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Master Thesis

The Impact of the Conflict in Yemen on Women's Employment

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Declaration

I, Afnan Ahmed Mohammed Shamsan, declare that this Master's thesis titled "The Impact of the Conflict in Yemen on Women's Employment" is my original work completed under the supervision of Professor Maria Anna Leone. I confirm that all ideas are my own unless stated otherwise. All borrowed ideas borrowed are cited and referenced.

Afnan Shamsan
May, 2023

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Abstract

This thesis examines how the conflict in Yemen up until 2013 affected women's employment. To investigate this question, the Difference-in-Difference approach was used as an identification strategy to compare women's employment in the pre-conflict and post-conflict period. To conduct the analysis two surveys were used: the Household Budget Survey (HBS), conducted by the Central Statistics Office (CSO) in Yemen in 2006, to represent the pre-conflict period, and the Demographic and Health Survey (DHS) for Yemen in 2013 to represent the post-conflict period. The result of this thesis demonstrates that the conflict in Yemen had a negative impact on the employment of ever-married women. The results of this study constitute the first empirical evidence from Yemen and contribute to the existing literature on the effects of conflict on labor market outcomes.

Keywords: Armed Conflict, Women's Employment, Difference-in-Difference, Yemen

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Chapter I

1. Introduction

Violent conflicts remain one of the most pressing challenges, with devastating consequences that disrupt the lives and livelihoods of millions of people worldwide. In the last five decades, more than half of all countries have experienced armed conflicts with 25 or more deaths per year or civil wars with 1,000 or more deaths per year (Buvinic et al., 2012). Although the number of wars has declined following its peak in the early 1990s, many people today, especially in poor counties, still face violent conflicts and the repercussions it brings about (World Bank, 2011). Conflicts result in the loss of lives, displacement of populations, and massive destruction of physical and economic infrastructure. They severely undermine social cohesion and stability within communities and are associated with high levels of criminal activity, low levels of human capital and productivity, and a collapsed labor market. Furthermore, they disrupt essential services such as health and education exacerbating poverty and hindering economic growth. (Blattman & Miguel, 2010; Justino, 2012; World Bank, 2011).

Among the recent conflicts that have occurred in the last decade is the conflict in Yemen whose beginnings can be traced back to the early 2000s and led to the war that broke out in 2015 between the Al-Houthi movement and the government backed by Saudi Arabia and other foreign powers. The war in Yemen has resulted in devastating consequences exacerbating an already improved nation in the Middle East. According to the United Nations Report (2019), over 80% of Yemen's population of approximately 25 million people needed some form of humanitarian assistance, making it one of the worst humanitarian crises in the world. Aside from the widespread destruction the war has caused to infrastructure and essential services, it has taken a heavy toll on civilians' lives with thousands of reported civilian casualties including women and children (United Nations, 2019).

While conflicts have far-reaching consequences on societies, it transforms and modifies the context and dynamics of the affected societies in various ways (Acemoglu & Robinson 2006). One of the notable transformations that occur as a result of conflict relates to gender roles and norms that are often deeply ingrained in societies. During conflicts, women face significant challenges and are compelled to adjust their roles and adapt to new circumstances in response

to changes in their households and communities in order to navigate the sudden disruptions in their livelihoods. Among the coping strategies women resort to in times of conflict is the uptake of the "breadwinner" role. Women tend to participate in income-generating activities to contribute to their household's survival in the absence of men which challenges traditional gender norms and expectations (Kabeer, 2000). It has therefore been shown that conflicts can result in positive outcomes for women in the labor market during conflict and in the aftermath (Brück and Vothknecht, 2011; Calderón et al.,2011)

The notion that women can potentially benefit from wars may initially appear counterintuitive given the severe suffering and adverse impacts that conflict often inflict on societies. Studying these impacts is indeed a difficult task due to the inherent challenges conflicts encompass. Measuring conflict itself is a complex task as it typically occurs in impoverished nations with weak infrastructure and institutions. Moreover, conflict-affected countries have little pre-conflict data and a limited capacity for data collection. Despite these challenges, efforts to empirically explore and document the impacts of conflict have been increasing. Existing empirical evidence indicates that the effects on human capital are more lasting compared to physical capital, however, these effects are seldom gender-neutral since the disruption caused by conflicts reshapes household structures, demographic profiles, and traditional gender roles (Buvinic et al., 2012). A wide range of studies using different contexts of conflicts examined the effect of conflict on women's employment. On the one hand, studies show that conflicts can result in positive ripple effects in terms of female employment during the conflict which has the potential to expand women's opportunities in the labor market (Brück and Vothknecht 2011, Justino, 2012; Kumar, 2001). On the other hand, other studies indicate that conflict negatively impacts women's employment or the gains, if any, are often short-lived followed by a backlash in their progress due to the unstable and insecure nature that characterizes post-conflict societies (Kaufman & Williams, 2017; Kuehnast et al., 2011; Meintjes et al. 2001).

Thus, there is a lack of consensus in the literature as to whether conflicts positively or negatively influence women's decision to work. Not only that, empirical evidence and research focused on the impacts of conflicts in the Middle East particularly in Yemen (Maxwell, et al., 2019). The conflict in Yemen is relatively recent and ongoing which means comprehensive data may be lacking. Furthermore, the war in Yemen is complex with many underlying causes and involves multiple actors and dynamics. Understanding these intricate dynamics to document the effect of conflict on various development aspects therefore requires time and

consistent data which is most often difficult to gather due to the volatile nature of the conflict. That being said, there is a pressing need for evidence on the impact of armed conflicts particularly on women to address their specific needs as economic agents during conflict and post-conflict situations.

The research question that this research aims to answer is the following research question: How does armed conflict impact women's employment? In particular, it tests the hypothesis of the "added worker" effect in which women may enter the labor market as they try to compensate for reductions in household income caused by losses in their husbands' earnings due to war-related disruptions. The purpose of this study is to also contribute to filling a gap in the literature on conflict and development where gender aspects have often been neglected (Ellerby, 2013). Policy interventions around gender issues in conflict and post-conflict societies need to be designed based on rigorous empirical evidence to prevent misplaced interventions which often focus on male employment and the re-integration of returning males from combats into the labor market (Buvinic et al.,2012). In addition, understanding the impact of conflicts on women has been emphasized by the UN as a crucial objective. The UN Security Council Resolution (UNCSR) 1325 points to the crucial role of women "in the promotion of peace and security and the need to increase their role in decision-making with regard to conflict prevention and resolution". Therefore, this paper aims to provide new evidence on the impact of conflict on women's roles and activities which can better guide the understanding of the subsequent changes in the local processes of post-conflict societies.

In order to answer the above research question, this study employs the Difference-in-Difference framework to identify the effect of conflict on women's employment decisions. The analysis is done using data from two different socioeconomic surveys: the first is the most recent wave of the Demographic and Health Survey (DHS) from the year 2013 to indicate the post-conflict period and the second is the Household Budget Survey (HBS) for the year 2006 for pre-conflict data. Data on the measures of conflict has been sourced from the Uppsala Conflict Data Program (UCDP) which covers battle deaths in the different governorates in Yemen and will be used to classify regions into treatment and control groups. My findings demonstrate that the conflict in Yemen had a negative impact on the employment of ever-married women. These results contribute to the literature in that they are, to the best of my knowledge, the first empirical, mico-level analysis done on Yemen to study the association between armed conflict

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and women's employment decisions. The literature on the consequences of conflict on women is mostly qualitative in nature with no rigorous econometric methodologies.

The study is organized into four main parts as follows. In the first part (chapter 2), I lay out the theoretical framework of the study which will focus on theories of why armed conflicts may enhance or hinder women's participation in the labor market along with a summary of the findings in the literature. Chapter 3 gives a brief overview and background on the conflict in Yemen. Chapter 4 provides a description of the data, the research sample, and the variables used, and presents some descriptive statistics. In the fourth chapter, I explain the estimation strategy and provide the main regression model. Chapter 5 presents the empirical results followed. The last chapter discusses the results and concludes.

2. Definitions

This study addresses some key concepts which have been defined in various ways in the literature. I define these concepts below to ensure clarity and consistency throughout the research.

2.1. Armed Conflict

It is important to define armed conflict as there are various types of conflict and the distinction between them can often be blurry. In this thesis, I use the terms conflict and armed conflict interchangeably. However, conflict as referred to in this study is not concerned with all forms of conflict but with violent armed conflict. It follows the definition of stated-based violent conflict of the Uppsala Conflict Dara Program (UCDP). According to UCDP state-based violent conflict is defined as "a contested incompatibility that concerns government and/or territory over which the use of armed force between two parties, of which at least one is the government of a state, has resulted in at least 25 battle-related deaths in one calendar year" (Uppsala Conflict Data Program). Given this definition, battle-related deaths are a measure of state-based conflict in a given year where one of the actors is involved in the state. In this research, conflict is therefore quantified by the number of causalities due to armed conflict.

2.2. Post-Conflict

This is the period directly after the conflict marked by the signing of an official peace agreement. It is sometimes referred to as the "transition phase" of a country from conflict to peace. There is no universally agreed-upon time frame for the post-conflict as it is relative to the context at hand and can vary significantly from a few years to several decades. This makes it difficult to determine when a country can be considered post-conflict (Justino et al., 2012). Moreover, the concept of post-conflict assumes a linear path from conflict to peace which in reality might not be necessarily the case. Post-conflict periods are often characterized by political and social tensions and other challenges which makes the criteria for defining the post-conflict phase controversial. In addition, various stakeholders could have different perspectives on what is considered post-conflict. For instance, governments and international organizations may refer to a country in its post-conflict period while in reality, local communities are still suffering the effects of conflicts contributing to the subjectivity of the concept and subsequently the controversial nature it underlies.

2.3. Women's Economic Empowerment

Empowerment refers to the process in which individuals, regardless of gender, increase their ability to make their own choices and have the capacity to act upon these choices. It encompasses actions that strengthen personal and collective assets and improves the fairness and effectiveness of the organizational and institutional context that governs the utilization of these assets (World Bank, 2002). The United Nations' definition of Women's empowerment includes several key components: (i) a sense of self-worth, (ii) the right to make choices and have control over them, (iii) access to opportunities and resources, (iv) the right to have the power to control their own lives, both within and outside the home, and (v) the ability to influence the direction of social change to create a more just social and economic order, nationally and internationally (Justino, 2012). In this thesis, I focus on one aspect of women's empowerment which is women's economic empowerment in terms of women's access to economic opportunities. Indeed, women's economic empowerment is, as well, a multifaceted concept and includes various dimensions. However, due to the unavailability of data to proxy for the varying aspects of economic empowerment, I limited the definition to women's employment or their access to employment opportunities in the labor market.

Chapter II

1. Theoretical Framework

In this section, I will discuss the barriers to women's economic empowerment and explore theories on social change. I will specifically look at how war or conflict is seen as a disruptive event that might result in changes that can potentially transform or possibly enhance women's employment. A literature review with prior empirical studies that emphasize the possible benefits or harms of conflicts for women's empowerment will also be explored.

1.1. Constraints for Women's Economic Empowerment

The literature identifies numerous constraints that impede women's progress in achieving economic empowerment. These constraints hinder women's ability to fully and equally participate in the labor market, access resources, obtain decent work, and exercise control over their economic lives. Such barriers can be grouped into three broad categories: cultural, institutional, and socioeconomic (Inglehart & Norris, 2003; Matland, 1998; Reynolds, 1999). These factors often interact with each other in a complex manner creating unfavorable conditions for women to advance and limiting their roles and positions in society. While such limitations vary from one context to another, they generally exclude women from participating in the economic sphere to some degree. It is important to note that the below-listed barriers are not concerned only with women's economic empowerment. They also inhibit women's participation in politics, their ability to take on positions of power, and their overall status in society.

The first of these constraints is cultural barriers which are often identified as the key impediment to women's economic empowerment. Cultural norms refer to the beliefs, and values that define gender roles in society. These roles are limited, to a great extent, by society's perception of what "good women" are out to do. Gender stereotypes in many cultures portray women as caregivers and men as breadwinners. As a result, women are often seen as less capable in the labor market as their value is limited to their ability to care for the household and raise children. Such deep-rooted gender stereotypes and discriminatory practices restrict women's access to employment, entrepreneurship, and financial resources (Kabeer, 1999). Discriminatory gender norms are still predominant in many cultures today. For instance, a

study in Saudi Arabia shows that societal expectations of women as caregivers are the primary obstacle to women's labor force participation (Almutairi, 2019).

Institutional barriers refer to laws and policies within a society that discriminates against women and restricts their access to employment opportunities. The UN adopted convention (CEDAW) that was signed in 1979 protects women's freedom and right to work. Despite such efforts by the international community to reduce the gender gap, many countries still lack gender-inclusive policies in the workplace. Biased policies in the labor market which include discriminatory practices in recruitment and promotion, unequal pay, and lower benefits are major challenges for women in many countries. In addition, inadequate maternity leave and childcare policies can make it more difficult for women to balance work and family life (Misra & Budig, 2011; Baker et al.,2008). Such discriminatory policies reflect systematic biases and may perpetuate gender-based inequalities as well as discourage women from seeking employment opportunities to improve their economic status.

Socioeconomic constraints, for the most part, relate to the poverty levels in a country. Women's economic empowerment is closely related to poverty and their access to resources. Although the idea that economic growth leads to better human development for women is prevalent in the literature, it is widely contested (Kabeer & Natatli, 2013). There are several examples where women in high-income countries do not enjoy several rights and an evident case is countries in the Gulf region who are accused of low levels of human development, particularly in regard to women's rights.

The constraints listed above are multifaced and are not mutually exclusive (Connell, 2009). An important question is thus on how such barriers are broken to create an opportunity for women's economic empowerment. War or conflicts can have a significant impact on the decision of women to join the labor market. They can create an enabling environment where women can participate in economic activities, contribute to sustainable development, and enjoy equal economic opportunities during conflict and in some cases, in the aftermath of conflict as well. The below sections describe the theories on social change and how war can be a driving factor for cultural changes that influence gender roles in societies.

1.2. Theories of Social Change

There are two prominent theories in the literature that explain how social change occurs. One theory posits that social change is a gradual process (Blumberg 1984). Blumberg (1984) argues that change occurs over time rather than as a consequence of a sudden shock or an event. Such change is complex and requires a gradual transformation of existing social structures and cultural norms. It also takes place at different times in different ways and periods of time depending on the respective context. That being said, women's empowerment in societies is an incremental process that takes place as women accumulate their human capital over time. This process can be facilitated through economic growth, technological advancement, and demographic shifts which result in better income, increased education, better health, and socioeconomic conditions among women (Blumberg, 1984).

This theory is connected to the general theory of path dependency. Path dependency theory argues that the trajectory of a process is influenced by historical or past events which continue to influence further development (Pierson, 2000). Both theories indicate that changes do not occur abruptly; it's a long-term complex process that is driven by certain factors that shape the direction and pace of change (Blumberg, 1984; Mahoney, 2000). Blumberg's theory emphasizes internal factors such as social and cultural norms and beliefs as a driver for social change while the theory of path dependence focuses on external factors such as institutions, laws, and policies of a country (Mahoney, 2000).

The second theory argues that social change occurs as a result of an exogenous shock. In some instances, social change is not a peaceful or gradual process as theoretically argued. Social change can follow different patterns and paces and can often "take a highly discontinuous form" (Collier & Collier, 1991). Collier & Collier (1991) studied the political changes that took place in Latin America and explained these changes through the notion of critical junctures. A critical juncture is a period in time when external shocks or events occur and have transformative effects which can shape the future trajectory of a system or a process. These events or shocks include economic crises, protests, uprisings, or armed conflicts that disrupt the existing order and lead to the emergence of new institutions, policies, or social structures (Collier & Collier, 2002) and "produces distinct legacies of path dependence" (Acemoglu &Robinson, 2012). The legacy or the outcome potentially influences the new path for development. From that perspective, armed conflicts constitute a critical juncture through

which existing cultural norms, institutions, or policies become malleable allowing for the possibility of bending and reshaping gender norms and the reconfiguration of power relations which could potentially provide an opportunity for women to advance and progress.

A related key concept to critical juncture is the notion of a policy window. The concept was developed by John Kingdon and it refers to a specific opportunity during a political, or economic process during which an opening for a policy issue is brought to light. The policy window provides a fertile ground for the uptake of new policies as the political climate and public opinion enable policymakers to push for certain policy changes (Kingdon,1995). The notion of policy window can be used to understand how conflicts can create opportunities to address gender disparities in the labor market. Conflicts transform the social fabric of a society which can disrupt preexisting power structures, social norms, and policy agendas. It can shed light on the gendered impacts of war and the pressing roles women play during the conflict. The increasing recognition of women's contribution to conflict-affected societies can create a policy window and a conducive environment for policymakers and civil society organizations to facilitate efforts to implement action policies and strengthen legal frameworks to promote gender-inclusive policies in the labor market. However, it is important to note that the existence of a policy window does not ensure quick or long-lasting improvements in women's employment. The extent to which the policy window improves economic opportunities for women depends on the political climate, policy priorities, resource limitations, and power dynamics, Nonetheless, the concept can be used to better grasp the dynamics and prospects for advancing women's status in the aftermath of the conflict.

Given these notions, armed conflicts can induce a critical juncture and a window of opportunity for structural and institutional change and a transformation in social and economic structures. Conflicts or wars can therefore be analyzed as an event that has the potential to influence women's status in societies and an opportunity for women to take a step forward. However, is this change for the better? I explain below the assumption that wars can be in favor of women's economic empowerment and the mechanisms through which it increases their employment in the labor market.

1.3. Impact of Conflict on Women's Employment

While there is no denying that internal conflicts have had devastating effects, it is important to note that not all repercussions for women have been negative (Kumar, 2001). In this section, I review the mechanisms through which armed conflicts increase women's employment. I start by looking at the phenomena of higher employment rates for women during times of conflict through abrupt changes in gender roles and how this trend might continue into the post-conflict period, facilitated by the major demographic changes brought about by the conflict. This section shows how conflicts might create a "window of opportunity" or "critical juncture" that can result in improvements for women in the labor market.

A. Disruption of Gender Roles

A widely used argument in the literature on conflict and gender is that conflicts have the potential to alter gender roles within societies which in turn affects labor market outcomes and economic opportunities for women (Wood, 2008). Traditional gendered division of labor which is often deeply entrenched in societies dictates that men dominate the formal labor market while women engage in unpaid work in households. During conflict, gender norms are often disrupted creating opportunities for redefining these norms. As men are often absent from households during conflicts since they are mobilized to join the military, households are left with no source of income. Women immediately have to step in and take on the role of the "breadwinner" within the household to replace lost male workers (Justino, 2009). As a result, a spur in the demand for women in the labor market is often observed (Ni Aolain et al.,2011). Women's participation in previously male-dominated positions not only pushes traditional gender boundaries but also proves their capabilities, resilience, and agency (Moghadam, 2013). This can eventually lead to the redefinition of societal structures and the emergence of new dynamics which can in the long term contribute to the promotion of gender equality.

The claim that conflicts open up opportunities for women in the labor market has been widely studied in the literature and can be traced back to World War II. A well-known study by Acemoglu et al (2004) found that female labor force participation in the United States increased from 28% in 1940 to 34% in 1945 due to the mobilization of men in the military in the second world war. The results indicate a significant change in traditional roles. Although half the woman left the labor force and returned to their previous roles in the aftermath of the war, a considerable portion remained, indicating a change in the economic opportunities for women

post-war (Akbulut-Yuksel et al., 2011). Literature using micro-level quantitative analysis on recent civil wars provides similar evidence. A 2012 study using data from the DHS for Bosnia and Herzegovina, Colombia, Kosovo, Nepal, Tajikistan, and Timor-Leste found that women participated more in the labor market during and after the conflict across all six countries. In Bosnia and Herzegovina, Colombia, and Timor-Leste, women's increased participation was linked to higher levels of empowerment determined by women's bargaining power and decision-making at the household and community level, and per capita consumption (Justino et al., 2012). Another study done by Menon and Rodgers (2011) using difference-in-difference analysis shows that as a result of the Maoist insurgency that led to the migration and displacement of men in Nepal, women were 10% more likely to be employed outside the house relative to pre-conflict times.

Not only does demand for women in the labor market increase, but conflict can also change the type of jobs women can access. As women enter the labor market and perform different tasks, they begin working in industries that are male-dominated (Garrard-Burnett, 2001). These new tasks allow women to gain new knowledge and skill in the labor market. In Angola, for instance, Calderon et al. (2011) argued that women were easily integrated into the informal labor market in urban areas and took over jobs in small trades on the streets. In Cambodia, women have gained access to the textile and construction industries because they started working in these sectors during the conflict (Evans, 2019).

Various studies also show the effect of displacement as a consequence of conflict on female labor force participation. Calderon et al. (2011) show that internal displacement in Colombia due to conflict-affected women's employment (they work eight more hours per week compared to non-displaced women in rural areas). Women who migrate from rural to urban areas have a competitive edge in low-skilled jobs in urban areas since they have more experience in such sectors. This is usually the case for jobs in the service sector such as beauty salons, the garment industry, food vending, etc. Consequently, women earn higher incomes relative to those who remain in the village. Additionally, men are forced to choose low-paying jobs or to rely on female household members since their previous income activities or the resources they depended on prior to the conflict (such as land, animals, and other assets) have been lost. In the case of Bosnia and Herzegovina (Kondylis, 2010) and Northern Uganda (Lehrer, 2010) higher unemployment rates were observed among displaced men as they were less likely to find work.

As women prove themselves to be capable in positions of work previously done by men, they tend to have enhanced self-esteem and are aware of their rights and capacities which can be crucial for women in the post-conflict period. In the post-conflict period, women might refuse to give up their new roles and responsibilities and are more prone to organize in groups to shed light on issues that matter to them (Justino, 2012). Simultaneously, men might be more willing to accept the new roles of women and potentially change their preconceived notions about women's abilities to take on gainful employment.

B. Changes in Demographic Composition

As discussed above, one of the mechanisms through which conflicts affect women's employment is through changes in cultural and gender norms. Another channel is the change in the demographic composition of households. Armed conflicts are associated with population displacement and migration which leads to changes in household structures. As men join forces to fight in combat, societies witness a high death toll and an increased number of forced displacements among men which have an effect on the long-term proportional distribution of men and women in societies (Meintjes, 2000). As a result, household structures experience a shift with an increased number of female to male ratio and consequently an increase in the number of female-headed households (Chant, 2005). Moreover, fewer men tend to marry in post-conflict societies contributing to a high proportion of unmarried women. A large share of single and windowed women consequently increases the number of female-headed households. These changes in household demographics can have a profound impact on women's employment decisions. In response to such changes, households adopt a variety of strategies to secure their livelihoods. One such adaptation strategy is the increased female labor force participation in the aftermath of conflict (Brück & Vothknecht, 2011; Justino, 2012). That being said, armed conflicts not only affect women's employment during the conflict as mentioned above but also in the aftermath of conflict as household structures change.

Several studies have examined this phenomenon. For instance, in the late 1990s, the Maoist insurgency forced almost all men and boys to flee the villages in Nepal's western hills. Women were forced to plough the land in the absence of men, something they had never been permitted to do in the old rural community (Manchanda, 2001). In post-war Georgia, Guatemala, Rwanda, Cambodia, El Salvador, and Bosnia and Herzegovina, women's employment increased as men disappeared during and after the conflict (Brück and Vothknecht, 2011). In other situations, women's employment opportunities in the labor market are further stimulated

by an expanding economy in the wake of conflict or a need for human resources induced by demographic changes (Brück &Vothknecht 201).

The altered gendered roles and changes in demographic structures can potentially lead to the emergence of "progressive" gender norms and beliefs in post-conflict societies which enhance women's opportunities in the labor market. Overall, conflict can create an " opportunity window" for change in women's employment after the conflict but the extent to which this could happen depends on the nature of the conflict and the post-conflict processes to strengthen their position and rights in the labor market. Therefore, efforts must be made to prevent the backlash in women's advancement during the transition to peace (Brück &Vothknecht, 2011; Kaufman & Williams, 2017; Meintjes et al., 2001)

1.4.   Post-Conflict Setback in Women's Employment

As highlighted above, there are instances where conflicts can lead to improvement in women's economic participation. However, these improvements are in some cases temporary and can quickly regress in the aftermath of conflict (Brück & Vothknecht, 2011; Kaufman & Williams, 2017). This phenomenon might be attributed to several factors. First, women might experience a setback in the post-conflict period due to efforts to rebuild societies according to their pre-conflict social order in their transition to peace which may perpetuate traditional gender norms and reinforce patriarchal norms. As a result, women's rights and gender equality may, as a result, be neglected or overlooked. For instance, some of the legal rights of women in Afghanistan and Iraq have been negated due to the reconstitution of their governments based on Sharia Law.

The reversal of gender norms is also related to the fact that women's status in the formal market is perceived as temporary to mediate the impact of conflicts on the economy. As soon as conflicts end, men return to their communities and occupy their previous roles, women are pressured to return to their initial domestic r roles as caregivers (Meinjtes et al, 2001; Handrahan, 2004). Additionally, as mobilized men return to their communities, male employment is often prioritized (Bop, 2001). This results in the saturation of the labor market where it is unable to absorb all women who entered during the conflict. According to a study by Kabeer et al. (2012), women who had entered the labor market in Sri Lanka during the civil war were compelled to leave because of societal and cultural pressures, which led to a decline

in women's employment. Similar trends were observed in post-conflict Bosnia and Herzegovina, where women's employment temporally increased during the war but dropped as traditional gender roles were reinstated (Kaufman & Williams, 2017). They also found that in Liberia, the end of the conflict resulted in the reversal of gendered social roles, unequal power relations, and the exclusion of women in the labor market. In Afghanistan, women's increased participation in the formal labor market initially increased immediately after the fall of the Taliban but then gradually decreased as previous gender roles returned (Brück &Vothknecht, 2011). These effects are exacerbated by the economic downturn associated with lower economic activity which reduces employment prospects for women. This is particularly the case for women who have occupied positions in the formal labor market and are forced to go back to the informal sector to generate income.

The backlash in women's advancement in post-conflict is not only attributed to the above-explained factors. Certain characteristics of post-conflict societies also play a role in women's reversal of roles in society. High levels of gender-based violence and insecurity often prevail in post-conflict societies and are particularly directed toward women in the public sphere who have taken on new roles or positions of power. The absence of institutions and effective policies, and a weak rule of law in post-conflict societies created a conducive environment for violence against women (Brück and Vothknecht, 2011). Several studies have reported an increase in gender-based violence in post-conflict societies. In Afghanistan, up to 80 percent of women in faced domestic violence, specifically they were physically abused by their husbands (Truce, 2012). Truce (2012) also found results in East Timor and Liberia, where levels of domestic violence drastically increased.

The theoretical discussion and literature review in the above section highlight the lack of consensus on the effect of armed conflict on women's economic empowerment, particularly their employment decisions. On the one hand empirical research shows that conflicts increase women's employment opportunities and participation in the labour market. This, combined with a higher proportion of female-headed households in the post-conflict aftermath, among other factors, creates a potential opening for advancing women's employment and labor rights in the post-conflict period. However, other case studies indicate that these benefits would only be temporary, and that women's economic advancement might face resistance in the post-conflict period. In post-conflict societies, women's participation in the economy is frequently hampered by ongoing insecurity and high rates of domestic violence. Due to several

unfavorable conditions, including the restoration of pre-conflict gender norms and expectations, women are often the first to lose their jobs in the post-conflict period. That being said, it is unclear from the studies covered in this section whether armed conflict promotes or hinders women's economic empowerment.

Chapter III

1. Conflict in Yemen

Yemen is located in Western Asia at the southern tip of the Arabian Peninsula. It is bordered by Saudi Arabia to the North, the Gulf of Aden and the Arabian Sea to the south, Oman to the east, and the Red Sea to the west. Yemen's proximity to Bab Al-Mandab- a narrow strait between the red sea and the gulf of Aden- provides it with a strategic geopolitical significance. Bab Al-Mandab is one of the world's most important shipping lanes and a major stopping point for oil ships traveling from the Persian Gulf to the Suez Canal and on to the rest of the world. Yemen's geopolitical significance makes it susceptible to control by two main regional rivals Saudi Arabia and Iran who seek to exert influence in the region. This has made Yemen a key battleground in regional and global conflicts.

The country has experienced several conflicts throughout its history. Among the recent ones is the Houthi Insurgency which intensified in 2009. The Houthis are a Zaidi Shia Muslim group that has long been marginalized by the government. Political and economic suppression of the Houthi group led to their insurgency where they overtook the capital in the north marking the beginning of the recent war in Yemen which broke in 2015.

The following section provides a brief overview of the history of conflicts in Yemen. It is important to note that the conflict in Yemen is complex with many intricate dynamics that extend beyond the scope of this paper to fully explore. The section will also explore the impact of the conflict on infrastructure and employment.

1.1. Emergence of the Conflict in Yemen

Yemen's current civil war emerged from a prolonged history of conflicts that the country has witnessed. In the 1960s, a series of civil conflicts erupted in the country leading to the division of Yemen into two separate states, the People's Democratic Republic of Yemen (Southern Yemen) and the Yemen Arab Republic (Northern Yemen). Different political ideologies, economic structures, and forms of governance separated the two states; with the North being ruled by a conservative Islamic government and the South being a socialist state. Despite the

differences, many Yemenis felt strong cultural and social ties and believed in a unified Yemeni identity. Additionally, both states were poor with limited resources and a unified Yemen could help spur economic growth by distributing resources among the states. Before the unification, both states were also facing tensions and clashes creating an unstable environment along the southern borders of Saudi Arabia. Hence, there was a growing interest from neighboring Gulf monarchies particularly Saudi Arabia to unify Yemen in order to stabilize the region and reduce political conflicts.

Overall, cultural, political, economic, and geopolitical factors led to the unification of Yemen which took place in 1990 with the capital city being Sanaa which is located in the North, and Ali Abdullah Saleh became the president ruling the country for almost three decades. However, the process of unification was also accompanied by significant challenges driven by economic disparities and power struggles between the North and the South which led to civil wars in the late 1990s and also continues to shape Yemen's political, social, and economic landscape today.

 The Al-Houthi group, also known as Ansar Allah, is a Zaidi Shia group that emerged in the 1990s and was founded by Hussein Badreddin Al-Houthi based in the Northern province of Saada and has been long involved in conflicts with the government. In 2004, the group led by Hussein Al-Houthi rebelled against the government accusing it of discrimination against Zaidi Shias and demanded political representation in the government. Since then, the government has launched military campaigns against the Houthis and killed the leader. The conflict escalated in the following years with both sides engaging in six rounds of violent conflicts throughout the period of 2004-2010. The conflicts led to a widespread humanitarian crisis including the death of civilians, displacement, and weakened the already poor infrastructure of the country. It also exposed the country to political and economic instability, and insecurity and paved the way for threatening actors such as Al-Qaaeda to have control in the country. It also called for international intervention by Saudi Arabia and Iran to resolve domestic affairs according to their own conflicting agendas.

The beginning of 2011 marked the outbreak of protests which were part of the wider "Arab Spring" movement across the Middle East demanding political reforms. The demonstrations called for the resignation of President Ali Abdullah Saleh, political and economic reforms, and an end to corruption. The government forces responded with violence to suppress the protests

across the country which led to internal clashes among various groups involved in the protests. In April of the same year, a power-sharing agreement was reached, and President Saleh resigned and passed down power to his vice president, Abdurabbu Mansur Hadi. The agreement also involved a national dialogue involving various political groups including the Houthis, to instate a new constitution and address the country's needs. The national dialogue was the closest initiative to democracy the country has experienced; it ignited a spark of hope in the hearts of many for a better Yemen.

Despite the transition of power and the progress made in the national dialogue, no agreement was reached leading to a resurgence of the Houthi group in 2014 through which they were able to take over the capital city Sanaá including major institutions of the country and later on advanced towards the southern cities of Yemen. The conflict intensified as the newly appointed president Hadi fled to Saudi Arabia and approved their military intervention against the Houthi rebels.

In March of the year 2015, Saudi Arabia and its allies in the region backed by the United States and other foreign powers formed a coalition and launched a military operation under the name "Decisive Storm" to carry air strikes against Houthi bases to weaken their power and restore the legitimate government. The Saudi-led intervention remains controversial since it exacerbated the conflict and led to what is known as the worse humanitarian crisis in years (UN, 2019). Both sides committed human rights violations and contributed to a devastating war that resulted in the death of civilians, displacement famine, and destroyed the country's economic infrastructure.

1.2. Impact on Infrastructure

The conflict in Yemen has had a crippling effect on the country's infrastructure, exacerbating an already fragile situation. This has resulted in significant disruptions to vital services and has hindered the overall development and well-being of the Yemeni people.

One of the key areas affected by the conflict is the country's transportation infrastructure. Roads, bridges, and airports have been damaged or destroyed making it challenging to transport goods, provide humanitarian aid, and facilitate the movement of people. According to the United Nations (2020), an estimated 16,000 kilometers of roads and 290 bridges have been

damaged or rendered unusable due to the conflict This has severely limited access to basic necessities, including food, medicine, and clean water, particularly in remote and conflict-affected areas.

Furthermore, the air, land, and sea blockade imposed by the Saudi-led coalition has severely restricted the flow of food, fuel, and medicine across the country causing severe humanitarian distress to the civilian population (Fink, 2017).

The energy infrastructure in Yemen has also been severely damaged by the war. Targeted attacks on power plants, transmission lines, and fuel storage facilities have led to significant power outages and fuel shortages. Only 30% of Yemen's population had access to electricity in 2020, which had a negative impact on medical facilities, water supply systems, and other vital services (World Bank, 2020). The humanitarian crisis has been made worse by the shortage of energy, which has made it difficult to provide vital medical services like refrigeration for vaccines and life-saving equipment.

Water and sanitation infrastructure have also suffered damage by the conflict. Nearly 20 million Yemenis lack access to clean water and sanitary facilities, making them at risk for waterborne diseases (WHO, 2020). Water sources have become contaminated as a result of the loss of water treatment facilities, pumping stations, and sewage systems, endangering public health and contributing to the spread of diseases like cholera and diarrhea.

1.3. Impact on Employment

The conflict in Yemen has had a profound impact on the employment sector, leading to widespread job losses, increased unemployment rates, and a significant decline in economic opportunities. The country witnessed a decline in job opportunities due to the destruction of infrastructure destruction, business closures, and a downturn in economic activity (World Bank, 2020). Moreover, the conflict has had a significant impact on the manufacturing, agricultural, and construction sectors, all of which once served as important sectors of employment. According to a report by ILO (2016), male employment in three governorates that have been impacted the most has declined, on average, by 11 percent and 6.7% of household heads claimed that the crisis has caused them to engage in other economic activities to compensate for the loss of income. Even those who were still fortunate enough to maintain their jobs, wage cuts and delayed payments of salaries made it difficult for workers to meet

their basic necessities. It is estimated that more than 1.7 million civil servants have not received regular salaries for an extended period (ILO, 2016).

The consequences of unpaid salaries are far-reaching and extend beyond the inability of individuals to meet their daily needs and the subsequent deterioration of living conditions. The provision of public services, such as healthcare and education, has also been affected by the suspension of salaries. The financial strain it brought about meant that many employees in the public sector including doctors, teachers, and others, have been unable to carry out their tasks properly (World Bank, 2020). As a result, essential services were disturbed, became ineffective, and less accessible, worsening the humanitarian crisis.

Furthermore, women have been disproportionately impacted by the conflict in terms of employment opportunities. Even before the war, Yemen had considerable gender gaps in labor force participation. It has the lowest reported rate of working-age women where only 4 percent are employed, however, their economic access to economic opportunities sharply declined since the Houthi insurgency (Klugman & Quek, 2018). While strict gender norms largely restrict women to household roles, it has been reported that the conflict pushed Yemeni women to take on jobs that were deemed "shameful" such as butchering or selling chickens, while men tend to stay at home (Klugman & Quek, 2018).

Overall, the conflict in Yemen had severe negative impacts on the lives of millions. The destruction of infrastructure, economic collapse, and disruptions to essential services such as health, and education led to widespread job losses, suspension of salaries, and reduced incomes hampering development in the country. The situation in particular is dire for women who face more barriers in conflict settings.

Chapter IV

1. Data

1.1. Surveys Overview

To conduct an empirical analysis on conflict and women's employment at the micro level, two types of datasets have been used: a socio-economic survey and conflict event datasets.

Empirical research on conflict and development usually relies on the use of general socioeconomic surveys that are collected in conflict zones (Brück et al. 2010). The main goal of these surveys is to analyze the living conditions of a selected sample of households. Due to the unavailability of specific data for Yemen from one source, this study relies on two different data sources for the analysis. The Household Budget Survey (HBS 2006) is utilized to represent the pre-conflict period, while the Demographic and Health Survey (DHS 2013) is used to represent the post-conflict period. These surveys offer comprehensive data at the governorate level and encompass a diverse range of individuals. They provide extensive information on various demographic and socio-economic factors, allowing for a detailed analysis of the population.

Data on the conflict in this study has been retrieved from the Uppsala Conflict Data Program (UCDP) which collects and provides comprehensive data on armed conflict, their dynamics, and their impacts on societies. Data from UCDP has been used for this study to categorize the governorates in Yemen into high-intensity and low-intensity conflict. Below is a brief overview of the above-mentioned data sources.

A. Demographic and Health Surveys (DHS 2013)

The Demographic and Health Survey (DHS) was conducted in the period between September-November 2013 by the Ministry of Public Health and Population of Yemen (MOPHP) in partnership with the Central Statistical Organization (CSO). The survey's objective is to gather data on various socioeconomic aspects of the Yemeni population to contribute to a better understanding of the social challenges facing the country, particularly concerning women and children, and consequently to provide policymakers, development agencies, and researchers

with data to identify key areas for improvements and to better design development interventions. The DHS survey gathered data from a representative sample of households across different governorates on key indicators such as health, education, fertility, employment, nutrition, child mortality, and other sociodemographic and socioeconomic indicators.

 The DHS survey has four main questionnaires: a household-level questionnaire, two individual-level questionnaires (for ever-married women and for never-married women), and a maternal mortality questionnaire. The household questionnaire collects basic information on all members or visitors of a household including age, sex, marital status, education, etc. It also includes information on the characteristics of the living conditions of the household such as dwelling units, sources of water, the material used for floor and ceiling, etc. The individual questionnaires report background information on women including education, employment, and husband's characteristics. This research study relied on both household-level and individual-level data to derive the variables used in the analysis.

B. Household Budget Survey (HBS 2006)

The Household Budget Survey was conducted in 2006 by the Central Statistics Organizations (CSO) of Yemen. The main aim of the HBS is to collect data on household income, expenditure, and consumption patterns to estimate poverty and other socioeconomic indicators. The survey was done at the governorate level and can be used as a basis to estimate poverty, inequality, and living standards in different regions. Similar to the DHS 2013, HBS selected a sample of households across the country and gathered data at the household and individual level on demographics, employment status, sources of income, educational level, housing conditions, nutrition, etc.

The HBS consists of three main sections of questionnaires: the "general questionnaire, "local community services" questionnaire, and "prices questionnaire". The first section was designed to obtain data on general information on members of the household such as demographics and socioeconomic aspects such as health, education, employment, wage, etc. The other section includes data on the availability and the quantity of community services while the last section is dedicated to price data in rural areas.

C. Uppsala Conflict Data Program (UCDP)

The Uppsala Conflict Data Program (UCDP) is a research project based at Uppsala University in Sweden. It collects data and detailed information on armed conflict across the world. The dataset covers various types of conflicts such as civil war and interstate wars occurring at different scales of violence and intensities. It contains valuable data collected on various dimensions of armed conflicts including information on the actors involved, location, dates, intensity, and duration of conflict incidents. It also provides users with various tools to access and explore information online and utilize it for data visualization and statistical analysis. The program also publishes annual reports highlighting key findings and trends in armed conflicts.

The UCDP has a systematic approach to data collection where data from different sources on conflict including news, reports from government and non-government sources and academic literature, and more is analyzed and coded into a standard format to allow for comparative and cross-country analysis. Their rigorous approach ensures the reliability and validity of the data collected therefore it is a valuable source for researchers, policymakers, and organizations working on the field conflict who utilize the data to understand and analyze conflicts and their impact and most importantly to develop strategies for conflict prevention and resolution.

2. Variables

2.1. Dependent Variable: Conflict

The precise definition of conflict that is referred to in this study has been defined above in chapter I subsection 2. Armed conflict is the main dependent variable used in this analysis and it is measured by the number of battle deaths for the period 2009-2013. The source of the data for battle deaths is the UCDP which reports data on Yemen's conflict by date and region of battle. The start year of the conflict indicated in this study is the year 2009.

A. Summary Statistics

The table below presents data on the total number of battle deaths per 100,000 per governorate for the period 2009-2013 (5 consecutive years) which is the period selected for post-conflict in this study. The below statistics provide an indication of the intensity of the conflict in different governorates of Yemen. The data highlights variations in the number of battle deaths and death rates per governorate underpinning the disproportionate effects of the armed conflict across

governorates in Yemen. Based on the below table (Table I), I was able to classify governorates into high-intensity and low-intensity groups in order to to have a treatment and a control group for the difference in difference estimation strategy. The classification of the governorates is described in the below section.

Table I: Battle Deaths per Governorates, 2009-2013

Governorate	Battle deaths	Battle deaths per 100,000 population
Ibb	37	1,7
Abyan	1188	261,4
Sana'a city	702	36,1
Al Bayda'	85	14,0
Ta'izz	177	7,0
Al Jawf	69	14,8
Hajjah	28	1,8
Al Hudaydah	0	0,0
Hadramaut	151	13,8
Dhamar	1	0,1
Shabwah	130	26,3
Sa'dah	301	40,3
Sana'a	5	0,5
Adan	77	12,1
Lahij	26	3,4
Ma'rib	74	29,4
Al Mahwit	0	0,0
Al Mahrah	0	0,0

Amran	*8*	*0,9*
Ad Dali	*18*	*3,6*
Raymah	*0*	*0*

B. Classification of Governorates into Conflict and Non-Conflict

In order to employ the difference in difference methodology, the governorates listed in the above table are grouped into two. The first group comprises governorates characterized by a low intensity of conflict, while the second group consists of governorates with a high intensity of conflict.

Based on the criteria defined by the Armed Conflict Location & Event Data Project (ACLED), a governorate is classified as having a high intensity of conflict if it recorded a minimum of 10 battle deaths per 100,000 population. Consequently, during the period 2009-2013, a total of nine governorates met this criterion and were considered as experiencing a high level of conflict based on Table I. These governorates that experience a high level of conflicts during the period 2009-2013 are 14 governorates: Abyan, Sana'a City, Al Bayda', Al Jawf, Hadramaut, Shabwah, Sa'dah, Adan, and Ma'rib. Conversely, the remaining governorates are categorized as belonging to the low-intensity conflict group.

2.2. Dependent Variable: Women's Employment

The dependent variable used in this study is women's employment (whether a woman is employed or not). A woman in a selected household is considered eligible for the interview if she falls within the age range of 15 to 49 years and she is present in the household on the night prior to the interview. It is important to note that questions pertaining to women's work were exclusively posed to those who have been married at least once, referred to as "ever-married women."

A. Research sample and summary statistics

Based on the survey's description above, I restrict the sample to ever-married women aged 15-49 in Yemen for whom we have information on:

- Background information: including age, the governorate of residence, area of residence (urban/rural), employment status, education (no schooling/fundamental schooling/high school graduate/after high school), and marital status (married/divorced/widowed).
- Household characteristics: including household size, the number of children under 5 years old, whether the woman is head of the household, and whether the house has electricity or an improved floor.

The final dataset includes 17436 women/observations in the pre-crisis period of 2006 from 11316 households and 16282 women/observations in the post-crisis period of 2013 from 13510 households.

Table II: Employment rates of women in the pre-and post-conflict periods

	HBS 2006	**DHS 2013**
Ever-married women	0.119	0.107
Married women	0.111	0.100
Divorced/Widowed women	0.214	0.212

The table (Table II) above displays the employment rates of women during the pre-and post-conflict periods. Based on the table, it can be observed that divorced and widowed women exhibit higher employment rates compared to married women. A general decrease in the overall employment rate of women is observed across all categories. It is worth mentioning that the decline is relatively smaller for divorced and widowed women when compared to the decrease seen among married women.

It is also important to look at the summary statistics of the different demographic and socioeconomic indicators for both the control and the treatment groups in the two different periods. The below table presents such statistics. The results are given in the below table (Table III).

Table III: Summary statistics

	Pre-treatment period (HBS 2006)		Post-treatment period (DHS 2013)	
	Control governorates	Treatment governorates	Control governorates	Treatment governorates
Women's characteristics				
Employed	0.107	0.129	0.118	0.128
Literacy	0.329	0.488	0.345	0.546
Education				
No schooling	0.712	0.565	0.631	0.456
Fundamental school	0.180	0.275	0.264	0.379
High school graduate	0.075	0.101	0.080	0.116
After high school	0.034	0.059	0.025	0.050
Age	31.750	31.883	30.811	31.368
Marital Status				
Married	0.942	0.914	0.949	0.926
Widowed	0.034	0.033	0.023	0.029
Divorced	0.024	0.053	0.028	0.046
Geographic indicator				
Urban	0.468	0.733	0.160	0.422
Household composition				
Head of the household	0.038	0.027	0.031	0.024

Number of children under 5 in the household	1.651	1.727	1.457	1.557
Household size	8.724	9.544	7.913	9.437
Household conditions				
House has electricity	0.609	0.830	0.724	0.892
House has improved floor	0.604	0.807	0.657	0.847
Number of observations	9196	8240	9368	6914

In terms of average age and the proportion of married women, there is little variation between the control and treatment governorates during the pre-treatment period.

In both periods, women residing in the control governorates tend to come from less advantaged backgrounds. They exhibit lower rates of literacy and enrollment in fundamental schooling compared to their counterparts in the treatment governorates. Following the conflict period, there is an encouraging upward trend in the percentage of literate women and an increase in the enrollment of women in fundamental schooling in both groups of governorates.

Regarding household characteristics, the number of children under 5 remains relatively consistent across both groups. However, households in the control governorates experience inferior living conditions, with a lower likelihood of having access to electricity and improved flooring.

Notably, we observe an increase in women's employment within the control governorates between 2006 and 2013. If the control and treatment groups followed a similar trend, we would expect to see a corresponding increase in women's employment in the treatment governorates. However, the data indicate that women's employment in the treatment governorates remains stagnant, suggesting a negative impact of the conflict on women's employment opportunities.

Chapter V

1. Empirical Framework

1.1. Econometric Methodology

To test the hypothesis proposed above, the identification strategy employed is the Difference in Difference (DiD) framework. The Difference in Difference methodology estimates the causal effect of a treatment by comparing the changes in outcome among the treatment and the control group. The main idea of this strategy is to use before and after differences in the outcomes for the two groups in order to control for time-varying factors that affect both groups similarly. In this study, the identification strategy is determined by the timing and the geographical area of the conflict. It exploits differences in data on conflict by governorate between the years 2006 and 2013. The study is limited to these years due to a lack of data available on the conflict in Yemen.

As discussed above, conflict is measured by battle-related deaths. The database provides data on the conflict on a global, regional, and country level. The UCDP records all battle-related deaths by year and location. It reports conflict casualties in Yemen since 2009 and hence the year 2009 has been considered as the starting year of the conflict for this study. As stated above, 2009 is also the year where the conflict intensified. The most recent wave of DHS surveys conducted in Yemen was in the year 2013, four years after the start of the conflict and so the effects of conflict on various socio-economic indicators can be observed. The HBS survey was done in the year 2006 when the intensity of the conflict was not high. Moreover, since the methodology also takes into account different geographical areas, it is necessary to compare the overall macro-development indicators across governorates pre-conflict. There might be significant differences specific to different areas that allowed for the conflict to take place in those respective areas.

In the context of this research, the difference in difference methodology indicates that there are two groups of women observed: one exposed to the conflict, that is the treatment group, and the other not exposed to the conflict that is the control group. The treatment group includes those governorates that experienced high levels of violence while the control experience experienced no or little violence. There are also two periods pre-conflict (year 2006) and post-

conflict (year 2013). The methodology then compares women's employment rates between the two groups of governorates in the two time periods.

1.2. Econometric Model

In this paper, the difference-in-difference approach is employed to study the impact of conflict on the labor supply of ever-married women. The regression model is as follows:

$$Y_{ijt} = \beta_1 + \beta_2\,post_t + \beta_3 conflict_j + \beta_4 post_t * conflict_j + \beta_5 X_{ijt} + \varepsilon_{ijt}$$

where i denotes a woman, j denotes a governorate, **t** denotes time, $\boldsymbol{Y_{ijt}}$ is a dummy that takes the value 1 if the woman is employed and 0 otherwise. $\boldsymbol{post_t}$ is a year dummy that takes the value 1 for the post-conflict period. $conflict_j$ is a dummy variable that takes the value of 1 if the individual lives in a high-intensity governorate, as defined in the last section. $post_t * conflict_j$ represents the difference-in-difference term. X_{ijt} is a set of individual and household characteristics that can impact women's working decisions, including age, education, the number of children, area of residence, marital status, and the quality of the dwelling of the household. Finally, ε_{ijt} is a woman-specific idiosyncratic error term.

The parallel trend assumption is a key assumption in the difference-in-difference methodology. It refers to the idea that in the absence of the treatment i.e., armed conflict, both treatment and control groups would have parallel changes in outcome over time. This implies that the average change in women's employment rate in both groups of governorates i.e., those in high intensity of conflict group and low intensity of conflict group would have been similar had no conflict occurred.

To test the validity of the parallel trends assumption and consequently to ensure that the difference-in-difference methodology holds, I first check the differences in some important macro-development indicators at the governorate level in both the treatment and the control groups. If the indicators are not statistically different between the two groups of governorates, the probability that women's employment would be affected differently by the conflict is lower. The factors I will consider as macro-development control variables include:

- Percentage of male and female population (5 years and above) enrolled in at least fundamental schooling.
- Unemployment rate
- Percentage of dwellings with particular sewage facilities such as public networks or closed/open pits.

Table IV: T-tests applied for the pre-treatment period (HBS 2006)

	Control governorates	Treatment governorates	Difference
% of women enrolled in fundamental school	46.314 (13.242)	52.854 (9.856)	-6.540
% of men enrolled in fundamental school	72.816 (2.637)	78.996 (5.479)	-6.180**
Unemployment rate	55.148 (2.921)	54.731 (4.754)	0.418
Dwelling quality	71.039 (13.514)	82.618 (13.009)	-11.579

***p<.01. **p<.05. *p<.10. Standard deviation in parentheses.

The presented table (Table IV) displays the summary statistics of macro-development indicators for both control and treatment governorates during the pre-conflict period. With the exception of the percentage of men enrolled in fundamental school, there are no statistically significant differences observed between the two groups. Therefore, the two groups seem to have similar levels of development. Consequently, the likelihood that women's employment is differently affected by the conflict in the two groups of governorates is lower.

Nevertheless, examining the summary statistics of women in Table III, I acknowledge that the difference-in-difference estimates might still be subject to bias. As explained above, this bias could arise due to the fact that governorates experiencing high-intensity conflict may differ from those experiencing low-intensity conflict in terms of development and economic

indicators. Even though we don't see statistical differences in some macro-development indicators, women from high-intensity conflict governorates have higher educational attainments, and their household conditions are more in favor. In order to mitigate this potential bias, my first approach is to incorporate controls for the development and economic indicators across governorates in 2006. The regression model can be modified as follows:

$$Y_{ijt} = \beta_1 + \beta_2 \, post_t + \beta_3 conflict_j + \beta_4 post_t * conflict_j + \beta_5 X_{ijt} + \beta_6 M_j + \varepsilon_{ijt}$$

where M_j is a set of macro-development characteristics of governorates in the pre-conflict period 2006, including the percentage of male and female population (5 years and above) enrolled in at least fundamental schooling, unemployment rate, percentage of dwellings with particular sewage facilities such as public networks or closed/open pits.

However, it is important to acknowledge that there may be additional governorate-specific indicators that can influence both the likelihood of conflict and women's decisions regarding work. To address this concern, my second approach involves incorporating governorate-specific fixed-effects indicators into the model. This inclusion will help control for all development factors that were consistent for all women within a particular governorate. As a result, the revised model is as follows:

$$Y_{ijt} = \beta_1 + \beta_2 \, post_t + \beta_4 post_t * conflict_j + \beta_5 X_{ijt} + m_j + \varepsilon_{ijt}$$

where m_j is the governorate-specific effect that is common to all individuals. $conflict_j$ drops out because it's colinear with the governorate-specific fixed-effect.

The objective of this study is to examine the hypothesis regarding the impact of the conflict in Yemen on women's employment decisions. The regression analysis is specifically conducted on the sample of ever-married women. Typically, conflict is expected to have a negative influence on women's employment rates due to the adverse effects of disruptions in economic activities. However, as highlighted by Menon and Van der Meulen Rodgers (2015), conflict can potentially have a positive impact on the employment decisions of ever-married women. This positive effect may arise as women attempt to compensate for declines in household income caused by war-related disruptions, departures, injuries, or even deaths affecting their husbands' earnings as discussed in the theoretical framework above. Furthermore, to explore

the diverse impacts of conflict, each regression is reapplied to two distinct subsamples: one comprising married women and the other consisting of widowed or divorced women.

Chapter VI

1. Empirical Results

This chapter discusses and analyzes the main results of the regression model specified in the above section.

1.1.   Main Results

Table V: Marginal Probabilities for Likelihood of Employment

	All women		Married women		Divorced/Widowed women	
	(1)	(2)	(3)	(4)	(5)	(6)
Post	0.000	0.001	-0.001	-0.001	0.049*	0.041
	(0.005)	(0.005)	(0.005)	(0.005)	(0.027)	(0.027)
Conflict	0.028***		0.027***		0.042	
	(0.005)		(0.005)		(0.026)	
Post*Conflict	-0.015**	-0.008	-0.011	-0.006	-0.079**	-0.051
	(0.007)	(0.007)	(0.007)	(0.007)	(0.034)	(0.034)
Age	0.015***	0.016***	0.014***	0.015***	0.029***	0.028***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.009)	(0.009)
Age squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.001***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Literacy	-0.001	0.002	-0.005	-0.002	0.067*	0.065*
	(0.007)	(0.007)	(0.007)	(0.007)	(0.034)	(0.034)
Education (reference = no schooling)						
Fundamental school	0.022***	0.017**	0.024***	0.019**	-0.022	-0.021
	(0.007)	(0.007)	(0.007)	(0.007)	(0.035)	(0.035)
High school graduate	0.104***	0.093***	0.103***	0.093***	0.120***	0.107**
	(0.009)	(0.009)	(0.009)	(0.009)	(0.042)	(0.042)

After high school	0.238***	0.222***	0.234***	0.219***	0.278***	0.268***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.045)	(0.045)

*Marital Status
(reference=widowed)*

Married	-0.020**	-0.020**				
	(0.010)	(0.009)				
Divorced	0.042***	0.037***				
	(0.012)	(0.012)				
Urban	-0.042***	-0.035***	-0.041***	-0.033***	-0.042*	-0.052**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.022)	(0.023)

Household composition

Head of the household	0.102***	0.096***	0.103***	0.096***	0.119***	0.114***
	(0.009)	(0.009)	(0.011)	(0.011)	(0.021)	(0.021)
Number of children under 5 in the household	0.002	0.002	0.002	0.002	0.004	0.004
	(0.002)	(0.002)	(0.002)	(0.002)	(0.008)	(0.008)
Household size	-0.001**	-0.001	-0.001**	-0.001	-0.002	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.003)

Household conditions

House has electricity	-0.005	-0.006	-0.006	-0.008	0.012	0.027
	(0.005)	(0.005)	(0.006)	(0.006)	(0.025)	(0.026)
House has improved floor	-0.006	-0.008*	-0.004	-0.006	-0.035*	-0.036
	(0.004)	(0.005)	(0.005)	(0.005)	(0.022)	(0.023)
Constant	0.120***	0.120***	0.113***	0.113***	0.215***	0.215***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.008)	(0.008)

Macro development controls	Yes	No	Yes	No	Yes	No
Governorate dummies	No	Yes	No	Yes	No	Yes

Number of observations	33718	33718	31491	31491	2227	2227
Pseudo R-squared	0.183	0.207	0.177	0.204	0.183	0.199

***p<.01. **p<.05. *p<.10. Standard errors are reported in parentheses. Macro development controls include the percentage of male and female population (5 years and above) enrolled in at least fundamental schooling, unemployment rate, and dwelling quality.

Table VI shows the estimation results of the difference-in-difference model. The first two regressions are applied to ever-married women. We don't see a change between the employment of women in pre- and post-conflict periods, as the "post" variable's coefficient is not statistically significantly different from 0. On the other hand, we found that the coefficient for the "conflict" variable is positive and statistically significant. Additionally, in the first regression, the coefficient for the difference-in-difference interaction term is negative and statistically significant at the 0.05 level. This finding implies that in the pre-conflict period, the probability of employment was 0.028 higher for women in high-intensity conflict governorates. Nevertheless, after the conflict, the probability of employment for women in these governorates was only 0.013 higher. Therefore, there might have a negative impact of conflict in Yemen on ever-married women's employment decisions, which discourages them from working as they would have in the absence of conflict. In the second column, when controlling for governorate fixed effects, the interaction term remains negative but is no longer statistically significant. Consequently, we cannot conclusively determine the negative effect of conflict on ever-married women's employment in Yemen.

The estimates on individual and household characteristics are as expected. Specifically, we observe that age has a positive effect on the employment rate of women, while the squared term of age has a negative effect. This captures a concave functional relationship between age and labor supply, suggesting that women's employment rates increase with age, but the increase is smaller as they reach older ages. Furthermore, we find that women with some level of education tend to have higher employment rates. As women's educational attainment increases, their likelihood of being employed is also higher. In addition, married women exhibit lower employment rates. This may be due to various factors, such as caregiving responsibilities or traditional gender roles. On the other hand, women who are the head of the household demonstrate a higher likelihood of being employed. This indicates that women who hold this position may be driven by the need to support their families economically. Interestingly, we

obtain that women residing in urban areas tend to have lower employment rates. This finding could be attributed to factors such as limited job opportunities or competition. Regarding dwelling quality, we do not find a significant impact on women's employment rates. However, the negative coefficients associated with these variables suggest that higher-quality living conditions are associated with a lower likelihood of women being employed.

The estimation results for the subsample of married women do not show a big difference from the results obtained with the ever-married women sample. Consequently, we cannot establish a conclusive impact of conflict on the employment of married women, as the coefficient of the interaction term is negative but lacks statistical significance.

When examining the subsample of divorced or widowed women, the estimated coefficients for the "post" and "conflict" variables and the interaction term display larger magnitudes compared to married women samples. This finding indicates that they might be more sensitive to different factors that influence their employment decisions. The impact of conflict is only statistically significant when considering macro-development indicators, but it loses significance when fixed effects are taken into account.

1.2.   Strengths and Weaknesses

This thesis employs a difference-in-difference estimation to assess the impact of conflict in Yemen on the employment decisions of ever-married women. The analysis incorporates many control variables at the individual, household, and governorate levels, which helps enhance the reliability of the estimates. However, there are several limitations that should be acknowledged.

Firstly, due to the lack of data, two different datasets are utilized for the pre-and post-treatment periods. As a result, the composition of women in the two datasets may not be entirely identical, particularly considering the possibility of population movements across governorates in response to the conflict.

Secondly, the difference-in-difference method relies on the assumption that the employment decisions of women in the two governorate groups follow a similar trend during the pre-conflict period. However, we can see that the two governorate groups are not exactly similar, with low-intensity conflict governorates more likely to be less developed compared to high-intensity conflict governorates. Although efforts have been made to account for this by including controls for macro-development indicators or governorate fixed-effects, the inherent

differences between the governorate groups may introduce a source of bias, leading to potential under or overestimation of the impact of conflict on women's employment.

Third, the difference-in-difference technique employed in this study assumes that the impact of conflict does not extend beyond the boundaries of governorates. However, there might exist potential spillover effects in addition to the direct effects of conflict, which were not explicitly differentiated in my analysis. These effects might have a significant impact on women's employment during and after the conflict. Future studies should consider the potential impact of such spillover effects to gain a more comprehensive understanding of the effect of conflict on women's employment.

Finally, despite including many controls for individual and household characteristics, there might remain the possibility of omitted factors related to women's backgrounds that could influence their employment decisions. Therefore, further research and data collection efforts would be helpful to address these limitations and provide a more nuanced understanding of the impact of conflict on women's employment decisions in Yemen.

Chapter VII

Discussion and Conclusion

The thesis aims to investigate the impact of the conflict in Yemen on women's employment up until 2013. The main focus of the present study is to determine whether women's employment was negatively affected or whether they engaged in more employment ("the added work effect") as a consequence of conflict. To explore this question, two surveys were used to analyze women's employment in the pre- and post-conflict periods. In particular, the Household Budget Survey (HBS), conducted by the Central Statistics Office (CSO) in Yemen in 2006, was used to represent the pre-conflict period, while the Demographic and Health Survey (DHS) for Yemen in 2013 was used to represent the post-conflict period.

To examine the effect of conflict, the study applies the difference-in-differences technique as an econometric methodology. This method involves comparing women's employment between two distinct groups of governorates: the control group, consisting of governorates with low-intensity conflict, and the treatment group, consisting of governorates with high-intensity conflict. By comparing women's employment before (2006) and during the conflict (2013) in these two groups, the study aims to explore the impact of the conflict on women's employment in Yemen. The analysis conducted in this thesis leverages the richness of the two datasets to incorporate a comprehensive set of control variables that capture various aspects of women's characteristics, household composition, and household conditions. Additionally, the inclusion of macro development indicators and governorate fixed-effects helps control for common factors that are shared among women within the same governorate.

However, the difference-in-difference method employed in this study is subject to some limitations. Firstly, due to the lack of data, two separate datasets are used to represent the pre- and post-treatment periods. These datasets may not represent the same women, particularly considering the potential displacement of individuals following the conflict. Secondly, the assumption of a similar trend between governorates with low-intensity and high-intensity conflicts may not hold. Although there haven't been significant differences in key macroeconomic indicators between these governorates, women from low-intensity conflict governorates appear to have lower socio-economic backgrounds. To address this concern, I incorporated macroeconomic indicators and governorate fixed-effects. Third, the difference-

in-difference technique assumes that conflict does not spread across governorate borders, which is not always true. This study did not differentiate the direct effects of conflict from any potential positive or negative spillover effects, which may impact the magnitude of the estimation outputs. Lastly, it is important to acknowledge the presence of omitted variables related to women's socio-economic backgrounds that could influence their employment decisions.

The analysis in this thesis demonstrates that the conflict in Yemen had a negative impact on the employment of ever-married women. Specifically, the results indicate that women residing in high-intensity conflict governorates were 1.5% less likely to be employed relative to the pre-conflict period when controlling for macro-development indicators. However, when considering governorate fixed-effects, the negative impact of conflict on women's employment remains, but it's no longer statistically significant. Similar results are obtained when repeating the analysis on the subsamples of married women and divorced/widowed women. Notably, the conflict appears to have a more pronounced effect on the employment of widowed/divorced women, who, in the absence of their husbands, are more likely to be the main financial providers for their families. I obtained that after the conflict, women in high-intensity conflict governorates were 7.9% less likely to be employed compared to the pre-conflict period. The result is significant when controlling for macro-development indicators but loses its significance when considering governorate fixed-effects.

Overall, my findings suggest that conflict disrupts employment opportunities for ever-married women, and the burden of economic responsibility falls heavily on widowed/divorced women in conflict-affected regions. However, it is important to note that the significance level decreases when governorate fixed-effects are considered. This indicates that the impact of conflict on women's employment may be influenced by unobserved governorate-specific factors that are not captured by macro-development indicators included in the analysis. Further research and investigation are necessary to gain a more comprehensive understanding of these factors and their implications for women's employment outcomes in Yemen.

The findings in this thesis do not show the positive impact of the conflict on women's economic empowerment, as in the previous literature. Several factors could contribute to this difference. One important factor is the possibility of a post-conflict setback in women's employment, as discussed in Chapter II. While conflict may temporarily disrupt gender norms and provide opportunities for women to enter the workforce, once the conflict subsides, traditional gender

roles may re-emerge. Indeed, as men return to reclaim their previous roles, job opportunities for women may decline, and societal expectations may push women back into their domestic roles, resulting in a setback to their economic empowerment.

However, considering that the conflict in Yemen continued beyond the post-conflict period of 2013 examined in this thesis, it is more plausible that the lack of a positive impact on women's economic empowerment is attributed to the second factor - the temporal aspect. Many previous studies investigating this topic rely on data from earlier periods, while this thesis examines the impact of conflict on women's employment in a more recent period. Over time, gender roles may have evolved, leading to changes in women's educational attainment and their involvement in slightly higher-skilled occupations. Therefore, it is possible that the observed impact of conflict on women's employment outcomes in this study differs from previous findings due to the changing socioeconomic landscape.

For instance, a comparison can be made with the study by Menon and Rodgers (2015), where they found a positive impact, referred to as the "added worker effect," of the conflict on women's employment during the period 1996-2006 in Nepal. Their study period is from 1996 to 2006, which is different from the one in this thesis from 2006 to 2013. Consequently, the economic and social contexts during these periods may have varied, potentially leading to distinct employment outcomes. For instance, in 1996, the start of the conflict period in Nepal, the sample of women exhibited lower levels of education, with over 80% of women having no fundamental schooling. In comparison, the sample of Yemeni women in 2006, which represents the pre-conflict period in Yemen, had around 60% of women lacking formal education. These disparities in educational attainment could potentially contribute to variations in the employment outcomes observed in the two countries. Women in Nepal and Yemen can be engaged in different occupations, each requiring varying levels of skills and qualifications. This occupational diversity can also influence the employment outcomes observed in each country.

The observed decrease in women's employment likelihood has important policy implications, particularly in terms of the necessity for a comprehensive recovery plan following the conflict. Such a plan should encompass strategic and practical measures to address the specific needs of married women and widowed/divorced women, and help identify their specific challenges, barriers, and opportunities, enabling more targeted interventions. To ensure equitable access to recovery opportunities, it is crucial to establish a system of quotas that guarantees the inclusion

of women in recovery activities. This approach aims to prevent these opportunities from being predominantly occupied by young males returning from the conflict. Furthermore, future monitoring efforts should incorporate a robust gender component to assess the sustainability of any progress made. This component will help evaluate whether the gains achieved in terms of women's employment are maintained over time.

Finally, while reconstruction activities would lay a solid foundation for income-generating initiatives, particularly in sectors such as construction and the social sector, it is important to recognize that this resilience may diminish as the conflict becomes protracted.

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