Evacuate Notice	1 - 0	0.047		-0.064		0.017	
Direct Damage	1 - 0	-0.047		0.087		-0.04	
Poor Health Outcomes	1 - 0	-0.136	***	-0.014		0.151	***
Age (mean centered)	dY/dX	-0.002	*	0.001		0	
Gender (Ref: Men)	Women	-0.029		0.029		0	
Homeownership (Ref: Homeowner)	Non-homeowner	-0.015		0.013		0.002	
Tenure of residence in Alberta (Ref: All of their life in AB)	Newcomer	-0.04		-0.033		0.073	
	Some of their life in AB	-0.015		-0.003		0.018	
	Most of their life in AB	0.041		-0.031		-0.01	
Income Level (Ref: <$20,000)	$20,000 to $39,999	-0.008		-0.01		0.018	
	$40,000 to $59,999	-0.009		0.061		-0.052	
	$60,000 to $79,999	-0.06		0.049		0.011	
	$80,000 to $99,999	-0.017		0.041		-0.024	
	$100,000 to $119,999	-0.047		0.134	*	-0.087	
	$120,000 to $139,999	-0.042		0.085		-0.043	
	$140,000 or more	-0.068		0.082		-0.014	
Parenthood (Ref: No children)	Parent	0.012		-0.007		-0.005	
Partnered (Marriage/cohabitation) (Ref: Not partnered)	Partnered	0.017		0.009		-0.026	
	Prefer not to say	-0.157		0.166		-0.009	

Variable	contrast	Not Concerned		Somewhat Concerned		Very concerned	
		estimate		estimate		estimate	
Urban/Suburban/ Rural Status (Ref: Urban)	Rural	0.102	**	-0.078	*	-0.024	
	Suburban	0.004		-0.001		-0.003	
Visible Minority Status (Ref: White)	Visible Minority	-0.169	***	0.006		0.164	***
	Indigenous	-0.069		-0.118		0.187	*
Political Beliefs (Ref: Center)	Far Left	-0.108	*	-0.182	**	0.29	***
	Center Left	-0.16	***	-0.125	***	0.285	***
	Center Right	0.205	***	-0.027		-0.178	***
	Far Right	0.357	***	-0.165	**	-0.192	***

*p<0.05; **p<0.01; ***p<0.001
Source: Viewpoint Alberta Survey, June 2023, n = 1439

Prepare to Evacuate

Individuals that received a notice to prepare to evacuate for their area had a relative risk of indicating they were somewhat concerned about wildfires that was about 2.9 times higher than those who did not receive this notice, and a relative risk of indicating they were very concerned that was 4 times higher than indicating no concern (Table 3). As average marginal effects, the results show that those issued prepare to evacuate notices were 7.3 percentage points less likely to indicate being not concerned, 1.5 percentage points less likely to indicate being somewhat concerned, and 8.9 percentage points more likely to be very concerned than people who did not receive these notices. Similar to results for poor air quality, respondents who were issued prepare to evacuate notices are more concerned about wildfire than those who did not receive a notice. Results regarding any association between preparing to evacuate and perceptions of climate change were not statistically significant.

Direct Fire Damage

Some of the most severe effects of wildfire included evacuation, property or community damage, and work disruption. For clarity in this section, I refer to this cluster of impacts as “direct

damage." Multinomial logistic regression results revealed, surprisingly, that those who faced direct damage from wildfires were, on average, 6.5 percentage points more likely to indicate being not concerned about wildfire compared to individuals that did not experience any direct damages. They were also 12.1 percentage points less likely to indicate being somewhat concerned and only 5.6 percentage points more likely to indicate being very concerned. Results were only significant when predicting being somewhat concerned compared to not concerned about wildfire, which had a strong negative relationship. This evidence seems counterintuitive, suggesting that the most drastic implications of wildfire do not necessarily generate concern in the people they affect; it is possible that these results are heavily influenced by other factors that correlate with heightened risk of wildfire, despite my attempt to control for these potential confounding variables. Direct fire damage was not able to predict perceptions of climate change at a statistically significant level.

Poor Health Outcomes

Respondents who indicated that they had experienced negative physical or mental health outcomes are pooled together as individuals with poor health outcomes caused by wildfire. Those who reported experiencing poor health outcomes had a relative risk of being 1.36 times more likely to indicate being somewhat concerned about wildfire compared to having no concern, and 3.77 times more likely to indicate they were very concerned about wildfire compared to those who did not have poor health outcomes. As average marginal effects, those whose health was negatively impacted were 7.3 percentage points less likely to have no concerns about wildfire, 10.5 percentage points less likely to be somewhat concerned, and 17.8 percentage points more likely to report being very concerned about wildfire compared to individuals who reported no health impact. These figures represent one of the strongest relationships predicting

concern regarding both wildfire risk and climate change across all key predictor variables, suggesting that one's health outcomes play an enormous role in influencing perceptions of wildfire.

Furthermore, negative health outcomes had the strongest positive association with high degrees of climate change concern across all key predictor variables. The relative risk of those with poor health outcomes indicating they were somewhat concerned about climate change was 1.16 times higher than those without negative health outcomes. Their relative risk of indicating they were very concerned about climate change was 2.67 times higher. Health outcomes were the only wildfire experience found to have an impact on perceptions of both wildfire and climate change, with all others impacting only perceptions of wildfire. These results are based on a direction of causal logic in my models that assumes negative health implications generate certain attitudes towards wildfire and climate change. It is possible that the directionality of this relationship is opposite, where existing concern about wildfire or climate change make people more likely to have anxiety or other negative mental health issues associated with natural disaster, or more likely to attribute physical illness to wildfires.

5.1.2 Control Variables

Shown in Table 3, results regarding concern about wildfire were found to be statistically significant for five control variables in the model: gender, visible minority status, and certain political beliefs (center left, center right, and far right). There was also a significant relationship between concern and preferring not to disclose one's partnership (marital status), however the small number of respondents in this group and corresponding outsized coefficients I do not include this relationship in my discussion. Not all predictors were consistent across both wildfire and climate change concerns.

Regarding gender, women had a relative risk of being somewhat concerned about wildfire that was about 1.1 times higher than men, and about 1.7 times higher of being very concerned, both significant at $p < 0.001$.[4] When examining climate change concerns, results were not statistically significant. Individuals who self-identified as being a part of a visible minority group were much more likely to be very concerned about both wildfire and climate change. As average marginal effects, their likelihood of being very concerned about wildfire was 10.7 percentage points higher than white respondents. For climate change their likelihood of being very concerned was even higher, at 16.4 percentage points.

Political beliefs were also relevant for predicting levels of concern for both wildfires and climate change. Compared to individuals who identified as being political centrists, those who identified being left of center on the political spectrum had relative risk ratios that indicated much higher likelihoods of being very or somewhat concerned compared to not concerned about both wildfire and climate change, meanwhile the opposite was true for those right of center. All coefficients analyzing the relationship between politics and likelihood of being very concerned were significant at $p < 0.001$ except for those who identified as far left and their concern for wildfire, which was not statistically significant.

Individuals who identified as far right and center right on the political spectrum had relative risks of being very concerned about wildfire compared to not concerned which were about 69% (far right) and 52% (center right) lower than those who identified as being political centrists. Those on the far and center right had relative risks of being very concerned about climate change that were about 86% and 77% lower (respectively). On the other side of the spectrum, those who

[4] All results discussed in the text are statistically significant at at least $p < 0.05$, however at times I highlight relationships with p-values < 0.001.

identified as center left and far left politically had relative risks of being very concerned about wildfire that are about 1.9 times and 1.62 times higher than centrists. Meanwhile for climate change, these relative risks jump up to 7.59 times higher (center left) and 3.09 times higher (far left). These figures suggest that one's perception of both wildfire and (to a greater extent) climate change is heavily influenced by their personal political beliefs.

Control variables that were statistically significant for concern regarding climate change but not wildfire include age, rurality, and income (specifically those who reported >$140 annual household income). The effect of age on perceptions was only significant when comparing the likelihood of being somewhat concerned compared to not concerned about climate change. The analysis suggests that for each year that someone ages, their relative risk of being somewhat concerned about climate change increases by 1.2%. Region proved to be a stronger predictor, suggesting that those who live in rural Alberta, as opposed to urban areas, are much more likely to not be concerned about climate change compared to urbanites. Rural Albertans were 10.2 percentage points more likely to say they were not concerned, 7.8 percentage points less likely to say they were somewhat concerned, and 2.4 percentage points less likely to say they were very concerned about climate change.

5.2 Moving Intentions

To address my research question asking if Albertans' experiences with wildfires affect their actions, I turn to a multinomial model predicting moving intentions based on experience with wildfire, the results of which are presented in Table 7. This model considers the same four key predictor variables—poor air quality, prepare to evacuate, direct damage, poor health outcomes—and the same control variables present in the previously discussed models.

Consistent with Table 3, the results are displayed as relative risk ratios and average marginal effects. Average marginal effects for this model can be found in Table 8.

Table 7 Results from Multinomial Logistic Regression, Predicting the Effect of Wildfire on Moving Intentions

	Maybe vs No				Yes vs No			
Variable	b		SE	RRR %	b		SE	RRR%
Poor Air Quality	-0.156		0.181	-14.435	-0.457	*	0.227	-36.661
Prepare to Evacuate	0.089		0.298	9.27	-0.185		0.359	-16.873
Direct Damage	0.055		0.262	5.667	0.471		0.289	60.225
Poor Health Outcomes	0.064		0.158	6.592	0.452	*	0.191	57.117
Age (mean centred)	-0.032	***	0.005	-3.144	-0.034	***	0.006	-3.313
Gender (ref. men)	0.025		0.133	2.57	-0.006		0.171	-0.623
Visible minority status (ref. white)								
Visible Minority	-0.317		0.18	-27.198	-0.424		0.226	-34.59
Indigenous	0.333		0.43	39.545	-0.743		0.704	-52.408
Tenure in Alberta (ref. all of life in AB)								
Newcomer to AB	0.03		0.337	3.07	-0.669		0.461	-48.789
Some of their life in AB	0.556	**	0.173	74.366	0.491	*	0.216	63.419
Most of their life in AB	0.324	*	0.152	38.211	0.025		0.2	2.544
Parenthood	-0.225		0.165	-20.178	0.09		0.202	9.451
Partnership (ref. single)								
Partnered	-0.054		0.151	-5.247	0.004		0.194	0.394
Prefer not to say	1.69		1.103	441.981	2.264	*	1.126	862.029
Income Level (ref. <$20,000)								
$20,000 to $39,999	-0.718	*	0.326	-51.251	0.104		0.421	11.002
$40,000 to $59,999	-0.981	**	0.318	-62.503	-0.405		0.421	-33.323
$60,000 to $79,999	-1.244	***	0.329	-71.179	-0.4		0.429	-32.987
$80,000 to $99,999	-0.891	**	0.327	-58.967	-0.394		0.441	-32.576
$100,000 to $119,999	-0.575		0.337	-43.737	-0.215		0.46	-19.324
$120,000 to $139,999	-0.576		0.372	-43.808	-0.132		0.505	-12.351
$140,000 or more	-0.87	**	0.323	-58.094	-0.007		0.424	-0.736
Homeownership status (ref. homeowner)	0.438	**	0.163	54.959	1.067	***	0.197	190.743
Rurality (ref. urban)								
Suburban	0.045		0.143	4.583	0.282		0.182	32.608
Rural	-0.099		0.191	-9.399	-0.176		0.255	-16.166
Political Beliefs (ref. center)								
Far Left	-0.273		0.356	-23.892	0.096		0.413	10.103
Center Left	-0.28		0.17	-24.413	-0.028		0.215	-2.804
Center Right	-0.236		0.157	-20.996	-0.293		0.211	-25.417
Far Right	-0.35		0.292	-29.537	0.258		0.328	29.452

*p<0.05; **p<0.01; ***p<0.001
b = Coefficient, SE = Standard Error, RRR % = Relative Risk Ratio calculated as a percent
Source: Viewpoint Alberta Survey, June 2023, n = 1439

Table 8 Average Marginal Effects, Moving Intentions

		Yes		Maybe		No	
Variable	contrast	estimate		estimate		estimate	
Poor Air Quality	1 - 0	-0.051		-0.006		0.056	
Prepare to Evacuate Notice	1 - 0	-0.025		0.027		-0.002	
Direct Damage	1 - 0	0.06		-0.016		-0.044	
Poor Health Outcomes	1 - 0	0.055	*	-0.012		-0.043	
Age (mean centered)	dY/dX	-0.002	***	-0.005	***	0.007	***
Gender (Ref: Men)	Women	-0.002		0.005		-0.003	
Homeownership (Ref: Homeowner)	Non-homeowner (renters and individuals living somewhere rent free)	0.12	***	0.028		-0.148	***
Tenure of residence in Alberta (Ref: All of their life in AB)	Newcomer	-0.066		0.031		0.035	
	Some of their life in AB	0.033		0.083	*	-0.116	***
	Most of their life in AB	-0.013		0.062	*	-0.049	
Income Level (Ref: <$20,000)	$20,000 to $39,999	0.059		-0.169	*	0.11	
	$40,000 to $59,999	0.009		-0.194	**	0.185	**
	$60,000 to $79,999	0.02		-0.242	***	0.222	***
	$80,000 to $99,999	0.006		-0.177	**	0.171	*
	$100,000 to $119,999	0.011		-0.12		0.109	
	$120,000 to $139,999	0.02		-0.125		0.105	
	$140,000 or more	0.052		-0.192	**	0.14	*
Parenthood (Ref: No children)	Parent	0.022		-0.048		0.026	
Partnered (Marriage/cohabitation) (Ref: Not partnered)	Partnered	0.003		-0.011		0.008	
	Prefer not to say	0.214		0.15		-0.365	*
Urban/Suburban/ Rural Status (Ref: Urban)	Rural	-0.015		-0.011		0.026	
	Suburban	0.033		-0.006		-0.027	
Visible Minority Status (Ref: White)	Visible Minority	-0.034		-0.041		0.074	*
	Indigenous	-0.086		0.105		-0.019	
Political Beliefs (Ref: Center)	Far Left	0.027		-0.06		0.032	
	Center Left	0.011		-0.055		0.043	
	Center Right	-0.022		-0.033		0.055	
	Far Right	0.055		-0.083		0.028	

*p<0.05; **p<0.01; ***p<0.001
Source: Viewpoint Alberta Survey, June 2023, n = 1439

5.2.1 Key predictor variables

Like findings on perceptions of wildfire and climate change, moving intentions were associated with two key predictor variables – exposure to poor air quality and poor health outcomes – at a statistically significant level. These results interpreted as average marginal effects (Table 8)

show that individuals who were exposed to poor air quality were 5.6 percentage points more likely to report no intention to move, 0.6 percentage points less likely to say they might move, and 5.1 percentage points less likely to report they were intending to move, compared to those who did not experience poor air quality. As noted in Chapter 4, exposure to wildfire smoke was ubiquitous, about 81% of respondents reported being affected, and about half of the sample indicated they had no plans to move in the next five years. Given these results from the general sample, it is unsurprising that air quality and moving intentions are negatively associated.

I found a positive relationship between experiencing poor health outcomes and intending to move. Interpreted as average marginal effects, those who experienced poor health because of wildfire were 5.5 percentage points more likely to say they do intend to move compared to those who did not have poor health outcomes. They were additionally 1.2 percentage points less likely to say they might move, and 4.3 percentage points less likely to say they were not planning to move at all. Of all the ways that Albertans experienced wildfire, only those who suffered physical or mental health consequences were more likely to move. No other key variables were found to be predictive of moving, suggesting that experience with wildfire, including exposure to poor air quality, threat of evacuation, realized evacuation, property damage, and work disruption do not increase the likelihood of relocation.

5.2.2 Control Variables

Homeownership status was the strongest predictor of whether respondents were considering relocation. On average, non-homeowners were 11.9 percentage points more likely to indicate that they planned to move and 14.8 percentage points less likely to indicate they had no intention of moving compared to homeowners. As a relative risk ratio, non-homeowners' risk of indicating they plan to move compared to not moving was 1.8 times higher. This finding suggests that

theories of place-based attachment are highly relevant in predicting mobility intentions, even in cases of extreme natural disaster.

Other statistically significant control variables include age with a slight negative association, where for each additional year that a respondent ages the relative risk of them indicating that they plan to move is approximately 3% lower, significant at $p < 0.001$. This statistic is true for responding that one *might* plan to move or *are* planning to move. Although the relationship between age and migration is not traditionally linear (see life course theory) it is typical, and reflected in this research, that younger people move at the highest rates.

5.2.3 Influence of perceptions on moving intentions

To determine if perceptions of wildfire or climate change impacted moving intentions, as literature on the topic suggests (Ameztegui et al., 2018; Bates et al., 2009; Hornsey et al., 2016; Winter & Fried, 2000), I ran two additional multinomial logistic regression models that controlled for either perceptions of wildfire or climate change. These results, presented in Table 9 controlling for wildfire concern and Table 10 controlling for climate change concern, reveal that only individuals who report being very concerned about climate change were more likely to indicate planning to move. Individual concerns about wildfire had no statistically significant role in influencing migration intentions.

Table 9 Results from Multinomial Logistic Regression, Predicting Moving Intentions Considering Perceptions of Wildfire

	Maybe vs No				Yes vs No			
Variable	b		SE	RRR%	b		SE	RRR%
Wildfire Concern								
Somewhat Concerned	-0.029		0.23	-2.899	-0.052		0.297	-5.021
Very Concerned	-0.039		0.236	-3.856	-0.179		0.304	-16.412
Poor Air Quality	-0.152		0.183	-14.133	-0.432		0.23	-35.077
Prepare to Evacuate	0.094		0.3	9.839	-0.165		0.36	-15.205
Direct Damage	0.054		0.263	5.526	0.474		0.29	60.65
Poor Health Outcomes	0.067		0.16	6.936	0.476	*	0.193	60.948
Age (mean centred)	-0.032	***	0.005	-3.14	-0.033	***	0.006	-3.289
Gender (ref. men)	0.029		0.134	2.911	0.008		0.172	0.817
Visible minority status (ref. white)								
Visible Minority	-0.314		0.181	-26.958	-0.41		0.226	-33.632
Indigenous	0.332		0.43	39.387	-0.731		0.704	-51.851
Tenure in Alberta (ref. all of life in AB)								
Newcomer to AB	0.031		0.338	3.196	-0.659		0.461	-48.259
Some of their life in AB	0.558	**	0.174	74.698	0.498	*	0.216	64.61
Most of their life in AB	0.324	*	0.152	38.265	0.027		0.2	2.722
Parenthood	-0.226		0.165	-20.249	0.09		0.202	9.392
Partnership (ref. single)								
Partnered	-0.053		0.152	-5.117	0.008		0.195	0.835
Prefer not to say	1.696		1.103	445.346	2.29	*	1.128	887.892
Income Level (ref. <$20,000)								
$20,000 to $39,999	-0.716	*	0.327	-51.117	0.096		0.422	10.122
$40,000 to $59,999	-0.981	**	0.319	-62.495	-0.416		0.422	-34
$60,000 to $79,999	-1.243	***	0.33	-71.153	-0.402		0.43	-33.093
$80,000 to $99,999	-0.891	**	0.328	-58.992	-0.416		0.443	-34.021
$100,000 to $119,999	-0.576		0.338	-43.796	-0.227		0.461	-20.33
$120,000 to $139,999	-0.577		0.373	-43.863	-0.153		0.506	-14.193
$140,000 or more	-0.87	**	0.323	-58.103	-0.016		0.425	-1.632
Homeownership status (ref. homeowner)	0.439	**	0.163	55.107	1.072	***	0.198	192.019
Rurality (ref. urban)								
Suburban	0.046		0.144	4.721	0.275		0.182	31.659
Rural	-0.1		0.191	-9.542	-0.177		0.255	-16.254
Political Beliefs (ref. center)								
Far Left	-0.268		0.358	-23.536	0.13		0.416	13.898
Center Left	-0.276		0.172	-24.154	-0.006		0.217	-0.577
Center Right	-0.238		0.158	-21.181	-0.309		0.212	-26.588
Far Right	-0.355		0.293	-29.861	0.248		0.329	28.14

*p<0.05; **p<0.01; ***p<0.001
b = Coefficient, SE = Standard Error, RRR % = Relative Risk Ratio calculated as a percent
Source: Viewpoint Alberta Survey, June 2023, n = 1439

Table 10 Results from Multinomial Logistic Regression, Predicting Moving Intentions Considering Perceptions of Climate Change

	Maybe vs No				Yes vs No			
Variable	b		SE	RRR%	b		SE	RRR%
Climate Change Concern								
Somewhat Concerned	-0.197		0.171	-17.874	0.081		0.238	8.406
Very Concerned	0.032		0.185	3.213	**0.589**	*	**0.246**	80.308
Poor Air Quality	-0.148		0.181	-13.761	-0.48	*	0.229	-38.114
Prepare to Evacuate	0.07		0.299	7.247	-0.194		0.36	-17.657
Direct Damage	0.078		0.263	8.145	0.496		0.291	64.243
Poor Health Outcomes	0.054		0.161	5.587	0.374		0.194	45.402
Age (mean centred)	-0.032	***	0.005	-3.145	-0.034	***	0.006	-3.338
Gender (ref. men)	0.032		0.133	3.278	-0.006		0.172	-0.565
Visible minority status (ref. white)								
Visible Minority	-0.322		0.183	-27.556	-0.532	*	0.232	-41.283
Indigenous	0.303		0.432	35.435	-0.84		0.704	-56.85
Tenure in Alberta (ref. all of life in AB)								
Newcomer to AB	0.023		0.338	2.303	-0.729		0.464	-51.742
Some of their life in AB	0.554	**	0.173	73.973	0.491	*	0.217	63.362
Most of their life in AB	0.32	*	0.152	37.678	0.031		0.201	3.135
Parenthood	-0.226		0.165	-20.224	0.099		0.203	10.458
Partnership (ref. single)								
Partnered	-0.05		0.152	-4.85	0.016		0.195	1.572
Prefer not to say	1.741		1.107	470.376	2.298	*	1.132	895.546
Income Level (ref. <$20,000)								
$20,000 to $39,999	-0.731	*	0.327	-51.852	0.12		0.425	12.806
$40,000 to $59,999	-0.976	**	0.319	-62.31	-0.359		0.425	-30.134
$60,000 to $79,999	-1.245	***	0.33	-71.209	-0.396		0.433	-32.683
$80,000 to $99,999	-0.893	**	0.328	-59.073	-0.364		0.445	-30.517
$100,000 to $119,999	-0.556		0.338	-42.642	-0.154		0.464	-14.245
$120,000 to $139,999	-0.573		0.372	-43.605	-0.089		0.508	-8.508
$140,000 or more	-0.864	**	0.323	-57.847	0.014		0.428	1.46
Homeownership status (ref. homeowner)	0.44	**	0.164	55.328	1.077	***	0.198	193.587
Rurality (ref. urban)								
Suburban	0.042		0.144	4.253	0.295		0.182	34.246
Rural	-0.114		0.192	-10.776	-0.148		0.257	-13.717
Political Beliefs (ref. center)								
Far Left	-0.318		0.359	-27.206	-0.057		0.418	-5.518
Center Left	-0.311		0.176	-26.757	-0.189		0.222	-17.186
Center Right	-0.235		0.161	-20.928	-0.187		0.218	-17.067
Far Right	-0.373		0.298	-31.139	0.368		0.339	44.483

*p<0.05; **p<0.01; ***p<0.001
b = Coefficient, SE = Standard Error, RRR % = Relative Risk Ratio calculated as a percent
Source: Viewpoint Alberta Survey, June 2023, n = 1439

5.3 Summary of regression results

Using multinomial logistic regression models, I found that certain experiences with wildfire make people more likely to be concerned about wildfire, but this relationship is not necessarily true for concerns about climate change. Experiencing poor mental and/or physical health outcomes caused by wildfires had the strongest relationship with increased concern about *both* wildfires and climate change making it the only key predictor variable to predict concern for both phenomena.[5] Beyond this, poor health outcomes were also able to predict moving intentions, people who experienced health issues were found to be more likely to plan on moving. Notably, direct experiences with wildfire including evacuations, property damage, and work disruption were associated with having lower levels of concern about wildfires, and no statistically significant relationship with climate change concerns nor intentions to move. These findings were surprising given the severity and threat to life and livelihood that these experiences with wildfire pose.

A number of socio-demographic variables were found to be predictive of concern, particularly political beliefs which boasted strong associations, affirming previous literature that studied the influence of ideology and politics on perceptions of climate change (Boulianne & Belland, 2022; Davidson & Haan, 2012; Hazlett & Mildenberger, 2020; Hornsey et al., 2016; Marquart-Pyatt et al., 2014). I found that people who identify as left-wing are more likely to be concerned, and people who identify as right-wing are less likely to be concerned, applicable to both fires and climate change. Politics on its own, however, had no effect on moving.

[5] As previously noted, it is possible that this causal relationship is reversed, meaning that individuals who are more concerned about climate change are more likely to experience or report mental and physical health outcomes caused by wildfire. In this thesis I only test the relationship where perceptions are assumed to be influenced by experience, and not vice versa.

Finally, risk perceptions for wildfire were found to have no predictive power over moving, but individuals very concerned about climate change *were* more likely to say they planned to move. This suggests that for Albertans to consider relocating, they must recognize wildfire as a part of the ongoing threat of climate change.

Chapter 6: Discussion

This thesis explored the relationships between Albertans' experiences with wildfire, their perceptions of both wildfire and climate change, and their future moving intentions, addressing each of the following three research questions:

1.) How have wildfires impacted Albertans, and who has been most affected?

2.) How do Albertans' experiences with wildfires affect their perceptions of both wildfire and climate change?

3.) How do Albertans' experiences with wildfire affect their future moving intentions?

Summary of Findings

Question 1 – Experiences with wildfire

Descriptive and bivariate results presented in Chapter 4 answer my first research question regarding the effects of wildfire on Albertans. I found that experiences with wildfire varied primarily by age, visible minority status, and homeownership status insofar that people who were younger, racialized, or non-homeowners reported experiencing severe wildfire impacts at higher frequencies. My findings also revealed that Albertans who identified as Indigenous reported experiencing severe wildfire fallout at the highest rate, receiving disproportionately high levels of prepare to evacuate and evacuation alerts, suggesting that Indigenous communities experience more displacement from wildfire activity than any other group. This finding supports the already active research area of disaster management focused on First Nations and Indigenous communities in Canada (Asfaw et al., 2019; McGee et al., 2019; Mihalus et al., 2024; Mottershead et al., 2020).

Beyond regional considerations of wildfire impact, there are also discrepancies across groups based on socio-demographic characteristics. In addition to the above, I found gender differences, with slightly more women reporting experiencing poor air quality and negative physical and mental health outcomes, and slightly more men reporting work disruptions, evacuations, direct fire damage, and hosting evacuees. Differences in health outcomes may be related to reporting bias which differs across gender (Obuobi-Donkor et al., 2024). However, discrepancies in work disruption, evacuations, and fire damage are consistent with the male domination of industries located in remote areas including oil and gas, agriculture, and forestry (Statistics Canada, 2022a); these place-specific careers often necessitate employees to work and live in areas at high risk for wildfire, potentially placing men at a higher risk for evacuations and work disruption due to the gender imbalance of these industries.

My findings regarding the distribution of harm by wildfire are consistent with other work on natural disasters: disadvantaged groups have been hit the hardest. When studied in an international context we see this manifest as the misfortune of nations who are considered high-risk for climate events like hurricanes or heat events such as Bangladesh and other countries in Southeast Asia (Entwisle et al., 2020; Hassani-Mahmooei & Parris, 2012; Zander et al., 2019). In a North American context, this disparity is often drawn across socio-demographic or socio-economic lines in communities that experience acute disaster (Curtis et al., 2015; Dorow, 2016; Walker et al., 2021). In both contexts it has been observed that the more socially and economically vulnerable one is, the more likely it is that they will suffer more severe consequences of these disasters, based on the results of this study, this is likewise true in Alberta.

Question 2 – Perceptions of wildfire and climate change

In Chapter 5, I presented results regarding levels of concern for both wildfire and climate change. Individual perceptions of climate change were influenced differently than perceptions of wildfire. Certain experiences with wildfire influenced perceptions; specifically, poor air quality, receiving prepare to evacuate notices, and negative health outcomes all had relationships with increased concern about wildfire. Direct fire damage, however, had a negative relationship with expressions of concern, suggesting that people who experienced the worst wildfire damage were more likely to express lower levels of concern. Furthermore, direct wildfire damage had *no* statistically significant relationship with concern regarding climate change.

What *was* found to influence perceptions of wildfire and climate change were political beliefs. Political beliefs were the strongest predictor of concern, with left-wing respondents being much more likely to express high levels of concern, and right-wing respondents much less likely to express high levels of concern. These associations were true regarding perceptions of both wildfire and climate change, suggesting that beyond the influence of actual experiences with wildfire, individuals' perceptions were informed by their politics. Political beliefs have been identified as having strong associations with attitudes about climate events and subsequent actions in several other studies based in North America (Boulianne & Belland, 2022; Davidson & Haan, 2012; Hazlett & Mildenberger, 2020; Hornsey et al., 2016; Marquart-Pyatt et al., 2014) and abroad (Wullenkord & Reese, 2021).

Although perceptions of climate change are likely influenced by direct experience with hazards such as wildfire, some studies indicate that underlying psychological processes (Brügger et al., 2021) and variation in experiences across different communities (McGee et al., 2009) play a role in the process of identifying risk and can undermine an expected association between experience

and concern. Similarly, I found inconsistencies between experience with wildfires and levels of concern regarding wildfire and climate change, these may be explained by personal attitudes (such as political beliefs) that overshadow lived experiences with wildfire. This dissonance was an expected outcome given the power that personal political beliefs hold over climate change beliefs in other studies in North America (Boulianne & Belland, 2022; Davidson & Haan, 2012; Hazlett & Mildenberger, 2020; Hornsey et al., 2016; Marquart-Pyatt et al., 2014) and the conservative political landscape of the province of Alberta.

Question 3 – Moving Intentions

Results presented in Chapter 5 also address my third research question regarding the future moving intentions of Albertans. These results suggest that experiencing wildfire will not trigger a migration event in Alberta. Being very concerned about climate change is associated with intending to move in the near future, but no such relationship was found when considering concern about wildfire. Experiences with poor air quality, prepare to evacuate notifications, or disruption to life through direct fire damage (including evacuation, home, property, or community damage, or work disruptions) were also found to not influence moving intentions, suggesting that the bulk of experiences one can have with wildfire have no direct impact on moving decisions. Meanwhile, exposure to wildfire smoke reduced the likelihood that someone was considering relocation. Experiences with wildfire only informed moving intentions at a statistically significant level when they negatively affected a person's physical or mental health.

These results support previous literature on post-disaster out-migration which has also maintained that there is no impending mass exodus from fire-stricken regions (McConnell et al., 2021; Nawrotzki et al., 2014). This research also presents new findings regarding the influence of perceived health implications caused by natural disaster on future migration choices.

Literature focusing on health and wildfires typically focuses on public health, often reporting on the likelihood of increased hospital admissions and premature mortality from wildfire smoke inhalation (Carreras-Sospedra et al., 2024; Duncan et al., 2023; Qiu et al., 2024) and the potential mental health implications of experiencing wildfires (Adu et al., 2024; Eisenman & Galway, 2022; Isaac et al., 2024; Mao et al., 2024). Studies on migration often consider the absence of adequate healthcare institutions to be a migratory push factor (Speelman et al., 2017) and address concerns and policy regarding the health status of international migrants when they arrive in destination countries (Agyemang et al., 2024; Ikram et al., 2016; Souleymanov et al., 2023). The intersection of climate-induced health complications and migration intentions has been understudied, especially in North America.

Beyond health impacts, the strongest predictor of intending to move was homeownership status, where non-homeowners were significantly more likely to indicate they were considering relocation than homeowners – unsurprising, given the financial barriers that coincide with buying and selling property, and the ease and ability for homeowners to remain where they are.

Health consequence as a major predictor of perceptions and moving intentions

As mentioned above, more than any other experience with wildfire, negative health consequences, both mental and physical, were predictive of perceiving wildfire and climate change as risks *and* of intention to move in the near future. Experiences with negative health effects have been likewise documented in other literature on wildfire including studies on the 2016 Fort McMurray fires (Thériault et al., 2021), the 2023 wildfire seasons in Alberta and Nova Scotia (Mao et al., 2024; Obuobi-Donkor et al., 2024), the 2016 fires in the southern Appalachian Mountains in the United States (Duncan et al., 2023), and in California in 2020

(Carreras-Sospedra et al., 2024). Wildfires in North America cause profound distress, both physically and mentally, for many of the people subjected to it.

My study adds an additional layer to the work on the health consequences of wildfire, asking not only if people experienced health related fallout but also if those people were motivated to move as a result. In section 5.2.1 multinomial logistic regression results showed that the *only* statistically significant predictor of moving intentions related to wildfire was negative health outcomes. This finding could imply that in the face of wildfire, relocation is a truly last-case-scenario option for Albertans, and their quality of life via health must decline due to wildfires before they deem them a large enough risk to relocate. These health issues could be an onset of the fires, but it is also possible that instead of triggering new health-related issues, wildfires are exacerbating existing symptoms, serving as a significant push factor for individuals and families living with chronic illness and disabilities. As mentioned in Chapter 5, it is also possible that many of the mental and physical health outcomes being reported are triggered by a pre-existing concern about climate change, rather than informing people's attitudes about climate change. Logically, if someone is more concerned about climate change, they would be more likely to feel stress or anxiety about it. In this case the relationship may be better explained by attitudes and perceptions of climate change than by mental or physical health outcomes, but this does not underplay the importance of mental and physical healthcare provisions for individuals in regions that are affected by wildfires.

The process of migration is nuanced, and while the mere presence of health risk from fires may contribute to the decision-making process of moving, it is not the *only* contributor. Although this is not a study on health policy and the politics of welfare in Alberta, these factors can play a fundamental role in the desirability of the province as a place to live. Individuals whose health is

negatively affected by wildfire are not encouraged to remain in a province that may have undue barriers to treatment. It is likewise important to note that public health in remote and rural communities (i.e., those most vulnerable to wildfire) is much more difficult to access than in urban areas.

Housing and wildfire experience – who is most at risk?

The unequal effects of climate change in different neighbourhoods have been documented during other major weather events including the 2005 hurricane season in the Southeastern United States; many studies documented the outsized fallout experienced by lower-income neighbourhoods which were often racialized (with a high concentration of Black residents) and situated in the most flood-prone neighbourhoods (Asad, 2015; Fussell, 2015; Yun & Waldorf, 2016). These socially vulnerable groups were also more likely to rent (Fussell, 2015, p. 1239). Based on the data presented in this thesis, there are parallels in Alberta; renters, visible minorities, and low-income households all reported higher rates of experiencing the effects of wildfire. Renters and other non-homeowners in my study faced more severe consequences of wildfire at a higher rate than homeowners; non-homeowners were also more likely to indicate that they have plans to relocate in the near future.

Homeowners' reluctance to engage in relocation compared to non-homeowners is consistent with theories relevant to migration including life course theory which considers homeownership to be a major milestone aligned with a reduction in movement (Dommermuth & Kluesener, 2019). There are several reasons that may explain why a homeowner would be less likely to move than a renter, including the high degree of place-attachment often associated with purchasing a home, the barrier of selling one's home, and the potential safety-net of private homeowners' insurance, should wildfire ultimately damage their property.

In Alberta, the communities and neighbourhoods that are most at risk of wildfire damage are in the northern boreal region of the province. Included in the northern forest regions of Alberta are several communities whose economies were built on oil and gas extraction including Fort McMurray, Grande Prairie, and Slave Lake, as well as smaller towns that support the industries of agriculture and forestry, and several Indigenous reserves. The risk posed to these communities by wildfire has been exemplified in recent history. Neighbourhoods located closest to forests are at the highest risk of igniting. Likewise, the risk for neighbourhoods in small towns and hamlets may be equal across all households (e.g., Lytton, B.C., a small community of 250 people burned nearly entirely in the summer of 2021 (*Canada Lytton*, 2021).

Each community will have a different layout due to its history of urban planning and development; however, it is not necessarily true that low-income or rental communities will always be situated closest to forests. Many new builds go up on the outskirts of towns, in suburbs farther from city centers, and closer to nature; these neighbourhoods can be sold as luxury homes, often inhabited by well-off individuals and families who want more space and proximity to desirable surroundings and views. The positive attributes of living near wilderness are typically reflected in home prices, until the risk of wildfire is forced to be factored into the cost (McConnell et al., 2021). An in-depth study of community neighbourhoods and housing would be required to predict or review which neighbourhoods are/were at the most risk for wildfire damage, though I am unable at this time to locate literature with this focus on previous disasters in Alberta.

Policy implications

In recent years, Alberta, particularly in the metro regions of Calgary and Edmonton, has been undergoing one of the largest bouts of population growth since the late 20th century (Statistics

Canada, 2024). In 2023 the province received over 200,000 new residents, with a net increase of 55,107 people (Fletcher, 2024). It is clear from these trends that wildfire activity of late has not been a major deterrent for people who are in the market to move. In fact, this increase is consistent with classic literature on migration. Alberta has had a relatively low cost of living compared to other provinces in Canada for both housing and sales tax (for which Alberta is the lowest at 5%). This, coupled with the job opportunities in lucrative industries such as oil and gas, and increased job mobility during a renaissance of remote work, makes Alberta an ideal place to move according to neoclassical economic theory; it is a place to minimize expenses and maximize wage differentials (Harris & Todaro, 1970; Todaro, 1969). The province of Alberta boasts many economic pull factors to entice potential migrants, and in 2022 and 2023 the provincial government highlighted them in a marketing campaign that boasted the hook "Alberta is Calling" to encourage inter-provincial migration (Government of Alberta, n.d.). Based on the influx of new residents, this campaign has been successful. Importantly, this population boom suggests that aggressive wildfire seasons of late have not only *not* driven residents out of Alberta, but it has also failed to deter internal in-migration.

Migration impacts several aspects of policy including housing, employment, healthcare, social services, and disaster mitigation and preparedness, amongst others. In Alberta, and across Canada, there have been widespread calls for increased housing construction to accommodate both international and interprovincial immigrants. Moving forward, housing decisions will need to be made based on demand but should also consider the risks of development in areas at high risk for wildfire damage—building homes only does so much if they are destined to be destroyed, or if the homeowners cannot afford the insurance premiums to protect them against wildfire.

Limitations and Future Research

As with all research projects, this thesis faces several limitations. First, statistical analyses can provide generalizations and relationships between variables, but they do not offer an in-depth understanding of the decision-making process present in the minds of those who are being studied. A more robust study could combine qualitative interviews with quantitative moving analysis to gain deeper insight into each of my three research questions. Interviews or other qualitative techniques could help fill some of the gaps I identified in Chapter 3 including a lack of clarity about past moves, number of wildfire seasons endured, and specific fire impacts including the type of physical ailments that resulted from exposure.

Second, although moving intentions are regarded as a reliable predictor of actualized moves, my study is not longitudinal, and therefore does not track any realized moves of participants in the survey group—future research should focus on longitudinal migration data, when possible, to gain insight into the actualized moves and their congruence with moving plans.

Deeper analysis into the interactions between key predictor variables and demographic characteristics would provide more insight into their relationships. For example, the investigation of rurality, gender, and/or race as interaction effects with political beliefs may illuminate overlap that is otherwise muddled in the models I utilized in this research. Furthermore, interactions between concerns about climate change and health outcomes should be studied more closely. Separating mental and physical health outcomes in multinomial logistic regression models may offer more information on the relationship, in addition to testing the directionality of the relationship between health consequences and climate concern.

My study surveys Albertans, but the sample is not exhaustive. Responses to the survey were provided by individuals who were already associated with Leger as a survey distributor, and

respondents were compensated for their participation, introducing several degrees of bias into the sample. Leger's survey panels are based on quotas for region, age, race/ethnicity, and gender, with weights benchmarked to 2021 Canadian Census data—these measures are helpful for attaining a sample representative to the Census but have the capacity to limit the representation of those who are most affected by wildfire. For example, since there were quotas for region, most of the sample was situated in urban areas, but individuals in more remote areas have a higher risk for wildfire, the results for the distribution of wildfire experiences reflect this. Future research may focus on certain regions or groups to get a clearer picture of specific effects.

Additionally, although there are questions regarding Indigenous self-identification and whether the respondent lives on an Indigenous reserve, Indigenous nations are not explicitly targeted. As previously mentioned, a focused study on these populations is pertinent and important for future research in this field, however, outside of the scope of my study.

Conclusion

As time goes on there will inevitably be more wildfire activity in the province of Alberta (Whitman et al., 2022). While great efforts will be made to suppress the consequences of those fires on communities and their residents, people will continue to experience wildfire related fallout. Although Albertans are largely concerned about wildfire, they do not necessarily identify risk of wildfire as part and parcel of the ongoing effects of climate change and are not more likely to move away as a strategy to mitigate their exposure. What this means is that most Albertans in fire-prone areas won't leave as fires continue; as a result, policymakers, fire and safety organizations, urban planners, and community leaders must make robust and effective plans to not only prevent and control wildfires as they happen, but to adapt housing and public health policies to better protect residents from negative wildfire experiences.

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Appendix A: Survey Questions

Moving Intentions and Reasons:

Q1. Are you thinking about moving in the next five years?

- Yes
- Maybe
- No

Q2. What is the likelihood that you will move in the next five years?

(If YES or MAYBE to Q1)

- Definitely
- Probably
- Uncertain

Q3. Where are you thinking about moving?

(If YES or MAYBE to Q1)

- Within Alberta
- Outside Alberta
- Considering both options

Q3. People move for a variety of reasons. Why do you plan to move from your dwelling? *(Please select all that apply)*

(If YES or MAYBE to Q1)

- Because you will be forced to move by a landlord, a bank or other financial institution or the government
- Due to a natural disaster or extreme weather event (e.g., wildfire, floods)
- For a new school, a new job, or job transfer
- To be closer to family
- Because of a change in household or family size
- For financial reasons or to reduce housing costs
- To be in a more desirable neighbourhood
- For personal health reasons
- To have better access to healthcare services

- To become a homeowner or upgrade to a better quality dwelling
- Other: (Please specify)

Q4. Of these choices, which of these is the primary reason you intend to move?

- PIPE choices

Wildfires (more specifically):

Q1. How concerned are you about the following?

Set 1:

Wildfires

Flooding

Heatwaves

Options:

Not concerned

Somewhat concerned

Very concerned

Q2. How concerned do you think the typical Albertan is about the following?

[insert Question Set from Q1]

Options:

Not concerned

Somewhat concerned

Very concerned

Q3. Have you or people in your household been affected by wildfire in any of the following ways? (select all that apply)

- Poor air quality from wildfire smoke
- "Prepare to evacuate" advisory issued for your area
- Evacuated from home due to wildfire
- Hosted wildfire evacuees in my home
- Home damaged or destroyed in wildfire
- Other property (not home) damaged or destroyed in wildfire

- Your community suffered fire damage (structures or land were damaged, including warehouses, stores, parks, farms, or fields)
- Work disrupted by wildfire
- Negative physical health outcomes due to the wildfire
- Negative mental health outcomes due to the wildfire
- I have not been personally impacted by wildfire
- Other: (Please specify)

Appendix B: Bivariate Conditional Distributions

Wildfire impacts

Table 11 Weighted Distribution of Wildfire Impacts Across Age Group (cont. next page)

		Percentage (Weighted)	
Impact	**Age**	**Estimate**	**Standard Error**
Air Quality	18-24	79.3	5.1
	25-34	74.3	3.7
	35-44	78.2	3.2
	45-54	85.8	2.4
	55-64	87.1	2
	65-74	82.9	2.4
	75+	83	3.4
Hosted Evacuees	18-24	7.1	3.3
	25-34	5.5	1.7
	35-44	2.9	1.4
	45-54	3	1.2
	55-64	1.7	0.8
	65-74	1	0.7
	75+	1.1	1
Prepare to Evacuate	18-24	19	5
	25-34	11	2.3
	35-44	4.9	1.5
	45-54	5	1.6
	55-64	5.9	1.5
	65-74	1.9	0.9
	75+	1.9	1.4
Evacuee	18-24	5.2	3.1
	25-34	8.4	2.3
	35-44	5	1.6
	45-54	1.4	0.9
	55-64	2.8	1
	65-74	1.8	0.9
	75+	0	0
Home/Property Damage	18-24	9	3.5
	25-34	4.8	1.5
	35-44	4	1.7
	45-54	1.2	0.6
	55-64	0.3	0.3
	65-74	0.4	0.4
	75+	0	0
Community Damage	18-24	9.4	3.7
	25-34	6.2	2.1
	35-44	3.7	1.3
	45-54	2.2	1
	55-64	1.1	0.6
	65-74	0	0
	75+	1.9	1.4

Impact	Age	Percentage (Weighted)	
		Estimate	Standard Error
Work Disrupted	18-24	11.4	4.3
	25-34	10.2	2.4
	35-44	5.5	2
	45-54	3.8	1.3
	55-64	4.2	1.3
	65-74	0.7	0.5
	75+	1.1	1
Physical Health	18-24	18.2	4.2
	25-34	22.3	3.3
	35-44	16.9	2.7
	45-54	16.1	2.5
	55-64	18.9	2.5
	65-74	20.1	2.5
	75+	19	3.6
Mental Health	18-24	12.3	3.1
	25-34	14.9	2.5
	35-44	16.9	2.7
	45-54	11.8	2.2
	55-64	12.5	2.1
	65-74	6.7	1.5
	75+	7	2.4

SOURCE: June 2023 Viewpoint Alberta Survey, n = 1439

Table 12 Weighted Distribution of Wildfire Impacts by Gender

Impact	Gender	Percentage (Weighted)	
		Estimate	Standard Error
Air Quality	Men	77.7	2.2
	Women	84.6	1.3
Hosted Evacuees	Men	3.8	1
	Women	2.6	0.6
Prepare to Evacuate	Men	6.5	1.4
	Women	7.3	0.9
Evacuee	Men	4.2	1.1
	Women	3.6	0.7
Home/Property Damage	Men	3.4	1
	Women	2.3	0.6
Community Damage	Men	3.5	1.1
	Women	3.3	0.6
Work Disrupted	Men	6.1	1.4
	Women	4.9	0.8
Physical Health	Men	18.1	1.8
	Women	19.3	1.4
Mental Health	Men	10.6	1.4
	Women	14.3	1.3

SOURCE: June 2023 Viewpoint Alberta Survey, n = 1439

Table 13 Weighted Distribution of Wildfire Impacts by Visible Minority Status

		Percentage (Weighted)	
Impact	**Visible Minority Status**	**Estimate**	**Standard Error**
Air Quality	White	83.6	1.4
	Visible Minority	72.5	2.9
	Indigenous	92	5.6
Hosted Evacuees	White	2.8	0.6
	Visible Minority	4.9	1.6
	Indigenous	0	0
Prepare to Evacuate	White	6	0.8
	Visible Minority	8.3	2.1
	Indigenous	27	11.2
Evacuee	White	3.1	0.6
	Visible Minority	5.3	1.4
	Indigenous	19.2	11.3
Home/Property Damage	White	1.9	0.6
	Visible Minority	6.2	1.6
	Indigenous	0	0
Community Damage	White	2.9	0.6
	Visible Minority	5	1.7
	Indigenous	3.5	3.5
Work Disrupted	White	4.8	0.9
	Visible Minority	6.6	1.7
	Indigenous	18.2	11.2
Physical Health	White	19.3	1.3
	Visible Minority	17.1	2.4
	Indigenous	15.9	7.1
Mental Health	White	13	1.1
	Visible Minority	11.1	1.9
	Indigenous	10.3	6

SOURCE: June 2023 Viewpoint Alberta Survey, n = 1439

Table 14 Weighted Distribution of Wildfire Impacts by Income (cont. next page)

		Percentage (Weighted)	
Impact	**Income**	**Estimate**	**Standard Error**
Air Quality	less than $20,000	63.2	6.4
	$20,000 to $39,999	79.4	3.7
	$40,000 to $59,999	75.6	3.4
	$60,000 to $79,999	87.2	2.8
	$80,000 to $99,999	88.9	2.5
	$100,000 to $119,999	85.6	3.4
	$120,000 to $139,999	86	3.7
	$140,000 or more	79.3	2.9
Hosted Evacuees	less than $20,000	4.7	3.5
	$20,000 to $39,999	2	1.2
	$40,000 to $59,999	2.9	1.1
	$60,000 to $79,999	3.1	1.6
	$80,000 to $99,999	3.3	1.7
	$100,000 to $119,999	3.2	1.9
	$120,000 to $139,999	1.7	1.3
	$140,000 or more	4	1.3
Prepare to Evacuate	less than $20,000	9.4	3.9
	$20,000 to $39,999	4.7	1.6
	$40,000 to $59,999	6.5	1.7
	$60,000 to $79,999	9.4	2.8
	$80,000 to $99,999	8	2.5
	$100,000 to $119,999	3.1	1.3
	$120,000 to $139,999	4.9	2.2
	$140,000 or more	8.2	2.1
Evacuee	less than $20,000	0	0
	$20,000 to $39,999	2.8	1.3
	$40,000 to $59,999	7.4	2.2
	$60,000 to $79,999	6.3	2.5
	$80,000 to $99,999	2.8	1.1
	$100,000 to $119,999	1	0.7
	$120,000 to $139,999	1	1
	$140,000 or more	5.1	1.7
Home/Property Damage	less than $20,000	6.9	3.6
	$20,000 to $39,999	3.9	1.9
	$40,000 to $59,999	4.3	1.9
	$60,000 to $79,999	3.3	1.6
	$80,000 to $99,999	1.3	1.3
	$100,000 to $119,999	1.7	1
	$120,000 to $139,999	1.5	1.1
	$140,000 or more	1.7	0.8

Impact	Income	Percentage (Weighted)	
		Estimate	Standard Error
Community Damage	less than $20,000	6.3	4.3
	$20,000 to $39,999	2.8	2.3
	$40,000 to $59,999	5.4	1.8
	$60,000 to $79,999	4.4	1.9
	$80,000 to $99,999	1.6	0.9
	$100,000 to $119,999	1.8	1.1
	$120,000 to $139,999	0.8	0.8
	$140,000 or more	3.7	1.2
Work Disrupted	less than $20,000	9.5	4.9
	$20,000 to $39,999	1.9	1.1
	$40,000 to $59,999	4.8	1.6
	$60,000 to $79,999	6.3	2.5
	$80,000 to $99,999	3	1.2
	$100,000 to $119,999	3.9	1.4
	$120,000 to $139,999	6.4	2.5
	$140,000 or more	8.2	2.3
Physical Health	less than $20,000	11.9	3.5
	$20,000 to $39,999	22.3	3.3
	$40,000 to $59,999	23.9	3.1
	$60,000 to $79,999	19.4	3.3
	$80,000 to $99,999	17.1	2.7
	$100,000 to $119,999	13.2	2.8
	$120,000 to $139,999	26.7	5
	$140,000 or more	16.6	2.5
Mental Health	less than $20,000	6.7	2.8
	$20,000 to $39,999	18.9	3.2
	$40,000 to $59,999	14.1	2.5
	$60,000 to $79,999	11.3	2.5
	$80,000 to $99,999	13.3	2.5
	$100,000 to $119,999	5.8	1.8
	$120,000 to $139,999	16.4	4.1
	$140,000 or more	12.6	2.1

SOURCE: June 2023 Viewpoint Alberta Survey, n = 1439

Table 15 Weighted Distribution of Wildfire Impacts by Homeownership Status

		Percentage (Weighted)	
Impact	**Homeownership Status**	**Estimate**	**Standard Error**
Air Quality	Homeowner	81.8	1.4
	Non-homeowner	80.2	2.5
Hosted Evacuees	Homeowner	2.8	0.6
	Non-homeowner	4.1	1.3
Prepare to Evacuate	Homeowner	4.7	0.7
	Non-homeowner	12.2	2.1
Evacuee	Homeowner	2.9	0.6
	Non-homeowner	6.4	1.6
Home/Property Damage	Homeowner	1.9	0.5
	Non-homeowner	5	1.4
Community Damage	Homeowner	2.4	0.5
	Non-homeowner	5.8	1.6
Work Disrupted	Homeowner	3.7	0.7
	Non-homeowner	9.6	2
Physical Health	Homeowner	17	1.3
	Non-homeowner	22.9	2.3
Mental Health	Homeowner	10.5	1
	Non-homeowner	17.4	2.1

SOURCE: June 2023 Viewpoint Alberta Survey, n = 1439

Table 16 Weighted Distribution of Wildfire Impacts by Parental Status

		Percentage (Weighted)	
Impact	**Parental Status**	**Estimate**	**Standard Error**
Air Quality	Not a parent	83.3	1.4
	Parent	77	2.6
Hosted Evacuees	Not a parent	1.6	0.4
	Parent	6.6	1.6
Prepare to Evacuate	Not a parent	5.8	1
	Parent	9.4	1.6
Evacuee	Not a parent	3.3	0.8
	Parent	5.2	1.2
Home/Property Damage	Not a parent	1.5	0.5
	Parent	5.6	1.4
Community Damage	Not a parent	1.8	0.6
	Parent	6.9	1.5
Work Disrupted	Not a parent	4.6	0.9
	Parent	7.4	1.5
Physical Health	Not a parent	19.5	1.3
	Parent	17	2.1
Mental Health	Not a parent	12.4	1.1
	Parent	12.7	1.8

SOURCE: June 2023 Viewpoint Alberta Survey, n = 1439

Table 17 Weighted Distribution of Wildfire Impacts by Partnership (Marital) Status

		Percentage (Weighted)	
Impact	**Partnership Status**	**Estimate**	**Standard Error**
Air Quality	Not partnered	84.2	1.9
	Partnered	79.7	1.6
	Prefer not to say	79.8	17.1
Hosted Evacuees	Not partnered	3.5	1.1
	Partnered	3.1	0.7
	Prefer not to say	0	0
Prepare to Evacuate	Not partnered	9	1.7
	Partnered	5.7	0.8
	Prefer not to say	6.6	6.5
Evacuee	Not partnered	4.6	1.3
	Partnered	3.5	0.7
	Prefer not to say	6.6	6.5
Home/Property Damage	Not partnered	3.9	1.2
	Partnered	2.1	0.6
	Prefer not to say	8.1	7.9
Community Damage	Not partnered	3.9	1.2
	Partnered	3	0.7
	Prefer not to say	6.6	6.5
Work Disrupted	Not partnered	5.8	1.5
	Partnered	5.4	0.9
	Prefer not to say	0	0
Physical Health	Not partnered	20.2	1.9
	Partnered	18	1.4
	Prefer not to say	15.1	9.5
Mental Health	Not partnered	13.7	1.6
	Partnered	11.9	1.2
	Prefer not to say	11.1	8.5

SOURCE: June 2023 Viewpoint Alberta Survey, n = 1439

Table 18 Weighted Distribution of Wildfire Impacts by Region

		Percentage (Weighted)	
Impact	**Region**	**Estimate**	**Standard Error**
Air Quality	Urban	76.8	1.9
	Suburban	86.6	1.9
	Rural	84.1	2.9
Hosted Evacuees	Urban	3	0.7
	Suburban	2.5	0.9
	Rural	5.1	2
Prepare to Evacuate	Urban	4.4	0.9
	Suburban	4.8	1.1
	Rural	18.3	3.2
Evacuee	Urban	3	0.8
	Suburban	2.6	0.8
	Rural	9	2.5
Home/Property Damage	Urban	3.6	0.9
	Suburban	3.1	1
	Rural	0	0
Community Damage	Urban	2.7	0.8
	Suburban	3.5	1.2
	Rural	5.1	1.4
Work Disrupted	Urban	5	1
	Suburban	5.7	1.4
	Rural	6.5	2.3
Physical Health	Urban	20.7	1.7
	Suburban	16.1	1.8
	Rural	18.2	2.8
Mental Health	Urban	13.7	1.4
	Suburban	9.6	1.5
	Rural	14.9	2.5

SOURCE: June 2023 Viewpoint Alberta Survey, n = 1439

Table 19 Weighted Distribution of Wildfire Impacts by Political Beliefs

		Percentage (Weighted)	
Impact	**Political Beliefs**	**Estimate**	**Standard Error**
Air Quality	Far Left	96.6	2.4
	Center Left	90.1	1.8
	Center	80.9	2.3
	Center Right	75.7	2.4
	Far Right	73.7	5
Hosted Evacuees	Far Left	6.9	5.4
	Center Left	2.4	1
	Center	2	0.7
	Center Right	3.8	1.2
	Far Right	6.6	2.9
Prepare to Evacuate	Far Left	11.7	6.1
	Center Left	6.3	1.6
	Center	5.6	1.3
	Center Right	8.5	1.6
	Far Right	4.8	2.1
Evacuee	Far Left	0	0
	Center Left	3.4	1.3
	Center	3.3	1
	Center Right	4.5	1.2
	Far Right	7.5	2.9
Home/Property Damage	Far Left	1.4	1.4
	Center Left	1.9	1.1
	Center	2.6	1
	Center Right	3.4	1.1
	Far Right	4.9	2.2
Community Damage	Far Left	2.4	2.4
	Center Left	2.7	1.1
	Center	2	1
	Center Right	5	1.2
	Far Right	4.7	2.4
Work Disrupted	Far Left	2.3	1.7
	Center Left	3.9	1.3
	Center	6.5	1.6
	Center Right	5.6	1.4
	Far Right	6.5	2.7
Physical Health	Far Left	20.1	6.6
	Center Left	20.4	2.3
	Center	20.8	2.1
	Center Right	16.6	1.9
	Far Right	13.3	3.7
Mental Health	Far Left	15.1	5.1
	Center Left	17.9	2.2
	Center	10.6	1.5
	Center Right	10.8	1.6
	Far Right	11.5	3.5

SOURCE: June 2023 Viewpoint Alberta Survey, n = 1439

Perceptions of Wildfire and Climate Change

Table 20 Belief in the Effect of Climate Change on Wildfire Activity

		Percentage or Mean (Weighted)	
	Sample Freq	Estimate	Standard Error
Climate change has made wildfires more common and more intense	663	44.6	0.015
Wildfires have always been common, and climate change has no impact on them	344	26.4	0.014
Both equally likely	365	23.8	0.012
Not sure	67	5.2	0.007

SOURCE: June 2023 Viewpoint Alberta Survey, n = 1439

NOTES: Unweighted sample frequencies. Weighted estimates (percentages) and standard errors.

Table 21 Wildfire Concern, Weighted Distribution and Unweighted Sample Frequencies for Demographic Variables (cont. next page)

	Not Concerned			Somewhat Concerned			Very Concerned		
	Freq	Estimate	Standard Error	Freq	Estimate	Standard Error	Freq	Estimate	Standard Error
Age Groups									
18-24	8	13.7	4.8	29	32.5	5.6	54	53.8	6.1
25-34	14	9.5	2.9	92	42.2	3.8	112	48.3	3.8
35-44	23	10.8	2.3	84	41.1	3.6	113	48.2	3.6
45-54	31	15.2	2.6	106	45	3.5	102	39.8	3.4
55-64	30	11.2	2	111	41.5	3.1	131	47.3	3.1
65-74	22	8.3	1.7	123	46.5	3.1	125	45.2	3.1
75+	11	7.3	2.2	48	36.1	4.3	70	56.6	4.4
Gender									
Men	87	15.7	1.8	268	43.9	2.4	261	40.4	2.3
Women	52	6.9	1	325	39.4	1.8	446	53.7	1.8
Visible Minority Status									
White	115	11.7	1.2	484	43.3	1.6	533	45	1.6
Visible Minority	21	8.2	1.9	101	36.7	3.2	156	55.1	3.3
Indigenous	3	16.8	8.8	8	30.5	11.1	18	52.7	11
Annual Household Income									
less than $20,000	12	14.1	4.4	22	26.1	5.4	47	59.7	6.1
$20,000 to $39,999	13	9.3	3.1	72	38	3.9	99	52.7	4.1
$40,000 to $59,999	21	13.1	3.2	86	37.8	3.6	115	49.1	3.7
$60,000 to $79,999	12	5.7	1.7	80	42.7	4.1	108	51.6	4
$80,000 to $99,999	19	9.8	2.3	95	47.6	3.8	92	42.6	3.7
$100,000 to $119,999	18	11.3	2.8	77	46.9	4.4	70	41.9	4.3
$120,000 to $139,999	12	13.8	3.9	42	47.9	5.5	40	38.3	5.2
$140,000 or more	32	13.1	2.5	119	41.2	3.3	136	45.7	3.3
Homeownership Status									
Homeowner	108	11.4	1.2	451	44.4	1.7	483	44.2	1.7
Non-homeowner	31	10.4	2.1	142	34.9	2.7	224	54.7	2.9
Parenthood Status									
Not a parent	98	10.5	1.2	442	41.9	1.7	518	47.6	1.7
Parent	41	12.4	2	151	40.9	2.8	189	46.8	2.8
Partnered (i.e., martial status)									
Not partnered	49	12.4	1.9	197	37.4	2.4	270	50.2	2.5
Partnered	90	10.5	1.2	392	44.1	1.8	429	45.4	1.8
Prefer not to say	0	0	0	4	36.2	17.1	8	63.8	17.1
Region									
Urban	64	9.4	1.3	299	41	2	367	49.5	2.1
Suburban	52	12.4	1.8	206	42.7	2.5	228	44.9	2.5
Rural	23	13.1	2.9	88	41	3.7	112	45.8	3.7

	Not Concerned			Somewhat Concerned			Very Concerned		
	Freq	Estimate	Standard Error	Freq	Estimate	Standard Error	Freq	Estimate	Standard Error
Politics									
Far Left	38	9.8	1.9	201	42.1	2.5	240	48.1	2.6
Center Left	2	4.6	3.2	11	19.8	6	39	75.6	6.5
Center	13	4	1.2	108	30.9	2.7	225	65	2.8
Center Right	66	15.1	1.9	241	52	2.6	166	33	2.4
Far Right	20	24.2	5.3	32	34	5.4	37	41.8	5.6

SOURCE: June 2023 Viewpoint Alberta Survey, n = 1439

NOTES: Unweighted sample frequencies. Weighted estimates (percentages) and standard errors.

Table 22 Climate Change Concern, Weighted Distribution and Unweighted Sample Frequencies for Demographic Variables (cont. next page)

	Not Concerned			Somewhat concerned			Very Concerned		
	Freq	Estimate	Standard Error	Freq	Estimate	Standard Error	Freq	Estimate	Standard Error
Age Groups									
18-24	15	17.5	4.9	26	27.7	5.3	50	54.9	6
25-34	35	18.6	3.4	83	35.5	3.6	100	46	3.8
35-44	65	33.3	3.5	68	30.3	3.3	87	36.4	3.4
45-54	78	39.3	3.5	80	30.8	3.1	81	29.9	3.1
55-64	76	29.3	2.9	106	39.7	3.1	90	31	2.9
65-74	71	28.2	2.9	98	36.4	3	101	35.4	2.9
75+	33	26.9	4.1	44	33.7	4.2	52	39.4	4.4
Gender									
Men	182	32.6	2.3	211	31.7	2.2	223	35.6	2.3
Women	191	24.7	1.6	294	35.3	1.7	338	40	1.8
Visible Minority Status									
White	330	32.7	1.6	400	34.4	1.6	402	32.9	1.5
Visible Minority	37	14.1	2.4	99	32.6	3	142	53.3	3.3
Indigenous	6	25.2	9.3	6	16.2	6.8	17	58.7	10.4
Annual Household Income									
less than $20,000	21	23.4	5	24	29.5	5.9	36	47.1	6.3
$20,000 to $39,999	50	27.7	3.6	52	27.6	3.7	82	44.7	4.1
$40,000 to $59,999	62	31	3.7	79	34.9	3.5	81	34.1	3.5
$60,000 to $79,999	45	23.9	3.5	69	33.3	3.8	86	42.8	4
$80,000 to $99,999	53	28.5	3.5	68	30.1	3.3	85	41.4	3.8
$100,000 to $119,999	45	31	4.2	70	37.6	4.1	50	31.5	4.1
$120,000 to $139,999	26	33.3	5.4	35	33.9	5	33	32.8	5
$140,000 or more	71	28.5	3.2	108	37.6	3.2	108	33.9	3
Homeownership Status									
Homeowner	288	31.3	1.7	375	34.2	1.6	379	34.5	1.6
Non-homeowner	85	21.7	2.4	130	32.2	2.7	182	46.1	2.9
Parenthood Status									
Not a parent	271	27.8	1.6	372	33.7	1.6	415	38.5	1.7
Parent	102	29.9	2.7	133	33.3	2.6	146	36.7	2.7

	Not Concerned			Somewhat concerned			Very Concerned		
	Freq	Estimate	Standard Error	Freq	Estimate	Standard Error	Freq	Estimate	Standard Error
Partnered (i.e., martial status)									
Partnered	256	31	1.8	330	35.4	1.7	325	33.7	1.7
Prefer not to say	1	6.6	6.5	6	46.2	17.2	5	47.2	17.3
Region	0	0	0	0	0	0	0	0	0
Urban	164	24.6	1.9	264	34.6	1.9	302	40.8	2
Suburban	122	26.2	2.2	180	37	2.5	184	36.8	2.5
Rural	87	44	3.8	61	24.2	3	75	31.8	3.5
Politics									
Far Left	5	7.9	3.6	11	20.9	5.9	36	71.3	6.6
Center Left	16	5.3	1.5	98	27.2	2.5	232	67.5	2.7
Center	97	21.9	2.2	195	39.9	2.5	187	38.2	2.5
Center Right	205	46.7	2.6	179	35.5	2.4	89	17.8	2
Far Right	50	56.9	5.7	22	22	4.4	17	21.1	4.8

SOURCE: June 2023 Viewpoint Alberta Survey, n = 1439

NOTES: Unweighted sample frequencies. Weighted estimates (percentages) and standard errors.

Moving Intentions

Table 23 Summary of Moving Intentions, Likelihood, and Location Among Albertans

			Percentage or Mean (Weighted)	Sum of Movers only Percentage or Mean (Weighted)	
	Sample Frequency	Estimate	Standard Error	Estimate	Standard Error
Intention to Move					
Yes	223	16.8	0.011	35.2	0.021
Maybe	434	30.9	0.014	64.8	0.021
No	782	52.4	0.015	-	-
Likelihood of Moving					
Uncertain	312	21.5	0.012	45.1	0.022
Probably	222	16.9	0.012	35.5	0.021
Definitely	123	9.2	0.009	19.4	0.017
Not Moving	782	52.4	0.015	-	-
Moving Where					
Within Alberta	255	19.1	0.012	40.1	0.022
Outside Alberta	212	15.1	0.011	31.6	0.02
Considering both options	190	13.5	0.01	28.3	0.02
Not Moving	782	52.4	0.015	-	-

SOURCE: June 2023 Viewpoint Alberta Survey, n = 1439

NOTES: Unweighted sample frequencies. Weighted estimates (percentages) and standard errors.

Table 24 Intentions to Move in Next 5 Years, Weighted Distribution and Unweighted Sample Frequencies for Demographic Variables

	No			Maybe			Yes		
	Freq	Estimate	SE	Freq	Estimate	SE	Freq	Estimate	SE
Age Groups									
18-24	18	19.5	4.7	49	51.1	6	24	29.3	5.6
25-34	90	44.1	3.9	73	32.1	3.5	55	23.8	3.2
35-44	114	53.9	3.6	70	29.9	3.2	36	16.3	2.7
45-54	114	48.2	3.5	82	33.9	3.3	43	17.9	2.7
55-64	165	61	3.1	74	27.2	2.8	33	11.8	2
65-74	178	65.6	3	68	25.4	2.7	24	9.1	1.8
75+	103	80.5	3.5	18	13.6	3.1	8	5.9	2.1
Gender									
Men	357	54	2.4	172	29.6	2.2	87	16.4	1.8
Women	425	50.9	1.8	262	32.1	1.7	136	17	1.4
Visible Minority Status									
White	637	54.5	1.7	325	29.2	1.5	170	16.3	1.3
Visible Minority	132	45	3.3	96	36.1	3.2	50	18.9	2.6
Indigenous	13	51.6	10.7	13	38.1	9.9	3	10.2	6
Annual Household Income									
less than $20,000	23	24.7	5.1	44	58.4	6.1	14	16.9	4.7
$20,000 to $39,999	91	46.8	4.1	55	27.7	3.5	38	25.5	4
$40,000 to $59,999	127	56.7	3.7	62	28	3.3	33	15.3	2.8
$60,000 to $79,999	126	61.4	3.9	45	22.9	3.4	29	15.7	3
$80,000 to $99,999	121	58.1	3.8	59	28.7	3.4	26	13.2	2.7
$100,000 to $119,999	87	52.2	4.4	57	34.1	4.1	21	13.6	3.2
$120,000 to $139,999	48	49.2	5.5	33	36.1	5.3	13	14.8	3.9
$140,000 or more	159	52.5	3.3	79	29.2	3.1	49	18.3	2.6
Homeownership Status									
Homeowner	634	59.5	1.7	289	28.9	1.6	119	11.6	1.1
Non-homeowner	148	35.5	2.7	145	35.5	2.7	104	29	2.7
Parenthood Status									
Not a parent	601	53.8	1.7	312	31.2	1.6	145	15	1.3
Parent	181	49.2	2.8	122	30.3	2.5	78	20.5	2.3
Partnered (i.e., marital status									
Not partnered	254	45.3	2.5	172	35	2.4	90	19.6	2.1
Partnered	527	57.3	1.8	256	28	1.6	128	14.6	1.3
Prefer not to say	1	4.9	4.9	6	53.9	17.2	5	41.2	17.2
Region									
Urban	393	51.7	2.1	224	31.6	1.9	113	16.6	1.6
Suburban	258	50.9	2.5	147	30.2	2.3	81	18.9	2.1
Rural	131	57.1	3.7	63	30	3.5	29	12.9	2.5
Politics									
Far Left	25	51.5	7.8	16	33.2	7.4	11	15.3	4.7
Center Left	188	52.8	2.9	99	27.8	2.5	59	19.4	2.5
Center	240	47.8	2.6	164	36.1	2.5	75	16.1	1.9
Center Right	281	57	2.6	133	28.7	2.4	59	14.3	1.9
Far Right	48	50.2	5.8	22	25.1	4.9	19	24.6	5.3

SOURCE: June 2023 Viewpoint Alberta Survey, n = 1439

NOTES: Unweighted sample frequencies. Weighted estimates (percentages) and standard errors (SE).