Working Paper No. 1090

Education and Economic Isolation: The Gaza Blockade's Role in Shaping Returns to Education in Palestine

by

Yousuf Daas
Graduate School of International Cooperation Studies, Kobe University, Kobe, Japan

Sameh Hallaq
Al-Quds Bard College-Economics Program, Al-Quds University

Danilo Leite Dalmon
Graduate School of International Cooperation Studies, Kobe University

Jennifer Olmsted
Drew University

August 2025

Correspondence author: Yousuf Daas, Email: Yousuf.2005d@gmail.com

Levy Economics Institute
P.O. Box 5000
Annandale-on-Hudson, NY 12504-5000
http://www.levyinstitute.org

ISSN 1547-366X

ABSTRACT

This study examines the impact of the Gaza blockade on private returns to education, with a focus on regional and gender disparities in the Palestinian territories. Using data from the Palestinian Labor Force Survey (2000–2014). Results show that, generally, education yields higher returns in Gaza compared to the West Bank. Gender disparities are pronounced, with women consistently experiencing higher returns to education than men, despite systemic barriers to equitable labor market participation. The Gaza blockade itself negatively impacted wages, years of schooling, and returns to education, though women exhibited resilience by increasing their educational investment during this period. These findings show the importance of addressing structural barriers and promoting inclusive policies to mitigate the long-term consequences of conflict on human capital development.

KEYWORDS: labor market, conflict economics, Gaza blockade, Gender equality, Gender wage gap, returns to education

JEL CLASSIFICATION CODES: I25, J16, O15, J31

1. INTRODUCTION

Education has long been recognized as a cornerstone of economic development, individual empowerment, and societal advancement. It serves as a critical driver of economic productivity, equipping individuals with the knowledge and skills necessary to secure employment, improve their quality of life, and contribute meaningfully to their communities. Pioneering economists such as Theodore Schultz, Gary Becker, Jacob Mincer, and James Heckman significantly advanced the study of education and its returns, employing the human capital approach to analyze this phenomenon (Tansel and Daoud 2014). Their work conceptualized education as an investment of time and financial resources, undertaken in anticipation of future benefits. Specifically, returns to education are measured as the economic gains derived from educational attainment, often reflected in higher earnings associated with additional years of schooling or advanced qualifications. These insights are essential for understanding education's role as a form of human capital investment.

Studies consistently demonstrate that education generates significant private and social returns; private returns refer to the earnings individuals receive as a result of their education, while social returns encompass the broader benefits to society, such as improved health outcomes, lower crime rates, and greater political participation. It is argued however, that private returns surpass social returns (Patrinos and Psacharopoulos 2020; Psacharopoulos 1981; Layard and Psacharopoulos 1974; Hout 2012; Cui and Martins 2021). These returns are especially pronounced in developing countries, where access to education often represents one of the few pathways to socioeconomic mobility (Maddox 2010). However, studies found that such returns are not distributed equally across all segments of society (Budig et al. 2021; Patrinos 2008); One persistent issue that has garnered widespread attention is the gender disparity in returns to education, a phenomenon where women, despite attaining similar or even higher levels of education than men, often receive lower economic benefits (Hout 2012).

Gender disparities in returns to education arise from a variety of structural, cultural, and economic factors (Lundberg 2020). Social norms and traditional gender roles frequently limit women’s participation in the labor force, restrict their access to certain professions, and

perpetuate wage discrimination (Das and Kotikula 2019). Even in cases where women achieve higher levels of education than their male counterparts, they may encounter barriers that prevent them from reaping the full economic rewards of their qualifications (Hanek and Garcia 2022). The gender wage gap is a clear manifestation of these inequities, as women across the globe continue to earn less than men for comparable work (World Economic Forum 2023).

Moreover, occupational segregation often confines women to lower-paying, less secure jobs, even when they possess the requisite skills for higher-paying roles (Hook et al. 2023). While these systemic inequities persist across various contexts, conflict situations often amplify these challenges, deepening the gender pay gap by further restricting women's access to education and economic opportunities, as well as increasing their unpaid care responsibilities (Reynolds 2021; Justino 2018). In conflict-affected regions, these challenges are compounded by instability, economic disruptions, and institutional breakdowns.

The Palestinian territories represent a stark example of how prolonged conflict exacerbates gender disparities in education and labor market outcomes. In such contexts, women face a dual burden: on one hand, they must navigate the societal constraints imposed by traditional norms, and on the other, they must contend with the structural challenges created by conflict, including limited access to quality education, high unemployment rates, and restricted economic opportunities (Al-Botmeh 2016; Hallaq and Daas 2024; Lassassi and Tansel, 2022; Daas and Ogawa 2025). These dynamics make it essential to investigate the intersections of conflict, gender, and education in regions like Palestine, where the stakes for addressing these inequities are particularly high. Among the many factors shaping these disparities, the Gaza blockade, initiated in 2007, stands out as an example of how conflict-driven restrictions profoundly affect education and gender dynamics in the region (Di Maio and Sciabolazza 2023).

To understand the blockade's impact, it is necessary to examine its origins and the broader political context in which it emerged. The blockade was imposed following the Palestinian legislative elections of 2006, in which Hamas, an armed Islamic political group, won a decisive victory (Hroub 2013). This outcome reflected widespread dissatisfaction with the ruling Palestinian Liberation Organization (PLO), also known as Fatah, which had dominated

Palestinian politics for decades but was increasingly seen as ineffective (Abu Toameh and Diker 2009; Sayigh 2023). However, the election results also deepened the political divide between Hamas and PLO, leading to a power struggle that culminated in Hamas taking control of Gaza 2007 (Baconi 2015). In response to Hamas's takeover, Israel imposed a comprehensive economic blockade on Gaza, citing security concerns and Hamas's refusal to recognize Israel and renounce violence (Al-Zaeem et al. 2020; Migdalovitz 2010). The blockade restricted the movement of people and goods, effectively isolating Gaza from the rest of the world. Egypt[1] also imposed its own restrictions on Gaza's southern border, further tightening the isolation (Butt and Butt 2016). While the blockade was ostensibly aimed at weakening Hamas, its effects have been felt most acutely by the civilian population. According to the United Nations, the blockade has created a humanitarian crisis, with widespread poverty, food insecurity, and unemployment (OCHA 2016). The economic collapse has also undermined critical sectors such as education, health care, and infrastructure, leaving Gaza's population highly dependent on international aid. The takeover of the Gaza Strip by Hamas resulted in the escalation of several armed conflicts between the group and Israel. These conflicts have caused widespread destruction to Gaza's infrastructure, severely impacting nearly every sector, including health, education, and other essential services (Weinthal and Sowers 2019; Ziadni et al. 2011).

For the education sector, the blockade has been devastating. Schools and universities in Gaza face chronic shortages of resources, from textbooks and laboratory equipment to basic infrastructure such as electricity and clean water (Mercer 2011; Barakat et al. 2020). Teachers and education administrators have seen their salaries delayed or unpaid altogether, further undermining the quality of education. These challenges are particularly acute for women, who are more likely than men to face barriers to accessing education. The blockade has compounded these barriers, making it even more difficult for women to pursue higher education or secure meaningful employment upon graduation (Milton et al. 2023; Abusamra 2024). As a result, the gender disparities in education and labor market outcomes that existed before the blockade have only deepened (Daoud 2005; Tansel and Daoud 2014). The blockade's economic impact has been

[1] The Egyptian government under President el-Sisi views the Muslim Brotherhood as a significant threat to national security. After overthrowing the elected President Morsi, a member of the Muslim Brotherhood, el-Sisi intensified measures against the organization. Given Hamas's ideological and organizational ties to the Muslim Brotherhood, Egypt also perceives Hamas as a security risk, contributing to its imposition of restrictions on Gaza's southern border.

catastrophic, with GDP per capita in Gaza declining sharply since its imposition (Lorenzo Barrientos 2022; Milton et al. 2024).

The collapse of the private sector has left few job opportunities for graduates, while the public sector, which has traditionally been a major employer in Gaza, is unable to absorb the growing number of educated workers (Hallaq and Daas 2024). The intersection of education, gender, and conflict has also been explored in the broader literature on development and human rights. Justino (2014; 2018) highlighted how conflict exacerbates existing gender inequalities by disrupting education systems, reducing economic opportunities, and increasing the burden of unpaid care work on women. In Gaza, these dynamics are particularly pronounced, as the blockade has created a protracted crisis that affects every aspect of life. Women in Gaza face unique challenges, including limited access to higher education and high rates of unemployment. Hallaq and Daas (2024) identified significant regional differences in female labor force participation (FLFP) between Gaza and the West Bank, shaped by social, economic, and structural factors. Since 2007, Gaza has experienced a significant increase in FLFP, surpassing participation rates in the West Bank in recent years. This rise is attributed to demand-driven factors, including viable employment opportunities for women in the public and agricultural sectors. Gaza's challenging economic conditions have also contributed to the "added worker effect," where women join the labor force to compensate for household income losses due to the blockade.

This main goal of this study, thus, is to examine the impact of the Gaza blockade on returns to education. A closely related paper to ours is that of Adnan (2022). While both this study and Adnan's examine the economic consequences of the Gaza blockade, they diverge significantly in focus, scope, and analytical emphasis. Adnan's work primarily investigates the broader repercussions of the blockade on Gaza's labor market outcomes, including unemployment rates and real wage disparities; Adnan highlights the blockade's severe effects on employment levels, real wages, and wage inequality across sectors and skill levels. Our study, on the other hand, adopts a more focused lens, centering on the private returns to education under the conditions imposed by the blockade, with a specific emphasis on gender disparities. While also leveraging the PLFS dataset, this study extends the temporal scope to cover the years 2000–2014, enabling a

more robust longitudinal analysis of how the blockade affected the economic returns to education over time. By employing a combination of econometric techniques, including Ordinary Least Squares (OLS), Heckman correction model, and Difference-in-Differences (DiD) models, this study not only quantifies the blockade's impact on wages, years of schooling, and returns to education but also investigates the differentiated effects across gender lines. The key contribution of this study lies in its focus on education as both a casualty of and a potential mitigating factor against the blockade's adverse economic impacts. Unlike Adnan, who emphasizes aggregate labor market trends, this study explores how individuals, particularly women, responded to the economic crisis through increased educational investment. The findings reveal that women in Gaza exhibited higher resilience by enhancing their educational attainment, resulting in comparatively higher returns to education than their male counterparts and higher years of schooling than women in the West Bank. By situating education at the center of the analysis, this study contributes to the literature by demonstrating how human capital investment can serve as both a coping mechanism and a pathway to resilience in conflict-affected economies. It builds on Adnan's findings while addressing an underexplored aspect of the blockade's socioeconomic consequences, thereby offering policy-relevant insights for mitigating long-term inequalities in educational and labor market outcomes.

2. DATA

The data used in this study is drawn from the PLFS, [2] conducted by the Palestinian Central Bureau of Statistics (PCBS) covering the period from 2000 to 2014. The PLFS is a quarterly survey that employs a rotating panel design. In this design, each participating household is interviewed twice consecutively, followed by a break, and then interviewed again for two additional quarters. This methodological approach enables the survey to capture comprehensive longitudinal data on the socioeconomic and labor market characteristics of a representative sample of the Palestinian population. For the purposes of this analysis, the study restricts the sample to individuals aged between 17 and 69 years. The final dataset comprises a total of 142,241observations, providing a robust sample for examining the impact of Gaza blockade on

[2] Data used in this paper can be obtained from: https://www.pcbs.gov.ps/PCBS-Metadata-ar-v5.2

returns to education; Table 1 presents the descriptive statistics for the variables employed in this study.

Table 1. Descriptive Statistics

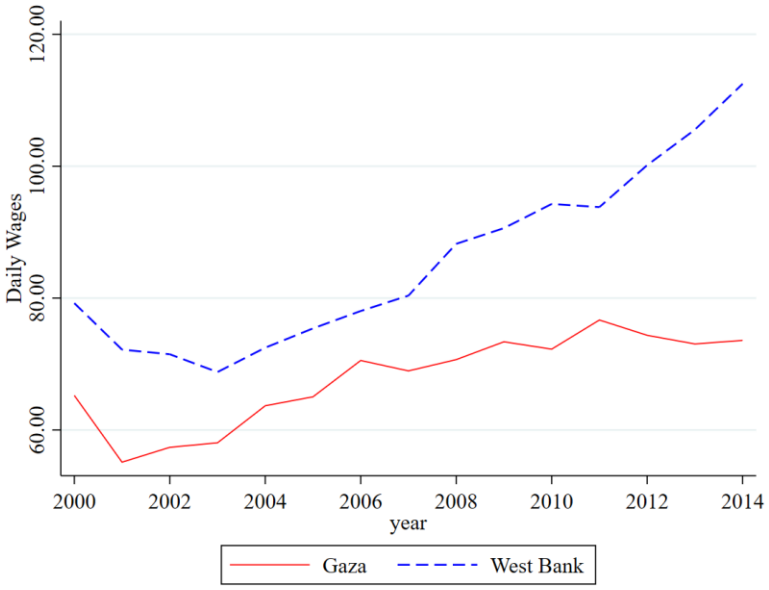
Variable	Obs	Mean	Std. Dev.	Min	Max
Log (wage)	142241	4.24	.544	2.716	6.783
Years of Schooling	142241	11.649	3.906	0	27
Gender (1=female)	142241	.164	.37	0	1
Age	142241	34.379	10.53	17	69
District (Categorial)	142241	40.329	22.73	1	75
Year	142241	-	-	2000	2014
Quarter	142241	-	-	1	4
Locality type (1= rural)	142241	.296	.457	0	1
Attendance	142241	.585	.493	0	1
Education level	142241	2.9	1.686	0	8
Married	142241	.711	.453	0	1
Being Refugee	142241	.463	.499	0	1
Type of occupation					
Legislators/Managers	142241	.03	.17	0	1
Professionals/Clerks	142241	.368	.482	0	1
Services-Shop	142241	.148	.355	0	1
Skilled-Agricultural Workers	142241	.007	.085	0	1
Craft	142241	.148	.355	0	1
Plant-Machinery Operator	142241	.072	.259	0	1
Elementary Occupations	142241	.227	.419	0	1
Type of industry					
Agriculture	142241	.054	.226	0	1
Manufacturing	142241	.118	.323	0	1
Construction	142241	.156	.362	0	1
Commerce	142241	.087	.282	0	1
Transportation	142241	.030	.172	0	1
Services	142241	.553	.497	0	1
Place of work					
West Bank	142241	.528	.499	0	1
Gaza	142241	.333	.471	0	1
Israel and Settlements	142241	.137	.344	0	1
Other	142241	.001	.035	0	1

The sample consists of 34.83 percent individuals residing in Gaza (n = 49,548) and 65.17 percent residing in the West Bank (n = 92,693).

The dependent variable in this study is the log of the daily wage, which represents the natural logarithm of individuals' daily earnings. The use of a log-transformation of wages is a common practice in wage regression analysis, as it helps normalize the distribution of wage data and allows the coefficients of the independent variables to be interpreted as percentage changes in wages (Klaassen et al. 2022). This transformation is particularly useful in understanding the

proportional impact of different factors, including education, on wages. Figure 1 illustrates the average wages in Gaza and the West Bank from 2000 to 2014 in local currency. Throughout this period, wages in the West Bank consistently remained higher than those in Gaza.

Figure 1. Average Wages (in Israeli New Shekels) in Gaza and West Bank

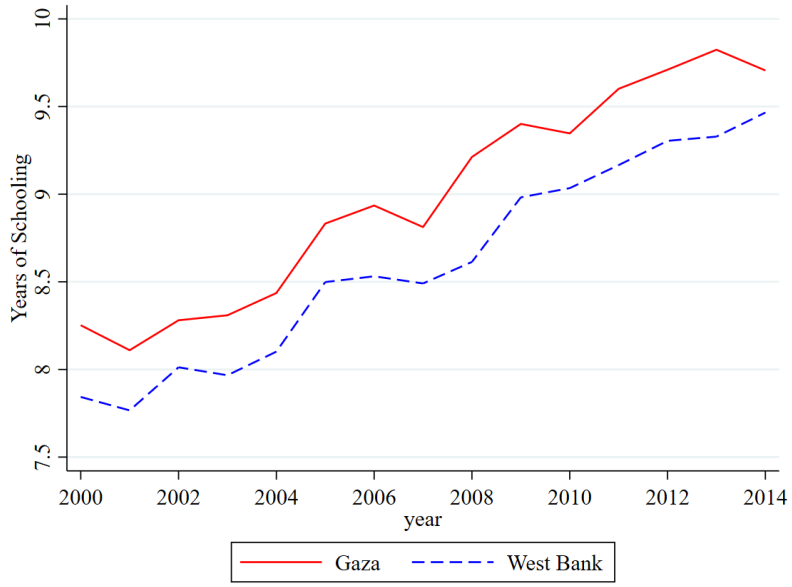


Source: Authors' own calculations based on PLFS 2000–2014

One of the key independent variables in the study is the total number of years of schooling completed by the individuals. This variable is central to the analysis as it serves as a direct measure of educational attainment, allowing the study to estimate the returns to education by examining how additional years of schooling correlate with wage increases. Higher levels of schooling are generally expected to be associated with higher wages, reflecting the human capital theory, which argues that education enhances productivity and, consequently, earnings (Goldin 2024; Hanushek 2020).

Yet there are variations in years of schooling between the two main regions of Palestine, West Bank, and the Gaza Strip, Figure 2 shows that Gazans on average have maintained higher average years of schooling compared to those in the West Bank between 2000 and 2014; indeed, literacy rates are highest in the Gaza Strip, with a literate population of 96.8 percent, compared to 96 percent in the West Bank (PCBS 2014).

Figure 2. Average Years of Schooling in Gaza and West Bank Between 2000–2014



Source: Authors' own calculations based on PLFS 2000–2014

Gender is included as a control variable to account for potential wage disparities between males and females (see Table T1 in the appendix).

In many labor markets, including Palestine, gender can play a significant role in determining wages, with women often earning less than men (Hallaq and Daas 2024; Blau and Kahn 2020; Goot and Reid 2023). Including gender in the analysis allows the study to control for these disparities and to better isolate the effect of education on wages. Yet, there is a difference in years of schooling between men and women in Palestine (see figure A1 and A2 in the appendix), thus controlling for gender when we run the analyses for the entire sample is crucial. Age and its square are also included as independent variables to capture the nonlinear relationship between age and wages. Typically, wages increase with age and experience, reflecting the accumulation of human capital over time (Chernina and Gimpelson 2023). However, this relationship is not linear, as wages tend to plateau or even decrease after a certain age (Schmieder 2023). By including both age and age-squared, the study can model this lifecycle earnings pattern more accurately. The variable indicating school attendance is included to differentiate between individuals who are still in the education system and those who have completed their education. Those currently attending school may not be fully participating in the labor market or may only

be engaged in part-time work, which could result in lower wages (Heise 2024); including this variable helps to control for these differences. Education level is another crucial variable in this study. While it is not included in the main equation, it is utilized in the Heckman correction model, and it represents the highest level of education attained by individuals. This allows for differentiation among various educational qualifications, such as high school diplomas, bachelor's degrees, and post-graduate degrees, and their corresponding wages. Table T2 in the appendix disaggregates wages by education level and gender, illustrating that men consistently earn higher wages than women across all educational levels.

Refugee status is also included as a control variable because it may influence both access to education and employment opportunities, and consequently, wage outcomes (Nathani et al. 2023; Morrar et al. 2022). In the Palestinian context, refugees may face different socio-economic challenges compared to non-refugees, and including this variable allows the study to account for these differences (Hallaq 2019). Marital status is also considered in the analysis, as it can affect labor market participation and wage levels (Gangl and Ziefle 2009). For instance, married individuals may have different household responsibilities or dual-income effects that could influence their earnings. Table T3 in the appendix displays the average daily wages categorized by marital status, showing that married individuals tend to earn higher average wages compared to their unmarried counterparts; thus, controlling for marital status helps to account for these potential confounding factors. Regional and rural-urban differences are controlled for through variables representing district (district-fixed effects) and rural residence. These variables capture variations in labor market conditions across different regions and between rural and urban areas, which can significantly influence wages due to differing levels of economic development, employment opportunities, and cost of living. The study also controls for time-related factors by including variables for the quarter and year of the survey. These time variables account for seasonal and annual fluctuations in the labor market, which may affect wage levels independently of education and other factors (Ahn et al. 2023). Occupation and industry are included as categorical variables to control for the type of job and the sector in which an individual is employed. Different occupations and industries have distinct wage structures, and controlling for these factors allows the study to isolate the effect of education on wages more effectively. The place of work is another variable that is controlled for in the analysis, indicating

whether an individual works within the Palestinian territories or elsewhere (i.e., Israel and/or settlements). Wage levels can vary significantly depending on the location of the workplace due to differences in economic conditions, labor demand, and cost of living.[3]

3. ESTIMATION MODELS

In this study, we employ a sequence of econometric models to examine the impact of the Gaza Blockade on private returns to education in Palestine. The choice of models is based on previous studies and is driven by the need to address potential biases and endogeneity issues that may arise in estimating the relationship between education and wages.

3.1 Mincerian Model

The analysis begins with the application of the Mincerian regression model, which serves as the foundational estimation method. This widely utilized model is designed to estimate the linear relationship between a dependent variable and multiple independent variables using OLS. In this study, the Mincerian framework is employed to measure the average impact of years of schooling on the natural logarithm of daily wages while accounting for additional factors such as gender, age, geographic location, and employment characteristics.

The model is expressed as:

$$Log(wage)_{idy} = \beta_0 + \beta_{Years\ of\ Schooling_{idy}} + \beta_{X_{idy}} + \gamma_{id} + \rho_{iy} + u_{idy} \quad (1)$$

The outcome variable "log(wage)" represents the dependent variable, the natural logarithm of wages for individual *i* in year *y* in district *d*. The key independent variable, $\beta_{\text{Years of schooling}}$, captures the effect of additional years of schooling. β_X represents individual-level controls and employment characteristics, while γ denotes quarter-fixed effects, accounting for time variations within the period of 2000–2014. ρ indicates district-fixed effects, which help control for

[3] Palestinians working in the Israeli labor market earn higher wages than those employed in the West Bank or Gaza Strip (Miaari 2020; Angrist 1998; Daoud and Shanti 2016).

unobserved, time-invariant factors that may influence wage structures. Finally, *u* represents the error term. Robust standard errors are used to ensure the reliability of the estimates. While the Mincerian model offers a straight forward method to estimate returns to education, it does not address potential selection bias. Since wage variable accounts for individuals who are employed, the analysis is inherently limited to a non-random sample. To correct for this bias, the Heckman two-stage correction method (Harmon et al. 2003), is introduced in subsequent analyses.

3.2 Heckman Two-Stage Model

To address the issue of selection bias, this study employs the Heckman correction model, a widely recognized econometric approach designed to account for potential biases arising from non-random sample selection (Heckman 1977; Heckman et al. 1996). In the context of this analysis, selection bias may emerge because individuals who choose to pursue higher education are likely to differ systematically from those who do not. Additionally, since the wage variable in our model is observed only for individuals who are employed, limiting the sample to labor force participants may introduce further bias into OLS estimates. The Heckman correction method offers a robust solution to these issues by addressing the non-random nature of the selected sample (Dumauli 2015; Nawata and Nagase 1996).

The Heckman model operates in two stages. In the first stage, a probit model is estimated to capture the probability of labor market participation (selection equation). In the second stage, an outcome equation is estimated, incorporating the Inverse Mills Ratio derived from the first stage to correct for selection bias (Certo et al. 2016). This two-step procedure ensures that the estimated returns to education are not systematically distorted by the exclusion of non-participants from the analysis.

The Heckman first stage (probit model):

$$Pr(Z_{idy} = 1) = \Phi(\gamma_0 + \gamma_1 X_{idy} + \epsilon_{idy}) \quad (2)$$

Where Z is the latent variable representing the probability for individual *i* in year *y* in district *d* being in the labor force, γ captures individual controls that might affect an individual being in the

labor force (age, being married, education level, gender, etc.), Φ represents the cumulative distribution function (CDF), and lastly ϵ is the error term. From equation (2) we calculate the Inverse Mills Ratio (IMR) also known as Lambda;

$$IMR = \frac{\Phi\ (\gamma_0 + \gamma_1 X_i)}{\Phi\ (\gamma_0 + \gamma_1 X_i)}$$

where Φ is the probability density function (PDF) of the standard normal distribution. It represents the height of the standard normal curve at a given point; Φ is the cumulative distribution function of the standard normal distribution, representing the probability that a standard normal variable takes a value less than or equal to a given point. After we have obtained the IMR, we plug it into equation (1) in order to fix the selection bias issue (Heckman's second stage):

$$Log(wage)_{idy} = \beta_0 + \beta_{Years\ of\ Schooling_{idy}} + \beta_{X_{idy}} + \gamma_{id} + \rho_{iy} + IMR + u_{idy} \quad (1^*)$$

While the Heckman model effectively addresses selection bias, it does not fully resolve the issue of endogeneity, particularly when unobservable factors such as individual ability are correlated with both education and wages (Sakaue et al. 2024; Walker 2020). Endogeneity remains a significant concern because these unobserved variables can result in biased and inconsistent parameter estimates, ultimately undermining the reliability of the model's findings. In response to this challenge, the literature frequently employs Instrumental Variables (IV) techniques, with the Two-Stage Least Squares (2SLS) method being one of the most commonly used approaches for addressing endogeneity in the context of returns to education (Hu et al. 2014; Huang and Zhu 2020; Cholezas and Kanellopoulos 2024). These studies rely on valid instruments that can isolate exogenous variation in educational attainment. For instance, variables such as distance to school have been employed as instruments, under the assumption that they influence educational attainment without directly affecting wage outcomes (Borghesan and Vasey 2024). In our study, however, the PLFS does not provide such a variable, limiting our ability to apply a similar approach. Despite the limitations imposed by the lack of instrumental variables in the PLFS, this study prioritizes its primary objective: estimating the impact of the Gaza blockade on returns to

education. To achieve this, the Difference-in-Differences (DiD) method was employed, leveraging the blockade as an exogenous shock.

3.3 Difference-in-Differences

To estimate the causal effect of the Gaza blockade on wages, years of schooling, and returns to education, this study employs the DiD approach. This methodology is particularly suitable for analyzing the impact of policy interventions or exogenous shocks by comparing the changes in outcomes between a treatment group and a control group over time (Banzhaf 2021). In this case, Gaza serves as the treatment group due to the imposition of the blockade in 2007, while the West Bank functions as the control group, unaffected by the blockade (Adnan 2022). The blockade provides a clear and exogenous treatment point, allowing for a structured analysis of its effects.

The core idea of the DiD approach is to compare the average outcomes of the two regions before and after the blockade and then calculate the difference between these differences. By doing so, the method isolates the causal impact of the blockade, accounting for both baseline differences between Gaza and the West Bank and broader time trends affecting both regions. The fundamental assumption underlying this method is the parallel trends assumption, which argues that, in the absence of the blockade, the outcome would have followed similar trajectories in both Gaza and the West Bank. While this assumption cannot be directly tested, visual inspection of pre-treatment trends and robustness checks can offer supporting evidence.

Mathematically, the DiD estimator can be expressed as:

$$\Delta = (Y_{\{\text{Gaza After 2007}\}} - Y_{\{\text{Gaza Before 2007}\}}) - (Y_{\{\text{West bank After 2007}\}} - Y_{\{\text{West bank before 2007}\}})$$

In this equation, the term $Y_{\{\text{Gaza After 2007}\}}$ represents the average outcome (e.g., log of wages, years of schooling, or returns to education) in Gaza after the blockade was imposed, while $Y_{\{\text{Gaza Before 2007}\}}$ reflects the average outcome in Gaza before the blockade. Similarly, $Y_{\{\text{West bank After 2007}\}}$ denotes the average outcome in the West Bank after the blockade, and $Y_{\{\text{West bank before 2007}\}}$ indicates the average outcome in the West Bank before the blockade. The difference between the first two terms captures the change in outcomes in Gaza over time, encompassing both the effect

of the blockade and other time-varying factors. The difference between the second two terms reflects the change in outcomes in the West Bank over the same period, accounting for general time trends unrelated to the blockade. By subtracting the second difference from the first, the net effect of the blockade is isolated, removing confounding time trends that affect both regions equally.

To operationalize this approach, the following regression model is employed:

$$Y_{it} = \alpha + \beta_1 \, Gaza_i + \beta_2 \, Post2007_t + \beta_3 \, (Gaza\_{i} \times Post2007_t) + \gamma \, X_{it} + \delta_t + \varepsilon_{it}$$

In this model, the dependent variable Y_{it} represents the outcome variable for individual *i* at time *t*, which could be the natural logarithm of wages, years of schooling, or returns to education. The variable $Gaza_i$ is a binary indicator equal to one if the individual resides in Gaza and zero otherwise, capturing baseline differences between the treatment and control groups. The variable $Post2007_t$ is another binary indicator, equal to one for the post-blockade period (after 2007) and zero for the pre-blockade period, accounting for common time effects. The interaction term ($Gaza_i \times Post2007_t$) is the DiD estimator and represents the causal effect of the blockade on the outcome variable. The coefficient of this interaction term, denoted by β_3, is the primary parameter of interest and captures the net impact of the blockade; β3 can be interpreted as the Average Treatment Effect (ATE) of the blockade. The vector X_{it} includes individual-level control variables such as gender, age, marital status, refugee status, education level, and occupation, which help account for observable differences between individuals. The term δ_t represents time fixed effects, controlling for shocks common to both regions during specific periods, and ε_{it} is the error term.

The justification for employing the DiD model lies in its robustness in addressing endogeneity concerns arising from unobserved heterogeneity and time-varying confounding factors. By comparing changes across groups and over time, the model effectively isolates the effect of the blockade from other potential confounding variables. Additionally, the inclusion of control variables, fixed effects, and interaction terms further strengthens the model's ability to produce unbiased and consistent estimates. In the context of this study, the DiD methodology is applied

sequentially across three key outcomes: wages, years of schooling, and returns to education. First, the model estimates the impact of the blockade on wages, assessing how earning potentials have been affected by the restrictions. Second, the analysis shifts focus to years of schooling, investigating whether the blockade altered educational attainment patterns in Gaza. Finally, the model examines returns to education by interacting years of schooling with the average treatment effect, capturing whether the blockade influenced the wage premium associated with additional years of education

4. RESULTS

The relationship between education and wages is first examined using the OLS and Heckman models, with results summarized in Table 2. These models show that, for the combined sample of the West Bank and Gaza, each additional year of schooling increases wages by 2.5 percent to 2.8 percent.

Table 2 Private Returns to Education (OLS and Heckman Estimates)

Dep Var: Log (Daily Wage)	West Bank and Gaza		West Bank		Gaza	
	OLS	Heckman	OLS	Heckman	OLS	Heckman
Years of Schooling	0.025***	0.028***	0.024***	0.025***	0.026***	0.030***
	(0.001)	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)
Lambda (IMR)		-1.049***		-1.492***		-0.853***
		(0.046)		(0.097)		(0.051)
Constant	3.354***	4.945***	3.481***	5.665***	3.067***	4.553***
	(0.018)	(0.078)	(0.020)	(0.152)	(0.033)	(0.105)
Observations	142,241		92,693		49,548	
R-squared	0.521		0.530		0.561	
Individual characteristics	YES	YES	YES	YES	YES	YES
Quarter Fixed Effects	YES	YES	YES	YES	YES	YES
District Fixed Effects	YES	YES	YES	YES	YES	YES
Locality type	YES	YES	YES	YES	YES	YES

-Covering the period from 2000 to 2014, the individual characteristic variables include age, gender, school attendance, type of occupation, and type of industry. Additionally, we controlled for the place of work to account for differences between individuals working in the West Bank, Gaza, and those who work in Israel or settlements. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

The returns to education are slightly higher in Gaza, where they range from 2.6 percent to 3.0 percent, compared to the West Bank, where they range from 2.4 percent to 2.5 percent. These results highlight the relatively greater economic value of education in Gaza's constrained labor market. The Heckman model estimates, which account for selection bias, provide slightly higher coefficients, emphasizing the importance of correcting for labor market participation in estimating returns to education. A plausible explanation for the higher returns to education in Gaza lies in the economic blockade's disproportionate impact on key sectors such as construction, agriculture, and manufacturing (El-namrouty 2012). This disruption significantly curtailed employment opportunities in these industries, shifting the labor market's reliance toward the service and public sectors, including education and healthcare. Employment in these sectors typically requires higher educational qualifications, such as a diploma degree, which may explain the observed higher returns to education in Gaza (Barakat et al. 2020).

Temporal variations in returns to education before and after the Gaza blockade are examined in Table 3 below. Before 2007, returns to education were slightly higher in the West Bank (2.5 percent) than in Gaza (2.0 percent). However, following the blockade, this pattern reversed. Returns in the West Bank declined modestly to 2.2 percent, while returns in Gaza increased significantly to 3.0 percent; this change in pattern is attributed to the fact that, following the blockade, employment in the public sector became the primary source of jobs as the private sector declined in Gaza; public sector wages, however, are determined by educational qualifications and years of experience (Hallaq 2020).

Table 3. Private Returns to Education (OLS and Heckman estimates) in West Bank and Gaza Strip Before and After 2007

Dep Var: Log (Daily Wage)	West Bank				Gaza			
	Before 2007		After 2007		Before 2007		After 2007	
	OLS	Heckman	OLS	Heckman	OLS	Heckman	OLS	Heckman
Years of Schooling	0.025***	0.026***	0.022***	0.022***	0.020***	0.024***	0.028***	0.030***
	(0.002)	(0.005)	(0.003)	(0.005)	(0.002)	(0.003)	(0.004)	(0.006)
lambda (IMR)		-1.774***		-1.266***		-0.796***		-0.976***
		(0.167)		(0.116)		(0.071)		(0.079)
Constant	3.628***	6.252***	3.432***	5.233***	3.400***	4.791***	2.856***	4.517***
	(0.027)	(0.263)	(0.032)	(0.176)	(0.037)	(0.139)	(0.123)	(0.230)
Observations	51,223		41,470		28,509		21,039	
R-squared	0.480		0.551		0.560		0.591	
Individual characteristics	YES	YES	YES	YES	YES	YES	YES	YES
Quarter Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
District Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Locality Type	YES	YES	YES	YES	YES	YES	YES	YES

-The individual characteristics variables include age, gender, school attendance, type of occupation, and type of industry. Additionally, we controlled for the place of work to account for differences between individuals working in the West Bank, Gaza, and those who work in Israel or settlements. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

These changes suggest that the blockade disrupted the economic equilibrium in Gaza, potentially increasing the relative importance of education for accessing the few opportunities available in a restricted economy. The contrasting trends show the regional specificity of the blockade's effects, which may be attributed to differences in labor market dynamics and economic resilience; Etkes and Zimring (2015) observed a significant 20 percent decrease in the average productivity of workers in Gaza, as measured by real value added per worker, during the period of the blockade. The impact of this decline was markedly different across sectors, with a 36 percent reduction observed in the manufacturing sector, compared to a minimal 0.6 percent decrease in the services sector.

Gender disparities in returns to education are analyzed in Table 4 below, which demonstrates that women consistently experience higher returns to education than men.

Table 4. Gender disparities in Returns to Education (OLS and Heckman estimates)

Dep Var: Log (Daily Wage)	Male		Female	
	OLS	Heckman	OLS	Heckman
Years of Schooling	0.023***	0.025***	0.049***	0.053***
	(0.001)	(0.001)	(0.004)	(0.004)
lambda (IMR)		-0.059		0.517***
		(0.075)		(0.126)
Constant	3.353***	3.328***	2.880***	0.678
	(0.019)	(0.103)	(0.055)	(0.454)
Observations	118,908		23,333	
R-squared	0.550		0.444	
Individual characteristics	YES	YES	YES	YES
Quarter Fixed Effects	YES	YES	YES	YES
District Fixed Effects	YES	YES	YES	YES
Locality Type	YES	YES	YES	YES

-Covering the period from 2000 to 2014, the individual characteristics variables include age, gender, school attendance, type of occupation, and type of industry. Additionally, we controlled for the place of work to account for differences between individuals working in the West Bank, Gaza, and those who work in Israel or settlements. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

For women, each additional year of schooling increases wages by 4.9 percent to 5.3 percent, compared to 2.3 percent to 2.5 percent for men. This significant difference suggests that

education has a particularly transformative impact for women, enabling them to overcome some barriers to labor market entry and earnings. However, the Heckman model's inverse Mills ratio (IMR) values indicate that women face systemic challenges in translating educational attainment into equitable economic outcomes. However, higher returns to education do not necessarily imply an advantage for women. As evidenced in Table 1.2, women consistently earn lower wages than men at the same level of education. In contrast, men tend to achieve higher wages even with fewer years of schooling. This disparity can be attributed to male dominance in sectors such as construction and manufacturing, which typically do not require advanced educational qualifications. Social norms and cultural barriers often restrict women's access to these sectors, limiting their employment opportunities to fields that demand higher educational credentials. Figure A3 in the appendix illustrates the relationship between years of schooling and daily wages, revealing a persistent gender wage gap, where men consistently earn higher wages than women at nearly every level of education, and the returns to education, as indicated by the slope of the fitted lines, are significantly higher for males than for females.

The intersection of gender and regional disparities is further explored in Table 5 below, which highlights the gendered differences in returns to education within each region.

Table 5. Gender Disparities in Returns to Education (OLS and Heckman Estimates) in the West Bank and Gaza Strip

Dep Var: Log (Daily Wage)	West Bank				Gaza			
	Males		Females		Males		Females	
	OLS	Heckman	OLS	Heckman	OLS	Heckman	OLS	Heckman
Years of Schooling	0.024***	0.024***	0.045***	0.044***	0.022***	0.024***	0.060***	0.070***
	(0.002)	(0.002)	(0.005)	(0.005)	(0.002)	(0.002)	(0.008)	(0.010)
Lambda (IMR)		-0.355***		0.544***		-0.002		-0.612*
		(0.124)		(0.117)		(0.078)		(0.342)
Constant	3.475***	3.841***	3.030***	1.035***	3.105***	2.969***	1.954***	3.628**
	(0.022)	(0.146)	(0.060)	(0.393)	(0.033)	(0.136)	(0.346)	(1.646)
Observations	75,707		16,986		43,201		6,347	
R-squared	0.543		0.471		0.591		0.379	
Individual characteristics	YES	YES	YES	YES	YES	YES	YES	YES
Quarter Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
District Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Locality Type	YES	YES	YES	YES	YES	YES	YES	YES

-Covering the period from 2000 to 2014, the individual characteristics variables include age, gender, school attendance, type of occupation, and type of industry. Additionally, we controlled for the place of work to account for differences between individuals working in the West Bank, Gaza, and those who work in Israel or settlements. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Women in Gaza exhibit the highest returns, with estimates ranging from 6.0 percent to 7.0 percent, compared to 4.5 percent to 4.4 percent for their counterparts in the West Bank. For men, returns are relatively consistent across regions, ranging from 2.2 percent to 2.4 percent. This reveals how the labor market differences between Gaza and the West Bank amplify gender disparities, as women in Gaza derive the greatest relative benefit from additional years of schooling despite the structural challenges they face. Yet, despite employing Heckman's correction model, the results above do not establish causality. However, the subsequent DiD results address these endogeneity issues.

4.1 DiD results

The DiD analysis evaluates the direct impact of the blockade on wages, years of schooling, and private returns to education. Table 6 presents the effects on wages,[4] showing a significant negative impact with an average treatment effect (ATE) of -7.9 percent.

[4] Figure A4 in the appendix provides additional clarity to the results, illustrating that the unemployment rate in Gaza is consistently higher than in the West Bank.

Table 6. The impact of the blockade on wages

Dep Var: Log (Daily Wage)	(1) All	(2) Males	(3) Females
Gaza	-0.074***	-0.073***	-0.068
	(0.008)	(0.009)	(0.133)
Post-Blockade	0.186***	0.189***	0.151***
	(0.003)	(0.003)	(0.007)
Gaza*Post-Blockade (ATE)	-0.079***	-0.091***	-0.033***
	(0.004)	(0.005)	(0.012)
Constant	3.381***	6.613***	6.024***
	(0.017)	(0.018)	(0.056)
Observations	142,241	118,908	23,333
R-squared	0.494	0.525	0.391
Individual characteristics	YES	YES	YES
Quarter Fixed Effects	YES	YES	YES
District Fixed Effects	NO	NO	NO
Locality Type	YES	YES	YES

The individual characteristics variables include age, gender, school attendance, type of occupation, and type of industry. Additionally, we controlled for the place of work to account for differences between individuals working in the West Bank, Gaza, and those who work in Israel or settlements. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

The wage reduction was more pronounced for men (-9.1 percent) than for women (-3.3 percent), reflecting the gendered distribution of labor market vulnerabilities. These results highlight the profound economic disruption caused by the blockade, particularly in sectors dominated by male workers such as construction, agriculture and manufacturing. Furthermore, FLFP in the Gaza Strip has shown a consistent increase, reaching levels comparable to those in the West Bank by 2014 as shown in figure A5 in the appendix. Indeed, a recent study found that Gaza has experienced a significant increase in FLFP, and surpassing participation rates in the West Bank (Hallaq and Daas 2024).

The impact of the blockade on educational attainment is examined in Table 7. Overall, the blockade slightly reduced years of schooling, with an ATE of -2.5 percent.

Table 7. The impact of the blockade on years of schooling

Dep Var Log (years of schooling)	(1) All	(2) Males	(3) Females
Gaza	0.027***	0.027***	0.199
	(0.008)	(0.008)	(0.128)
Post-Blockade	0.029***	0.032***	0.013***
	(0.002)	(0.002)	(0.004)
Gaza*Post-Blockade (ATE)	-0.025***	-0.032***	0.015***
	(0.003)	(0.004)	(0.005)
Constant	2.717***	2.639***	2.718***
	(0.012)	(0.014)	(0.039)
Observations	141,127	118,032	23,095
R-squared	0.418	0.362	0.596
Individual characteristics	YES	YES	YES
Quarter Fixed Effects	YES	YES	YES
District Fixed Effects	NO	NO	NO
Locality Type	YES	YES	YES

-The individual characteristics variables include age, gender, school attendance, type of occupation, and type of industry. Additionally, we controlled for the place of work to account for differences between individuals working in the West Bank, Gaza, and those who work in Israel or settlements. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

However, the effect differed by gender. While men experienced a decline, women showed a slight increase in educational attainment, with an ATE of 1.5 percent. This positive effect for women may reflect shifts in societal roles during the economic downturn, as education became a coping mechanism to enhance household resilience. This aligns with the "added worker effect," wherein women leverage their education to enter the labor market and support their families in response to economic shocks (Hallaq and Daas 2024b; Bredtmann et al. 2018). As a result, women and families have come to recognize education as a valuable tool for overcoming adversity, leading to increased investment in education, particularly after the blockade was imposed.

Finally, the analysis of private returns to education under the blockade, presented in Table 8, reveals a slight overall decline, with an ATE of -1.6 percent.

Table 8. The impact of the blockade on private returns to education

Dep Var: Log (Daily Wage)	(1) All	(2) Male	(3) Female
Gaza	-0.088***	-0.087***	-0.095
	(0.009)	(0.009)	(0.170)
Post-Blockade	0.173***	0.175***	0.150***
	(0.003)	(0.003)	(0.007)
Years of Schooling *(Gaza*Post-Blockade)	-0.016***	-0.021***	-0.010**
	(0.002)	(0.002)	(0.004)
Constant	3.378***	3.396***	2.729***
	(0.018)	(0.018)	(0.062)
Observations	141,127	118,032	23,095
R-squared	0.492	0.523	0.391
Individual characteristics	YES	YES	YES
Quarter Fixed Effects	YES	YES	YES
District Fixed Effects	NO	NO	NO
Locality Type	YES	YES	YES

-The individual characteristics variables include age, gender, school attendance, type of occupation, and type of industry. Additionally, we controlled for the place of work to account for differences between individuals working in the West Bank, Gaza, and those who work in Israel or settlements. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

For men, the reduction was more pronounced at -2.1 percent, while for women, the decline was modest at -1.0 percent. This might suggest that while the blockade negatively impacted returns to education over all, women maintained relatively stronger returns; not to say they were less negatively affected—this resilience is likely attributed to their adaptive strategies in navigating restricted labor markets and the added worker effect, where women utilized their education to enter the labor market. In contrast, men—particularly those employed in heavily affected sectors such as construction, manufacturing, and agriculture (Barakat et al. 2020)—experienced significant job losses due to the economic blockade, thus reducing their overall returns to education.

Overall, the results indicate a significant negative impact on wages, with men experiencing a sharper decline compared to women. This disparity reflects the profound economic disruption caused by the blockade, particularly in male-dominated sectors such as construction, agriculture,

and manufacturing. The economic strain forced many men to leave education early and join the labor force, while women, conversely, showed a slight increase in educational attainment during the same period. This suggests that education became a coping mechanism for women, aligning with the "added worker effect," where education was leveraged as a tool to enhance household resilience during the economic downturn. While the blockade negatively influenced private returns to education overall, women demonstrated relatively stronger returns compared to men. This resilience likely stems from their strategic use of education to navigate restricted labor markets, where sectors like education and health demand higher qualifications and offer relatively stable opportunities. However, the blockade's overall impact on wages and returns to education shows the broader challenges posed by economic isolation. For men, job losses in heavily affected industries further diminished the returns to their education, reflecting a structural shift in labor market dynamics under the blockade. We argue, thus, that the blockade not only deepened existing economic vulnerabilities but also reshaped societal and gender roles.

5. CONCLUSION

The findings of this study demonstrate the profound impacts of the Gaza blockade on education, wages, and gender disparities in the Palestinian territories. Education, a critical determinant of economic opportunity, exhibits varying returns across regions, genders, and time periods, reflecting the unique challenges imposed by prolonged conflict and economic restrictions.

The analysis reveals that while education continues to provide significant private returns, these returns are not uniform. Gaza, under the severe constraints of the blockade, shows higher returns to education compared to the West Bank, particularly in the post-blockade period. This shift shows the heightened value of education in an environment where economic opportunities are scarce, suggesting that education serves as a vital mechanism for resilience in the face of systemic disruption. Gender disparities further complicate this narrative. Women consistently experience higher returns to education than men, both in the West Bank and in Gaza. This trend highlights the transformative potential of education for women, who leverage their qualifications to navigate labor market barriers and improve their economic outcomes. However, these higher

returns also reflect the broader inequities women face, as they must overcome significant structural challenges to achieve comparable gains.

The blockade itself has had a substantial and adverse effect on wages, years of schooling, and returns to education. The DiD analysis reveals that the blockade significantly reduced wages, with men bearing a larger share of the economic burden. The slight increase in educational attainment among women during the blockade period suggests an adaptive response, as education became a strategy for mitigating household economic pressures. However, the overall decline in returns to education highlights the limitations of this strategy in the context of a severely constrained labor market. These findings emphasize the urgent need for policy interventions that address the compounded effects of conflict, economic isolation, and gender inequality. Efforts to enhance access to quality education, particularly for marginalized groups, are essential to improving economic outcomes and fostering resilience. Additionally, addressing structural barriers to equitable labor market participation remains critical to ensuring that the benefits of education are fully realized. The Gaza blockade serves as a stark reminder of the long-term consequences of conflict on human capital development and economic opportunities. By documenting these impacts, this study contributes to a deeper understanding of the intersection between education, gender, and conflict, offering valuable insights for policymakers, researchers, and development practitioners working to promote inclusive and sustainable growth in conflict-affected regions.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

REFERENCES

Abu Toameh, K., and Diker, D. 2009. “Can the Palestinian Authority's Fatah Forces Retake Gaza? Obstacles and Opportunities”. Jerusalem Center for Public Affairs

Abusamra, A. 2024. “Brain Drain or Brain Circulation? The Impact of Gaza's 7 th October War on the Displaced Academicians and Personnel of Higher Education Institutions”. *Journal of Higher Education Theory & Practice*, *24*(10). https://doi.org/10.33423/jhetp.v24i10.7309

Adnan, W. 2022. “From Economic Integration to Near Elimination: The Economic Consequences of Isolation”. *The Journal of Development Studies*, *58*(6), 1160-1180. https://doi.org/10.1080/00220388.2022.2029416

Al-Botmeh, S. 2016. “The Political Economy of Palestinian Women’s Labour Market Participation. In: Kadri, A. (eds) Development Challenges and Solutions after the Arab Spring” Rethinking International Development Series. Palgrave Macmillan, London. https://doi.org/10.1057/9781137541406_10

Al-Zaeem, I. S., Nor, M. R. M., and Lokman, A. A. 2020. “The Israeli Blockade on Gaza: Its Effects and Future”. *Al-Muqaddimah: Online Journal of Islamic History and Civilization*, *8*(1), 48-62. https://doi.org/10.22452/muqaddimah.vol8no1.4

Angrist, J. D. 1998. “The Palestinian labor market between the Gulf War and Autonomy”.

Baconi, T. 2015. “The demise of Oslo and Hamas’s political engagement”. *Conflict, Security & Development*, *15*(5), 503-520. https://doi.org/10.1080/14678802.2015.1100012

Banzhaf, H. S. 2021. “Difference-in-differences hedonics”. *Journal of Political Economy*, *129*(8), 2385-2414.

Barakat, S., Milton, S., and Elkahlout, G. 2020. “Reconstruction under siege: the Gaza Strip since 2007”. *Disasters*, *44*(3), 477-498. https://doi.org/10.1111/disa.12394

Bredtmann, J., Otten, S., and Rulff, C. 2018. “Husband’s unemployment and wife’s labor supply: the added worker effect across Europe”. *Ilr Review*, *71*(5), 1201-1231.

Budig, M. J., Lim, M., and Hodges, M. J. 2021. “Racial and gender pay disparities: The role of education” *Social Science Research 98*: 102580. https://doi.org/10.1016/j.ssresearch.2021.102580

Butt, K. M., and Butt, A. A. 2016. “Blockade on Gaza Strip: A Living Hell on Earth”. *Journal of Political Studies 23*, 157.

Cui, Y., and Martins, P. S. 2021. "What drives social returns to education? A meta-analysis." *World Development*, *148*, 105651.

Daas, Y. and Ogawa, K., 2025. "International Student Mobility and Labor Market Outcomes: Evidence from Palestine Through the Lens of Signaling Theory." In *Advanced Labor Studies Research and Modern Practice* (pp. 273-304). IGI Global Scientific Publishing.

Daoud, Y. 2005. "Gender gap in returns to schooling in Palestine." *Economics of Education Review*, *24*(6), 633-649.

Daoud, Y., and Shanti, R. 2016. "Private–public sector employment choice and wage differentials in Palestine: A gender perspective. In *Women, work and welfare in the Middle East and North Africa: The role of socio-demographics, entrepreneurship and public policies* (pp. 383-408).

Das, S., and Kotikula, A. 2019. "*Gender-based employment segregation: Understanding causes and policy interventions"*. World Bank.

Di Maio, M., and Sciabolazza, V. L. 2023. "Conflict exposure and labour market outcomes: Evidence from longitudinal data for the Gaza Strip". *Labour Economics*, *85*, 102439.

El-namrouty, K. 2012. "The impact of construction sector on Palestinian economy-Case Study:(Gaza Strip)". *American Academic & Scholarly Research Journal*, *4*(5).

Etkes, H., and Zimring, A. 2015. "When trade stops: Lessons from the Gaza blockade 2007–2010". *Journal of International Economics*, *95*(1), 16-27. https://doi.org/10.1016/j.jinteco.2014.10.005

Hallaq, S., and Daas, Y. 2024. "Exploring Factors and Disparities: Female Labor Force Participation in the Palestinian Regions: East Jerusalem, West Bank and Gaza Strip". In *Forum for Social Economics* (pp. 1-24). Routledge. https://doi.org/10.1080/07360932.2024.2360579

Hallaq, S., and Daas, Y. 2024b. "The impact of climate change on the Palestinian sectoral reallocation of labor". *International Review of Applied Economics*, 1-35. https://doi.org/10.1080/02692171.2024.2319784

Hanek, K. J., and Garcia, S. M. 2022. "Barriers for women in the workplace: A social psychological perspective". *Social and Personality Psychology Compass*, *16*(10), e12706. https://doi.org/10.1111/spc3.12706

Hook, J. L., Li, M., Paek, E., and Cotter, B. 2023. "National work–family policies and the occupational segregation of women and mothers in European countries, 1999–2016". *European Sociological Review*, *39*(2), 280-300.

Hout, M. 2012. "Social and economic returns to college education in the United States". *Annual review of sociology*, *38*(1), 379-400.

Hroub, K. 2013. "Hamas. In *Routledge Handbook on the Israeli-Palestinian Conflict."* (pp. 251-261). Routledge.

Justino, P. 2014. "Barriers to education in conflict-affected countries and policy opportunities". *Paper commissioned for fixing the broken promise of education for all: findings from the global initiative on out-of-school children (UIS/UNICEF, 2015). Montreal: UNESCO Institute for Statistics (UIS)*.

Justino, P. 2018. "Violent conflict and changes in gender economic roles". *The Oxford handbook of gender and conflict*, 75. https://doi.org/10.1093/oxfordhb/9780199300983.013.7

Justino, P., 2012. "War and poverty. In: Garfinkel, M., Skaperdas, S. (Eds.), Handbook of · the Economics of Peace and Conflict." Oxford University Press

Kingdon, G. G., and Unni, J. 2001. "Education and Women's Labour Market Outcomes in India". *Education Economics*, *9*(2), 173–195. https://doi.org/10.1080/09645290110056994

Lassassi, M., and Tansel, A. 2022. "Female labor force participation in Egypt and Palestine: An age–period–cohort analysis". *Review of Development Economics*, *26*(4), 1997-2020. https://doi.org/10.1111/rode.12908

Layard, R., and Psacharopoulos, G. 1974. "The screening hypothesis and the returns to education." *Journal of political economy*, *82*(5), 985-998.

Lorenzo Barrientos, M. D. P. D. 2022. "An analysis on the economy of the Gaza Strip under Hamas: 15 years under economic blockade". https://repositorio.comillas.edu/rest/bitstreams/468996/retrieve

Lundberg, S. 2020. "Educational gender gaps." *Southern economic journal*, *87*(2), 416-439. https://doi.org/10.1002/soej.12460

Maddox, B. 2010. "Marginal returns: re-thinking mobility and educational benefit in contexts of chronic poverty". *Compare: A Journal of Comparative and International Education*, *40*(2), 213–222. https://doi.org/10.1080/03057920903546070

Mercer, M. 2011. "Universal Access to Education in Gaza". *DFID Human Development Resource Center: Cambridge, MA, USA*.

Miaari, S. H. 2020. "An analysis of the public–private wage differential in the Palestinian labour market". *Defence and Peace Economics*, *31*(3), 289-314.

Migdalovitz, C. 2010. "*Israel's blockade of Gaza, the Mavi Marmara Incident, and its aftermath."* Washington, DC: Congressional Research Service.

Milton, S., Elkahlout, G., and Attallah, S. 2024. "Shrinking reconstruction space in the Gaza Strip: rebuilding after the 2021 and 2022 wars". *Conflict, Security & Development*, *24*(1), 49–78. https://doi.org/10.1080/14678802.2024.2314034

Milton, S., Elkahlout, G., and Barakat, S. 2021. "Protecting higher education from attack in the Gaza Strip". *Compare: A Journal of Comparative and International Education*, *53*(6), 1024–1042. https://doi.org/10.1080/03057925.2021.1987192

Mitra, A., and Bang, J. T. 2021. "Gender Disparities in Post-Conflict Societies: A Cross-National Analysis". *Feminist Economics*, *27*(3), 134–160. https://doi.org/10.1080/13545701.2021.1901128

OCHA. 2016. "THE GAZA STRIP: The Humanitarian Impact of the Blockade." https://unispal.un.org/pdfs/OCHAFACTSHEET_141116.pdf

Patrinos, H. 2008. "Returns to education: The gender perspective". *Girls' Education in the 21st Century: Gender Equality, Empowerment and Economic Growth. Washington, DC: The World Bank*, 53-661.

Patrinos, H. A., and Psacharopoulos, G. 2020. |Returns to education in developing countries. In *The economics of education."* Academic Press (pp. 53-64)..

PCBS. 2014. "Literacy Rate of Persons (15 Years and Over) in Palestine by Age Groups and Sex". Palestinian Central Bureau of Statistics. available at https://www.pcbs.gov.ps/Portals/_Rainbow/Documents/Education-1994-2013-12E.htm

Psacharopoulos, G. 1981. "Returns to education: An updated international comparison." *Comparative education*, *17*(3), 321-341.

Reynolds, A. N. 2021. "Women at work and war: integrating gender and conflict into impact assessment". *Impact Assessment and Project Appraisal*, *39*(3), 196–205. https://doi.org/10.1080/14615517.2021.1904375

Sayigh, Y. 2023. "Inducing a failed state in Palestine". In *Survival 49.3* (pp. 7-39). Routledge.

Tansel, A., and Daoud, Y. 2014. "Returns to education in Palestine and Turkey: A comparative analysis". *Perspectives on Global Development and Technology*, *13*(3), 347-378.

Weinthal, E., and Sowers, J. 2019. "Targeting infrastructure and livelihoods in the West Bank and Gaza". *International Affairs*, *95*(2), 319-340. https://doi.org/10.1093/ia/iiz015

World Economic Forum. 2023. "Global Gender Gap Report 2023". Available at https://www3.weforum.org/docs/WEF_GGGR_2023.pdf

Ziadni, M., Hammoudeh, W., Rmeileh, N. M., Hogan, D., Shannon, H., and Giacaman, R. 2011. "Sources of Human Insecurity in Post-War Situations: The Case of Gaza". *Journal of human security*, *7*(3), 10.3316/JHS0703023. https://doi.org/10.3316/JHS0703023

APPENDIX

Table T1. Average Daily Wage by Gender (New Israeli Shekels)

	Mean	Median	SD	Min	Max	Obs
Male	82.6	70.0	50.8	15.3	882.6	118908
Female	70.5	65.4	39.7	15.1	875.8	23333
Total	80.6	69.2	49.3	15.1	882.6	142241

Table T2. Wage by Education Level and by Gender

	Read/ Write	Elementary	Preparatory	Secondary	Associate Diploma	BA\BSc	Higher Diploma	MA	PhD	Total
Male										
Mean	72.6	77.1	76.7	76.8	83.7	97.2	106.3	137.7	212.6	82.6
Obs	7269	20585	36860	20638	10312	20034	340	2165	705	118908
Female										
Mean	48.6	44.8	44.5	50.5	72.1	79.9	101.0	126.2	169.6	70.5
Obs	849	1300	2492	1750	5816	10248	170	649	59	23333
Total										
Mean	70.1	75.2	74.6	74.8	79.5	91.3	104.5	135.0	209.3	80.6
Obs	8118	21885	39352	22388	16128	30282	510	2814	764	142241

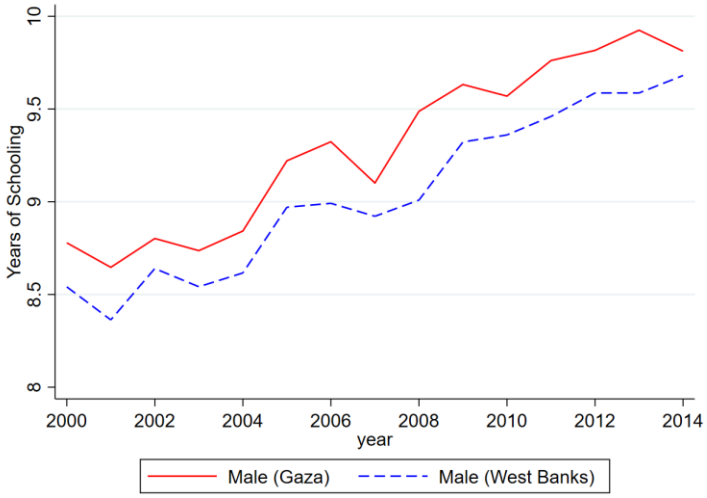
Table T3. Average Daily Wage by Marital Status (New Israeli Shekels)

	Mean	Median	SD	Min	Max	Obs
Not Married	63.5	57.7	38.1	15.1	875.8	41097
Married	87.6	76.9	51.6	15.2	882.6	101144
Total	80.6	69.2	49.3	15.1	882.6	142241

Figure A1. Females' Average Years of Schooling in Gaza and the West Bank

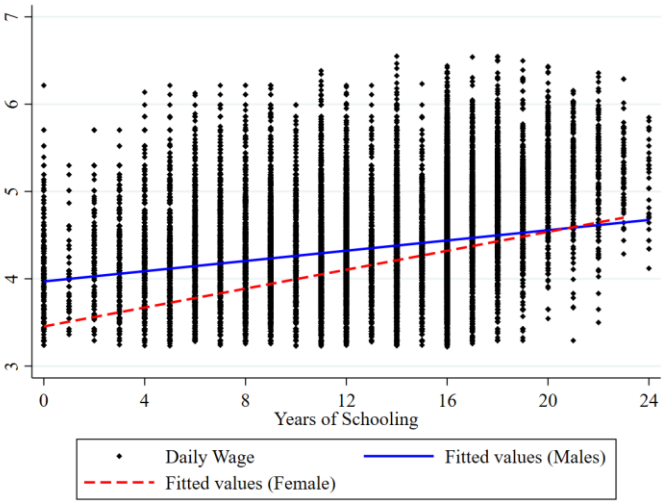
Source: Authors' own calculations based on PLFS 2000–2014

Figure A2. Males' Average Years of Schooling in Gaza and the West Bank



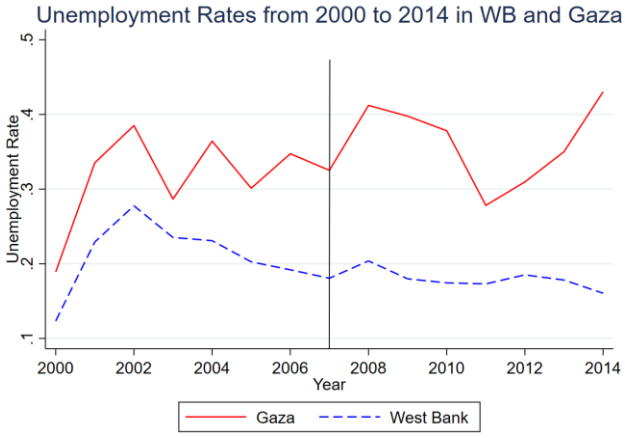
Source: Authors' own calculations based on PLFS 2000–2014

Figure A3. Daily Wages and Years of Schooling—Fitted Value Differences Between Males and Females



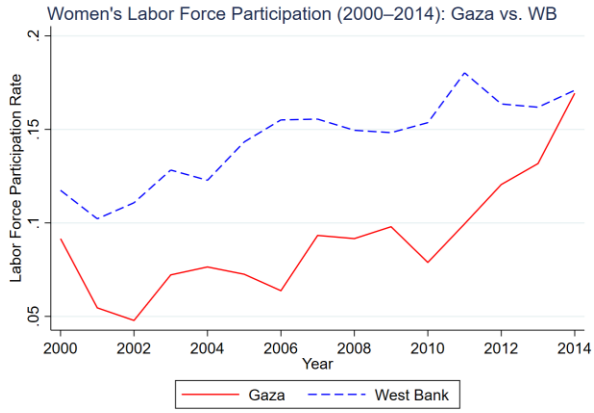
Source: Authors' own calculations based on PLFS 2000–2014

Figure A4. Unemployment Rates in Gaza and the West Bank



Source: Authors' own calculations based on PLFS 2000–2014

Figure A5. Female Labor Force Participation in Gaza and the West Bank.



Source: Authors' own calculations based on PLFS 2000–2014