A Study of the Effect of the War in Gaza on Labor Force Outcomes for Females

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Abstract

This paper aims to investigate the effects of the discontinuous violence and mobility restrictions imposed by the war in the Palestinian-Israeli context on female labor force outcomes. Using data from the PLFS and Btselem, I study the changes in the probability of being employed and the number of hours worked for female workers, associated with the economic consequences of the conflict-ridden economy. The focus is on some of the peak times of violence in Gaza, specifically the Second Intifada (2000-2005), the Gaza Blockade (2007—), and the 2014 Gaza War. There were mixed results, especially for hours worked. The probability of women being employed increased during the Second Intifada and the 2014 War but decreased during the Blockade. The number of fatalities and closure days also had negative impacts on employment.

Keywords: *labor, conflict, mobility restrictions, trade, female*

I. Introduction

The Palestinian labor market provides a unique case to study, given the role of various factors that impact the lifestyles of men and women who enter the labor force utilizing various skills they have acquired, through formal education or other means. Like many households in the Arab world, culture and traditional gender norms dominate the patriarchal Arab societies and shape the roles men and women are expected to fill. With that, men are raised to be the breadwinners of the family and are expected to go to school, and later the labor market, in search of and finding jobs to build their careers and support their families financially.

Meanwhile, women were raised with the idea of their traditional role as wives and mothers, with a focus on taking care of the household and family. However, for the case of Palestine, it is made more complicated by the role of the Palestinian-Israeli "conflict." The Israeli occupation has seized a large portion of Palestinian land, imposed mobility restrictions, and controlled border movements, among other obstacles to the daily lives of Palestinians and their ability to find and go to work. This is more complex to study when looking at how marital status and childcare within women's roles as wives and mothers impact their desire and ability to go to work. Some may worry about leaving their children at home while others do not have a choice.

The economic consequences of the political instability also involve a distinction in the effects on individuals and households between those residing in the West Bank and those in Gaza. Gaza has been described as an "open-air prison", for it is home to approximately 2 million people but is an almost uninhabitable occupied area due to the terror and poverty that the occupation has wreaked on the people (Nashef, 2020). The situation for Gazans was made more difficult and dire when the Gaza Blockade was imposed in 2007, which placed more significant threats and concerns over the sustenance of life, access to necessities, and overall safety. Thus, it has become one of the most densely populated areas, and Israel imposed a land, air, and sea blockade over the Gaza Strip, leading to high levels of poverty, unemployment, food insecurity, and insufficient access to clean water and medicine, while restricting the movement of people, including workers (Mills et. al, 2020).

There is quite limited literature on the effects of conflict on individual or household outcomes in specific markets, like the labor market, especially in the case of the Palestinian territories. On top of that, limited literature studies the situation with a focus on a gender perspective and how these labor market outcomes affect women specifically. When studying labor market outcomes, especially in conflict-ridden circumstances, there tends to be a focus on male employees and wage earners. Those studies have shown that data challenges

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related to sample sizes and the traditionally low female labor force participation rate in the MENA region generally, not just in Palestine, have made studying female labor outcomes quite difficult.

In this study, I aim to examine how different types of restrictions, most of which are politically motivated and conflict-induced, affected labor market outcomes. I study the effects of three specific events, which involved peak moments of conflict and economic disruption in Gaza's economy. The events I examine are the Second Intifada, the Gaza Blockade, and the 2014 War. The Second Intifada occurred between September 28, 2000, and February 8, 2005. The Gaza Blockade was implemented in the second half of 2007. The 2014 Gaza War lasted from July 8, 2014, to August 26, 2014. I analyze the data related to these three time periods and focus on two main outcome variables, namely employment and hours worked. In addition to that, I look at data on closure days and fatalities as proxies for conflict. All my regressions contain a gendered focus by looking at the effect on females and studying the question: How has the war in Gaza impacted female labor force outcomes over the years?

Labor force participation and activity are expected to drop almost immediately whenever there is an increase in conflict in any society. Leaving the house may be possible, yet dangerous or even difficult, especially for women trying to find suitable career prospects. With the rise in conflict and mobility restrictions, it becomes more challenging for women to obtain the jobs they need. Given the past trends, I expect that many are also forced to leave the workforce until the economy gradually starts to recover and allow them to re-enter the labor market, but this takes time. Additionally, women who do have jobs may be able to keep them during the peaks of violence, but their level of activity may go down. Thus, they work fewer hours each week. Similarly, increases in the number of fatalities and closure days make movement and going to work more dangerous. So, I expect there to be a negative effect on the employment prospects of women.

Therefore, I plan to utilize data on individuals and households from the Palestinian Labor Force Survey (PLFS) by the Palestinian Central Bureau of Statistics (PCBS). Additionally, data from Btselem is integral to understanding the border closures and mobility restrictions, which can then be integrated into a simple OLS regression of labor force participation on a female dummy variable, conflict variables, and their interaction term to examine if the female labor force participation rate increased or decreased relative to the rate for males. It is important to note that there are surges in the unemployment rates at various times of heightened violence and war beyond what happened in 2007-2008 immediately following the imposition of the Gaza Blockade. I find that there are mixed results, especially for hours worked. There was a negative effect of the Gaza Blockade on employment, but positive effects after the Second Intifada and the 2014 War. Both fatalities and closure days had negative effects on employment.

The literature has shown that, among men, the unemployment rate decreases, but the labor force participation rate does not decrease as an effect of the occupation. The reason for this is that the unemployment rate is computed as a share of the labor force participation rate, which factors in those who are either working or searching for a job, and this usually stays the same or slightly decreases. Meanwhile, the unemployment rate increasing because of an increase in conflict is not surprising because violence expectedly interrupts economic activity, threatening individuals' security and making workers less productive, which then decreases aggregate demand. On the other hand, the effect is not as clear for women. After a rise in conflict, women can decide to leave the workforce or stop searching for jobs, which would decrease the female labor force participation rate. However, they might feel the need to compensate for the job losses of men, and thus, decide to search for jobs more actively and/or work more hours, in turn increasing the female labor force participation rate. Thus, the paper also contributes to expanding the literature on conflict, violence, and mobility restrictions in Palestinian territories, which have explored how these factors have resulted in a decrease in overall earnings, reduced wages, and inflicted heavy costs on employment outcomes and the Palestinian economy, such as an increase in informal employment (Adnan, 2022).

Beyond the importance of female empowerment in the labor force and raising employment rates for women in a general sense, especially in the Arab world, these are particularly significant issues for the Palestinian cause. The conflict and restrictions imposed by the occupation make work ever more important for Palestinian women since their families then depend on the support from the incomes they generate. Over the years, the occupation has resulted in them watching their husbands being killed in heightened times of violence or imprisoned. As a result, women have had a more pressing need to enter the workforce to become a secondary, or even the sole, breadwinner for their families. Nonetheless, mobility restrictions and increasing violence at various periods make it dangerous and difficult, if not impossible, for women to do so.

II. Literature Review

I contribute to two main strands of literature on the influence of gender roles for women as wives and mothers, as well as the impact of the conflict on those roles and responsibilities in the economy. Bargawi, Alami, and Ziada (2021) published an article examining social reproduction and gender roles in Occupied Palestine, as well as the gender differences in economic hardship. For instance, they showed that the participation of women, especially married women, in the informal and formal labor markets has been rising. They must navigate their responsibilities of taking care of the children as well as elderly relatives while managing work to earn a wage. On the other hand, their increasing participation was motivated by economic necessity more than choice. This increased the struggle or burden placed on them, especially with a lack of state support for areas like childcare, which contributes to the literature on gender roles and social reproduction in other societies in the Global South.

It is interesting to note that they identified characteristics of a positive transformation of gender roles where women have become more independent and empowered after acquiring more responsibilities as contributors to the workforce and the economy. This is not unique to Palestinian women and is also seen in the literature on the empowerment of women in the US and Rwanda, after World War II and the Rwandan genocide respectively. Burnet (2011) discussed gender quotas and female empowerment in Rwanda. After the genocide, many Rwandan women were survivors and took on more responsibilities as breadwinners for their families since their husbands were killed, in exile, in prison, or serving with the Rwandan Patriotic Front. Thus, they engaged in new roles and tasks, such as construction, milking cows, and government administration, which were previously considered "taboo," but at the same time, faced heavier workloads, poverty, and social isolation without their husbands.

Meanwhile, around the time of World War I, in the US, war campaigns, like that of Rosie the Riveter, inspired women to join the workforce (Santana, 2016). The war and postwar impacts on gender roles and duties empowered women to work. Women worked mainly in factories, but this was a shift from the expectation that only men should work and support their families. Labor force participation rates for females increased from 10% in 2000 to 19.2% in 2017 for Gaza and the West Bank (Palestinian Central Bureau of Statistics, 2017; Bargawi et. al, 2021). The analysis provided by the PCBS also made key observations related to the level of education, refugee status, age, and marital status. Labor force participation rates have increased over time for married women, which is unexpected since traditional norms dictate that women stay home after getting married.

This paper is motivated by the existing literature on the economic costs of conflict and how wars have impacted various aspects of society, including labor market outcomes. In a paper by Miaari and Sauer (2009), the authors expanded on the literature on political conflict and the economic consequences of immigration by analyzing data on the employment and earnings of Palestinians working in the Palestinian economy and the Israeli labor market. They found that the occupation has significant negative effects on Palestinian employment rates in Israeli society, where there was a 6.8%-point reduction in the employment rate of Palestinians from the West Bank and a 5.0%-point decrease for those in Gaza.

An intriguing factor that they considered in their study is the number of workdays lost due to temporary closures of the West Bank and Gaza Strip, making it harder to cross the border to go to work or search for jobs (Miaari and Sauer, 2009; Adnan, 2015). This reflects one side of the economic consequences of the occupation by also highlighting resulting decreases in the employment rates and average monthly earnings. However, they collected data from the Palestinian Labor Force Survey but restricted their sample to males aged 18-64. They noted that women were excluded because they faced traditionally low labor force participation rates, especially in the case of the Israeli labor market. This paper fills in the gap by focusing on the case of the Gaza Strip and examining the effects of conflict on women's outcomes.

Meanwhile, two other papers Adnan (2014) and Adnan (2022) investigate the situation in Gaza, but without a strong focus on gender. In Adnan (2014), the paper outlined how economic and social welfare for people in Gaza was affected by labor mobility restrictions and ending the labor market integration between Gaza and Israel. When mobility restrictions were put in place, shortly after the first intifada in 2000, and increased after the Gaza blockade was made official, people could only search for jobs in the domestic sector. Among the groups that have endured high unemployment rates are those who are less educated, with less than 12 years of schooling, youth under 35 years old, and women. Female workers make up a small part of the labor market and contribute to the relatively low labor force participation rate, which is at around 13.2%. In addition to that, unemployment periods are quite long and not easy to overcome. For instance, the average unemployment spell for the population sample lasts 2.6 years, but it is even larger for women, with the number being ap-

proximately 4.9 years. Within the analysis, women were found to be one of the groups of workers that were more productive, along with skilled and older workers, earning higher wages and similar reservation wages as their counterparts. Despite that, entry to the labor market and the ability to stay remains to be a critical issue, exacerbated by the war and border controls, and Gaza's economy is now economically isolated and suffers without integrating its labor market with countries like Israel and Egypt.

However, even before the blockade, free movement was not simple nor easy, such as in 2001 when Gaza residents dealt with quarters of time when the Israeli border was closed every day. With the blockade, they were not allowed to work on Israeli land, so Gaza was a "closed economy" (Adnan, 2014), and it is expected for the economy to need time to adjust and attempt to reach a steady state within recovery. Adnan (2022) showcased the labor market consequences of the Gaza blockade and how it affected various sectors of Gaza's economy. The methodology involved a difference-in-difference model with treatment effects for the Blockade and residing in Gaza to demonstrate the effects of the blockade as well as the idea that it only impacted those living in the Gaza Strip, which motivated one aspect of the methodology for this paper. With that, the West

Table 1: *Descriptive Statistics*

Variable	Pre-Intifada	Post-Intifada	Pre-Blockade	Post-Blockade	Pre-2014War	Post-2014War
Labor Force Status	.156	.122	.192	.193	.231	.215
	(.363)	(.327)	(.394)	(.394)	(.421)	(.411)
Employed	.924	.904	.858	.816	.736	.736
	(.266)	(.295)	(.349)	(.387)	(.441)	(.441)
Obs.	4,246	2.982	4,939	4,596	5,299	4,925
Gaza	.346	.379	.350	.300	.366	.363
	(.476)	(.485)	(.477)	(.458)	(.482)	(.481)
Rural	.366	.334	.363	.385	.201	.195
	(.482)	(.471)	(.481)	(.487)	(.401)	(.396)
Urban	.433	.444	.441	.427	.689	.694
	(.496)	(.497)	(.496)	(.495)	(.463)	(.461)
Refugee Camp	.201	.223	.196	.188	.110	.111
	(.401)	(.416)	(.397)	(.391)	(.313)	(.314)
Age	34.129	34.754	34.608	34.715	34.778	35.082
	(12.281)	(12.385)	(12.206)	(12.345)	(12.612)	(12.738)
Married	.716	.707	.695	.681	.682	.669
	(.451)	(.455)	(.461)	(.466)	(.466)	(.471)
University (or Higher)	.042	.044	.073	.086	.142	.150
	(.200)	(.204)	(.260)	(.281)	(.349)	(.357)
Post-Secondary	.052	.050	.055	.056	.057	.058
	(.223)	(.217)	(.229)	(.229)	(.232)	(.234)
Secondary	.190	.204	.238	.246	.256	.255
	(.392)	(.403)	(.426)	(.431)	(.437)	(.436)
Prepatory	.268	.273	.299	.29	.309	.306
	(.442)	(.444)	(.458)	(.454)	(.462)	(.461)
Primary	.205	.202	.177	.171	.139	.135
	(.404)	(.401)	(.382)	(.376)	(.346)	(.341)
Read & Write	.415	.428	.566	.567	.700	.707
	(.493)	(.495)	(.496)	(.496)	(.459)	(.455)
Hours Worked	33.512	35.278	31.901	35.133	33.671	33.981
	(12.179)	(11.055)	(13.273)	(13.218)	(12.470)	(12.947)
Obs.	2,499	3,406	3,322	3,057	3,163	2,956
Observations	27,968	25,012	26,493	25,062	26,009	25,315

Source: Palestinian Labor Force Surveys (PLFS)

The above descriptive statistics are on women. There are three locality types, namely rural, urban, and refugee camps. The data set contained 9 dummy variables detailing education, which are now simplified into six categories. There is also data on area, which broken down into 11 districts in the West Bank and 5 in Gaza. Area is excluded from the summary statistics but included as dummy variables in the regressions. The number of observations fluctuates slightly between each period, which reflects slight differences in the response rates between the survey responses collected from individuals during each year and survey round. However, note that the number of observations for the employed and hours worked variables is different because there is a smaller sample that fits into those categories. Only those employed and working are included. Age is restricted to years 18 to 64 to act as a representation of the working age population. Those surveyed under the age of 18 are considered students, and those above 64 are either retired or considering retiring, and thus, not relevant to the study of the labor force.

Bank was used as a reference group to create a comparative analysis and isolate the effect of the blockade on Gaza residents. Consequently, the results showed that the likelihood of unemployment rose by 11% points for Gaza, but there was almost no effect among the West Bank sample. Along with unemployment rising, real wages decreased in the short run, especially for male domestic wage-earners.

III. Methodology

My data collection process involved data from multiple sources, including the Palestinian Labor Force Survey (PLFS) by the Palestinian Central Bureau of Statistics (PCBS). This includes micro-level data on thousands of households surveyed to look at statistics categorized by various factors, including sex, age, marital status,

and governorate, with respect to labor market outcomes like employment status and hours worked. For each of the yearly surveys, four rounds of data collection were conducted.

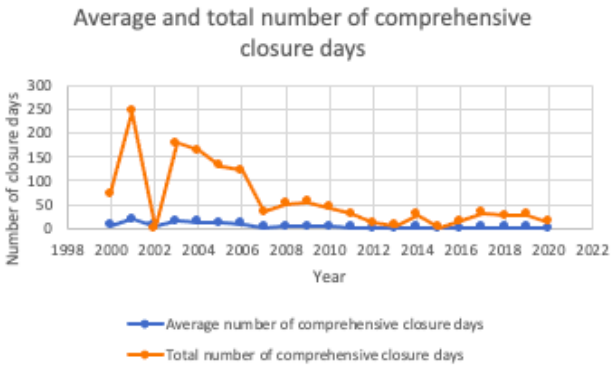
I have included several relevant variables, such as labor force status, employment status, locality type, age, gender, marital status, education, and hours worked.

This data can be combined with data from Btselem on other conflict variables, such as border closure days and fatalities. The number of closure days is reported on a yearly and monthly basis. The fatalities dataset reports the number of Palestinians killed by Israeli forces and civilians, and vice versa from 2000 to 2023. There is a large difference between the two statistics; in the Gaza Strip alone, 7,747 Palestinians were killed by Israeli forces, 4 by Israeli civilians, while 39 Israeli civilians and 147 Israeli forces were killed by Palestinians (Btselem, 2023).

The focus of this paper will expand on the effects of a single event, like the Gaza Blockade, and look at multiple events in Gaza's timeline of the conflict. For this paper, I will examine the Second Intifada (2000-2005), the Gaza Blockade (June 2007), and the 2014 Gaza War. Although the Second Intifada affected both Gaza and the West Bank, the Gaza Blockade and the 2014 War only affected the Gaza Strip, so the West Bank data can arguably be used as a control group. Although there are some limitations since the West Bank has its own complex factors and timeline of conflict, it may be used as a control group since most of the conflict occurred at different times between the two regions. Some of the events are unique to the Gaza Strip, and surges in the conflict did not necessarily happen at the same time. Therefore, changes to employment and labor force outcomes can be attributed to the conflict in the Gaza Strip and its peaks and compared to the West Bank.

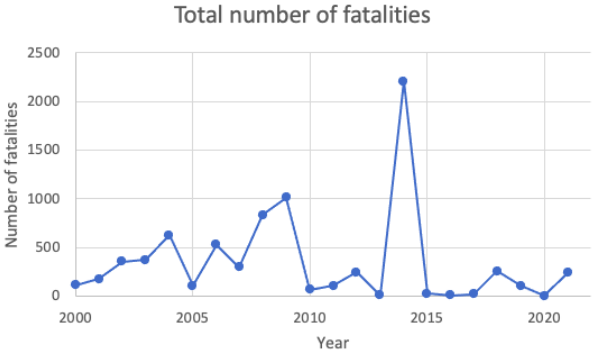
There is significant fluctuation in the number of comprehensive closure days over time, which form one example of a conflict variable since the rises in violence correspond to increased mobility restrictions. These restrictions in movement often come with a great amount of uncertainty, which then impacts an individual's ability to move to search for or go to work on a given day.

Figure 1: *: Monthly Average and Total Number of Closure Days in Gaza, (2000-2021)*[1]



The graph illustrates the total number of closure days, with the peaks corresponding to peaks in violence, as associated with the events of the Second Intifada, the Blockade, and the 2014 Gaza War.

Figure 2: *: Total Number of Fatalities in Gaza, (2000-2021)*[2]



The graph illustrates the total number of fatalities, with the peaks corresponding to peaks in violence, as associated with the events of the Second Intifada, the Blockade, and the 2014 Gaza War.

The main goal of this paper is to study the effect of the war in Gaza on the labor market outcomes for females specifically. There are two main dependent variables, namely the probability of being employed and hours worked. I start by estimating three difference-in-difference models to highlight each of the three time periods of focus:

$$Y_{it} = \beta_1 * Gaza_i + \beta_2 * PostIntifada_t + \beta_3 * Gaza_i * PostIntifada_t + \beta_4 X_{it} + \varepsilon_{it} \quad (1)$$

$$Y_{it} = \beta_1 * Gaza_i + \beta_2 * PostBlockade_t + \beta_3 * Gaza_i * PostBlockade_t + \beta_4 X_{it} + \varepsilon_{it} \quad (2)$$

[1]Reproduced from Btselem Restrictions on Movement: Figures on comprehensive closure days, in Gaza, by year, 2000-2021. *Note: B'tselem reported "at least" 77 comprehensive closure days in 2002 because of data collection limitations, where the figure for July was "unknown".

[2]Reproduced from B'tselem Database on fatalities and house demolitions: All Palestinians killed by Israeli forces, in Gaza, by year, 2000-2021.

$$Y_{it} = \beta_1 * Gaza_i + \beta_2 * Post2014War_t + \beta_3 * Gaza_i * Post2014War_t + \beta_4 X_{it} + \varepsilon_{it} \quad (3)$$

where Y_{it} measures the labor market outcome – a binary variable for the employment probability or a continuous variable for hours worked; $Gaza_i$ is a dummy variable that equals 1 for the individuals residing in Gaza and 0 for those in the West Bank. $PostIntifada_t$ equals 1 during the Post-Intifada period from 2001Q3 to 2002Q1 and 0 during the Pre-Intifada period from 2000Q1 to 2000Q3. $PostBlockade_t$ is equal to 1 during the Post-Blockade period from 2008Q2 to 2008Q4, and 0 during the Pre-Blockade period from 2007Q1 to 2007Q3. $Post2014War_t$ is equal to 1 during the Post-War period from 2014Q3 to 2015Q1, and 0 during the Pre-War period from 2013Q4 to 2014Q2.

For the Intifada and 2014 War, the rise in violence is expected to affect the Gazan economy almost immediately. However, for the Gaza Blockade, a lag in implementation is expected and should be accounted for in examining the effects. For the Gaza Blockade, the period of 2008Q2 to 2008Q4 was chosen to ensure sufficient time for the Blockade to take effect and exclude 2009 data so that the events of the 2009 Gaza War do not interfere with the results. Thus, for each event, this allows for individual fixed effects and there is an equal number of rounds before and after each period. X_{it} is a set of controls including age, six education dummies, marital status, and three locality dummy variables for living in an urban area, rural area, or refugee camp. ε_{it} is an error term. The education dummies are broken into illiterate/literate, primary, preparatory, secondary, post-secondary or equivalent, and university or higher, which includes high diploma, Master's, and Ph.D. The regressions are computed with the condition of females only.

For the data on closure days and fatalities, integrating them into the regressions discussed above would have caused multicollinearity. As such, I created a new fixed effects model to examine their effects on employment prospects.

IV. Results

The results are broken down into two sections to analyze the results of each of the regressions. The first subsection showcases the effect of the events themselves, represented by the time and the "post-" period variables. Tables 2-4 highlight the effect on the probability of being employed for females for each of the events. Tables 5-7 illustrate the effect on the number of hours worked by females in each of the periods. For each regression, I ran robust standard errors, presented in parentheses with ***p<0.01, **p<0.05, and *p<0.1.

I. Effect of the Time Periods as Events with Peaks in Conflict

Table 2: *Effect on Probability of Being Employed for Females in Gaza, 2014*

VARIABLES	(1) employed	(2) employed
Gaza	-0.31***	-0.24***
	(0.01)	(0.01)
POST_2014WAR	-0.04***	-0.03
	(0.01)	(0.00)
GazaXPOST_2014WAR	0.10***	0.11***
	(0.02)	(0.02)
Controls	No	Yes
Observations	10,224	10,224
R-squared	0.08	0.267

The table illustrates the regression of the probability of being employed for females on Gaza, the Post-2014 War, and the interaction term between Gaza and Post-War, with and without controls.

Residing in Gaza alone significantly negatively affects the probability of females being employed. More specifically, the probability of being employed decreases by 31 percentage points, compared to the reference group, which is a resident of the West Bank. Similarly, after the 2014 War, there is also a negative effect on employment prospects. The probability of being employed decreases by 4 percentage points. However, when looking at the interaction term for residing in Gaza during the period after the war, there is a positive effect on employment: an increase of 10 percentage points. After controlling for the variables mentioned earlier (age, education, marital status, and locality type), the values change to 24, 3, and 11 percentage points, respectively. However, the general trend remains the same. Almost all coefficients are significant at the 1% level.

Table 3: *Effect on Probability of Being Employed for Females in Gaza, Blockade (2008)*

VARIABLES	(1) employed	(2) employed
Gaza	-0.08***	-0.05***
	(0.01)	(0.01)
POST_Blockade	-0.01***	0.00
	(0.00)	(0.01)
GazaXPOST_Blockade	-0.16***	0.11***
	(0.02)	(0.01)
Controls	No	Yes
Observations	9,535	9,535
R-squared	0.04	0.19

The table illustrates the regression of the probability of being employed for females on Gaza, Post-Blockade, and the interaction term between Gaza and Post-Blockade, with and without controls.

Here, residing in Gaza alone also significantly negatively affects the probability of females being employed. More specifically, the probability of being employed decreases by 8 percentage points but is still statistically significant. Similarly, in the period after the Blockade, there is also a negative effect on employment prospects. The probability of being employed decreases by 1 percentage point.

A major difference witnessed in the analysis of the Blockade is with the interaction term. The interaction variable for residing in Gaza during the period after the Blockade shows a negative effect on employment: a decrease of 16 percentage points. The negative effect here points to the challenges related to the labor market in Gaza, which lead to high unemployment, especially among females. With the controls, the values for Gaza and the interaction term change to 5 and 11 percentage points respectively. However, the coefficient for *PostBlockade* is now 0, which is likely from the reduction to 2 decimal places. It is important to note that this value is also not statistically significant. All the other coefficients are significant at the 1% level.

Table 4: *Effect on Probability of Being Employed for Females in Gaza, Intifada (2000)*

VARIABLES	(1) employed	(2) employed
Gaza	-0.23***	-0.17***
	(0.00)	(0.00)
POST_Intifada	0.08***	0.08
	(0.00)	(0.00)
GazaXPOST_Intifada	0.13***	0.07***
	(0.01)	(0.01)
Controls	No	Yes
Observations	7,228	7,228
R-squared	0.08	0.262

The table illustrates the regression of the probability of being employed for females on Gaza, Post-Intifada, and the interaction term between Gaza and Post-Intifada, with and without controls.

Residing in Gaza alone again significantly negatively affects the probability of females being employed. The probability of being employed decreases by 23 percentage points for Gaza residents. Nevertheless, after the Intifada, there is a positive effect on employment prospects, where the probability increases by 8 percentage points. On a similar note, when looking at the interaction term for residing in Gaza during the period after the Intifada, there is a positive effect on employment: an increase of 13 percentage points. Because of the violence, more women are urged to find job opportunities within the labor market.

With the controls, the values change to 17, 8, and 7 percentage points, respectively. However, the general direction of the effects remains the same. All coefficients are significant at the 1% level.

See Appendix Tables A1 to A3 for the effects on the probability of being employed in the West Bank. Now, a similar analysis is conducted for the following regressions. This time, the focus is on the number of hours worked as the outcome variable:

Table 5: *Effect on Hours Worked for Females in Gaza, 2014*

VARIABLES	(1) hoursworked	(2) hoursworked
Gaza	-4.62***	-5.12***
	(0.55)	(0.56)
POST_2014WAR	0.60*	0.50
	(0.36)	(0.35)
GazaXPOST_2014WAR	-1.16	-1.42*
	(0.79)	(0.77)
Controls	No	Yes
Observations	6,119	6,119
R-squared	0.03	0.08

The table illustrates the regression of the number of hours worked by females on Gaza, the Post-2014 War, and the interaction term between Gaza and Post-War, with and without controls.

Being a Gazan resident has a significant negative effect on the number of hours that a female works. More specifically, the difference between hours worked for females in the West Bank and Gaza prior to the 2014 War is 4.62 hours, significant at the 1% level. Before the 2014 War, Gazan women worked fewer hours than West Bank women. However, after the Blockade, only women in the West Bank increased their hours worked by 0.60 hours, while women in Gaza decreased their number of hours. The 2014 Gaza War only impacted Gazan residents, which explains the negative impact on employment. Nonetheless, the interaction term is not statistically significant. In the case of the female Gazan residents, they were likely forced to work fewer hours, if they even remained employed. Working fewer hours may be because of physical restrictions or an increased fear after the rise in violence. With the controls, the values change to -5.12, 0.50, and -1.42 hours respectively. However, the general trend remains the same. Here, the significance level varies between the coefficients.

Table 6: *Effect on Hours Worked for Females in Gaza, Blockade (2008)*

VARIABLES	(1) hoursworked	(2) hoursworked
Gaza	-5.82***	-7.76***
	(0.57)	(0.56)
POST_Blockade	2.35***	1.78***
	(0.36)	(0.35)
GazaXPOST_Blockade	3.82***	2.81***
	(0.88)	(0.84)
Controls	No	Yes
Observations	6,379	6,379
R-squared	0.03	0.12

The table illustrates the regression of the number of hours worked for females on Gaza, Post-Blockade, and the interaction term between Gaza and Post-Blockade, with and without controls.

In the case of the Gaza Blockade, being a Gazan resident again has a significant negative effect on the number of hours that a female works. More specifically, the difference between hours worked for females in the West Bank and Gaza prior to the Blockade is 5.82 hours, significant at the 1% level. Before the Blockade, Gazan women worked fewer hours than West Bank women. However, after the Blockade, women in the West Bank increased their hours worked by 2.35 hours, while women in Gaza increased their number of hours by 6.17 hours (2.35 + 3.82). The 3.82 reflects the difference-in-difference parameter, which is the difference between the increases in hours worked by women in the West Bank (constant + 2.35) and Gazan (constant + 6.17) women after the Blockade. Even though some may have lost their jobs, others felt the increased economic urge to work. With the controls, the values change to -7.76, 1.78, and 2.81 hours respectively. However, the general direction of the effects remains the same.

Table 7: *Effect on Hours Worked for Females in Gaza, Intifada (2000)*

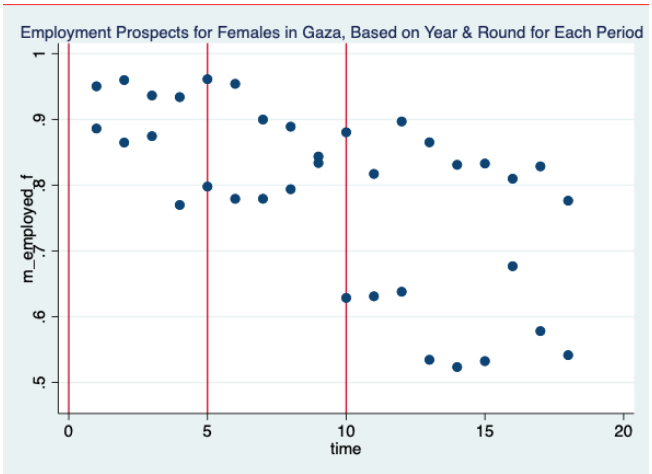
VARIABLES	(1) hoursworked	(2) hoursworked
Gaza	-8.13**	-7.63***
	(0.51)	(0.50)
POST_Intifada	2.10***	2.22***
	(0.38)	(0.36)
GazaXPOST_Intifada	0.10	-0.94
	(0.72)	(0.68)
Controls	No	Yes
Observations	5,303	5,303
R-squared	0.10	0.20

The table illustrates the regression of the number of hours worked by females on Gaza, Post-Intifada War, and the interaction term between Gaza and Post-Intifada, with and without controls.

In the case of the Intifada, residing in Gaza still has a significant negative effect on the number of hours that a female works. Before the Intifada, Gazan women worked 8.13 fewer hours than West Bank women. However, after the Intifada, women in the West Bank increased their hours worked by 2.10 hours, while women in Gaza increased their number of hours by 2.20 hours (2.10 + 0.10). The 0.10 reflects the difference-in-difference parameter, which is the difference between the increases in hours worked by women in the West Bank and Gazan women after the Intifada.

The Gaza and Post-Intifada variables are significant at the 1% level, while the interaction term is not statistically significant. Furthermore, the interaction term is positive for the first specification (0.10), but negative after adding controls (-0.94). Thus, the controls can help explain the direction of the change, where factors like education or marital status may explain the difference. For instance, education impacts skill level, which impacts the economic necessity and ability to work, while marital status is closely related to childcare and a woman's roles at home.

Figure 3: *Employment Prospects for Females in Gaza, Based on Year and Round for Each Period*



The graph illustrates the employment prospects for females in Gaza with breaks to define each period for the Second Intifada, the Gaza Blockade, and the 2014 War.

The data from the Palestinian Labor Force Surveys list the year and survey round number for each observation described so that after four rounds of the survey in a given year, the next set of observations lists the next rounds 1-4. A new variable for time is coded here whereby each value combines the year with the round number to combine the data and create a consecutive list of increments in time. Each red line represents the start of one of the events being studied, as represented by the time variable it takes. This incorporates the time periods for each event as specified earlier. *M_employed_f* is a new variable that represents the probability of being employed with the condition of only looking at females.

As can be seen in Figure 3 above, there are two dots on each red line, which essentially indicate two data points at the start of each event. These dots represent discontinuities in the data attributed to a jump in unemployment following the start of a war or surge in conflict. With that, a random discontinuity design (or RDD) can be implemented to study what happens to unemployment at these periods. However, for that, we would need to establish a certain threshold by which to evaluate the discontinuities, which would require additional data.

There is an overall downward trend, which reflects a general decrease in employment for women. The decrease occurs as events like the Blockade are ongoing and new wars continue to erupt and disrupt economic stability and security. Meanwhile, there is an almost zig-zag pattern in the trend of the points marked on the graph. Employment prospects understandably fluctuate as they begin to decrease with the start of one of the conflict periods. After that, they start to increase as the economy gradually recovers. The Blockade is ongoing, so its effect lags by several years. However, the Intifada and 2014 War have set dates that define the period around them, so the violence goes down to a certain extent before a new conflict erupts.

II. Effect of Other Conflict Variables: Closure Days and Fatalities

Table 8: *Fixed Effects of Closure Days and Fatalities on Probability of Females Being Employed in Gaza, Yearly*

VARIABLES	(1) employed
fatalities	-0.008***
	(0.002)
closuredays	-0.002***
	(0.001)
Constant	0.583***
	(0.006)
Observations	15,053
Number of Areas	5
R-squared	0.0280
Adj. R-squared	0.0272

The table above reflects the fixed effects regression for fatalities and closure days. The two independent variables are reported yearly and grouped in area, more specifically the 5 districts in Gaza. The table displays the effects of the fatalities and closure days in a way that avoids multicollinearity from the regressions that stem from Equations 1 – 3. The numbers of both fatalities and closure days have been divided by 100. Both coefficients are statistically significant at the 1% level. So, an additional 100 closure days in a given year has a negative impact of 0.002 on the probability of women being employed. On a similar note, an additional 100 fatalities in a year cause the probability of being employed to decrease by 0.008. Thus, fatalities drive women to leave the labor market and not want to search for or return to work. Closure days have a negative impact on employment prospects, so women are forced to leave their jobs or remain unemployed.

V. Further Area Extension

Further research and data collection may be needed for further studies, such as on the location of an individual's job compared to their home and the distance traveled. The data sets provided by the Palestinian Central Bureau of Statistics and the Labor Force Surveys

focus on formal work in various sectors of the economy. However, there is reason to believe that informal or remote work positions increase, especially among women. For example, women who lost their husbands in the war may not be able to jump into the labor market for several reasons. There are physical challenges and restrictions related to the formal job opportunities available, and the lack of freedom of movement attributed to closure days and border closures. Furthermore, mothers, especially single mothers, prioritize taking care of their families, particularly young children. Therefore, women may resort to informal work, such as baking and selling home goods or tutoring in the neighborhood. Data related to these jobs are often difficult to study unless adequate survey responses with women involved in such work are gathered. Employment prospects and the number of hours worked are also closely connected to other factors, such as total wages, which is another avenue for future study. In addition to that, the data collected for pre- and post- time variables for this paper focused on three quarters at a time to study the effect of each event. In a future study, further data can be collected to attempt at studying the immediate effects and surges using an RDD if a threshold can be established.

VI. Conclusion

The regressions produced mixed results, especially for the number of hours worked. It seems that the probability of a woman in Gaza being employed is higher after the Second Intifada and after the 2014 War compared to before the events.

Before the Intifada and the War, women in Gaza were less likely to be employed than women in the West Bank. After these events, employment prospects improved. This may seem surprising for a conflict-ridden society. However, these prospects highlight the extent of the dire economic situation and the need for women to step in and work, whether they need a secondary source of income for their families, or they lost their husbands due to the war.

The case of the Gaza Blockade is different. There is a strong negative effect on the employment prospects of women. The Blockade was not centered around violence and its effect on the labor market. Instead, it was a trade shock, so its imports and exports were significantly affected. Thus, Gaza faced employment and productivity losses while aggregate demand declined, which ultimately led to less labor demand and greater unemployment. On the other hand, the Intifada and the 2014 War involved cycles of violence, especially during the Intifada, which lasted for roughly five years. Thus, these violent events targeted the supply of laborers. With that, women were induced to work, to offset losses in their husband's income. As a result, they were pushed to enter the market and offset losses from their husbands being killed, imprisoned, or simply unemployed.

To avoid multicollinearity, the data on fatalities and closure days were not combined with the regressions on the time periods. Instead, a separate fixed effects model was implemented. The model shows that the number of fatalities causes employment prospects to decrease. The reason may stem from the loss of life of the laborers themselves, but it may also be the fear that stems from the loss of the lives of other family members. Thus, women are scared to leave their homes and enter the labor market, or they are unable to because they must stay at home to care for their children. Closure days lead to an increase in employment prospects, which again may indicate the pressing need for women to enter the workforce on the days that they are able to before more restrictions are placed. The idea of mobility challenges works in two ways, where there can be physical closures and restrictions, or fears that motivate staying at home.

However, there are a few limitations that are important to consider. The Labor Force Surveys carry concerns around sampling and non-sampling errors. The surveyors attempted to minimize biases in the individuals' responses through adequate training and supervision of those administering each survey round. Despite this, the non-response rate fluctuated around 10-15% over the years that were extracted for this paper. In a few instances, the number of people surveyed would not stay consistent throughout the four rounds of a survey for a given year. Non-response in this way was sometimes attributed to the conflict. For example, during one of the rounds, Israeli closure and aggression against Palestinians interfered with the survey administrators' ability to move forward. Nonetheless, the survey contained a representative sample of the region in terms of age, locality type, and other characteristics, and were still able to collect a large sample. Additionally, endogeneity may be an issue, whereby relevant variables may have been omitted from the regression analysis and included in the error term.

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A. Appendix

Table A1: *Effect on Probability of Being Employed & Hours Worked for Females in the West Bank, 2014*

VARIABLES	(1) employed	(2) houseworked
West Bank	0.313***	9.028
	(0.012)	(12.817)
POST_2014WAR	0.059***	26.153***
	(0.015)	(9.188)
WestBankXPOST_2014WAR	-0.098***	-5.075
	(0.018)	(18.378)
Constant	0.530***	21.493*
	(0.010)	(11.125)
Observations	10,224	7,524
R-squared	0.084	0.002

Standard errors in parantheses
*** p<0.01, ** p<0.05, * p<0.1

The results for the West Bank are the opposite of the regressions on Gaza. When running the regression on West Bank residents overall and after the war, there are positive effects. The probability of being employed increases by 31 percentage points for those residing in the West Bank. This may be due to a variety of factors, including fewer mobility restrictions than in Gaza. This is similarly observed for the effect after the 2014 War, but in smaller magnitude, which may be because this war directly impacted Gaza, not the West Bank. However, there is a negative effect for the interaction term, so West Bank residents do witness decreases in the probability of being employed.

Table A2: *Effect on Probability of Being Employed and Hours Worked for Females in the West Bank, Blockade (2008)*

VARIABLES	(1) employed	(2) houseworked
West Bank	0.076***	8.074***
	(0.012)	(0.609)
POST_Blockade	-0.169***	2.373***
	(0.015)	(0.422)
WestBankXPOST_Blockade	0.157***	3.347***
	(0.018)	(0.963)
Constant	0.801***	19.643***
	(0.010)	(0.532)
Observations	9,535	7,991
R-squared	0.039	0.037

Standard errors in parantheses
*** p<0.01, ** p<0.05, * p<0.1

Here, the trend in the results seems to be the opposite of the regressions on Gaza, but there are also mixed results. The coefficients for being a resident of the West Bank and the interaction term with the Post-Blockade variable are both positive. The West Bank is not as affected by the Blockade as Gazan residents are, and thus, it does not face negative effects on employment. However, the Post-Blockade variable alone witnesses a negative effect due to its impact on the market and labor forces at play.

Table A3: *Effect on Probability of Being Employed and Hours Worked for Females in the West Bank, Intifada (2000)*

VARIABLES	(1) employed	(2) houseworked
West Bank	0.074***	9.300***
	(0.009)	(0.495)
POST_Intifada	-0.092***	1.702***
	(0.012)	(0.424)
WestBankXPOST_Intifada	0.093***	3.699***
	(0.014)	(0.819)
Constant	0.875***	23.155***
	(0.007)	(0.408)
Observations	7,228	6,613
R-squared	0.040	0.072

Standard errors in parantheses
*** p<0.01, ** p<0.05, * p<0.1

The results for the West Bank for Post Intifada witness a similar trend to the results of the Blockade. Residing in the West Bank and the interaction term with the Post-Intifada variable both showcase positive effects. However, the Post-Intifada variable alone has a negative coefficient because of the violence on the population and labor market.

Figure A1: *Scatterplot of Employment Prospects for Females in Gaza, Yearly*

Like Figure 3 above, I created a scatterplot for employment prospects by year. Thus, the graph reflects the general downward trend in employment prospects, while Figure 3 also shows the fluctuations as each period starts and ends.