The Effect of Family-Friendly Work Practices on Firm Productivity in Lebanon: Evidence from Parental Leave and Childcare Provision

Abstract

It is well documented that family-friendly work practices are essential labor policies that are introduced in firms to manage the implications of work-family conflict. This is of interest in developing economies where labor market conditions are usually poor and the gender-wage gap is big. In this context, this paper examines how the provision of such policies influences firm performance using the case of Lebanon. We focus on two practices: maternity leave and childcare. Using employer-employee data covering a sample of workers and firms operating in the private sector over the period 2011, the main findings show that both maternity leave and childcare enhance firm productivity; however, the results are statistically significant only in the case of maternity leave. These results encourage governments to help the private sector to increase the provision of these practices as the overall productivity of the economy would be affected. The paper offers a number of policy implications for the case of Lebanon that could be generalized to the region and aims to establish equal and friendly workplaces.[1]

Keywords: Family-friendly Work Practices, Firm Performance, Women Employment in Lebanon.

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1. Introduction

Scholars, business owners, and policymakers have long been interested in deciphering the determinants of firm productivity. This stems from its importance in creating jobs, reducing operating losses, and boosting the competitive capacity of firms in local and global markets. Among the most commonly examined variables to positively enhance firm performance are foreign ownership (e.g. Gomes and Ramaswamy, 1999; Moez et al., 2015), firm age and size (e.g. Evans, 1987; Yasuda, 2005), access to financing opportunities (e.g. Beck and Demirguc-Kunt, 2006; Brown et al., 2005), and engaging in exporting activities (e.g. Valdec and Zrnc, 2015; Altuntas et al., 2018).

More importantly, the effect of human capital plays a significant role in boosting firm productivity (Haltiwanger, 1999). One such determinant in this field is the application of work-life programs designed to help employees balance between their work duties and other personal activities. Duxbury and Higgins (2003) examine the various practices of work-life balance and their associated costs in the Canadian context. They argue that overworked individuals—due to the imbalance in work-life schedules—often consider quitting their jobs. Practices preventing this imbalance can help firms retain productive labor they have recruited and trained while reducing other unproductive behaviors such as absenteeism, reduced work effort, and lateness (Haltiwanger, 1999). This is a major concern for firms as the yearly cost of absenteeism in Canadian firms is 3 billion dollars (Duxbury and Higgins, 2003). As such, it is important to unpack the impact of work-life programs— synonymous in the literature to family-friendly work practices (FFWP)—on firm productivity.

Moving forward, the case for the implementation of FFWP—or lack thereof—varies between conceptual understanding and implementation between developed and developing countries, even among different cultures within the same country. Lewis et al. (2007) explain that in developed countries, workplace regulations and policies evolve with new social norms. With time, these countries progressively abandoned the notion of the ideal worker who prioritizes paid work above all else, realizing the dangers of gender inequality on a firm's productivity and competitive abilities (Lewis et al., 2007).

It is not that firms in developing countries have not made this realization yet, rather they struggle to implement work-life balance structures suitable for their cultures where women are usually

full-time homemakers (Henye, 2017) and to challenge the long-standing systems in both public and private sectors. Lewis et al. (2007) explain the conflicting interests that many developing economies face between retaining their cultural heritage and accepting new Western trends. This is often framed as an inherent struggle regarding whether to preserve the sense of belonging to the family or to set off in the path of economic development. Of course, some developing countries do not face this ideological conflict but still are unable or unwilling to make the right FFWP changes.

One compelling case we are interested in studying is that of Lebanon, where the real annual labor productivity growth is a worrying -6.6% (World Bank Enterprise Survey, 2019) and where 19,400 jobs were destroyed between 2017 and 2019 (Labour Force and Household Living Conditions Survey, 2019). Even more, women in the Lebanese labor market struggle to adapt to a working environment with no work-life balance policies enforced, reflected by the findings from the Labour Force and Household Living Conditions Survey (2019)showing that the women's labor force participation curve is below men's numbers at all age groups. Additionally, women's labor force participation peaks at around 25-29 years followed by a dramatic fall as they leave the labor market to handle family-related tasks compared to men who reach a peak at 35-39 years, but only sees a dramatic fall starting after 64, the official retirement age (Labour Force and Household Living Conditions Survey, 2019). Unsurprisingly, the female peak coincides with the average women's age of marriage and pregnancy. Evidence from a cross-sectional study comprising 802 Lebanese working mothers on maternity leave reveals that 72.8% of respondents believe that the breastfeeding period, which is directly related to the duration of the maternity leave, is not enough (Saadé et al., 2010). The feeling that their maternity leave is not long enough could trigger physical and psychological problems which in turn reduce productivity.

Hence, if properly implemented in Lebanon, FFWP may come first to the aid of working women—a growing proportion of the modern labor force—and second, to the aid of firm productivity. Furthermore, Bloom et al. (2011) highlight the positive effects of work-life practices on the overall productivity of manufacturing firms in the US, UK, France, and Germany and note that FFWP are more prevalent in firms with female managers, possibly stemming from the fact that women have a more realistic understanding of the struggles faced

by the female labor force. This said, the ultimate objective of our paper is to promote FFWP as a starting point towards greater gender equality and a more inclusive Lebanese labor market.

Existing evidence suggests that work-life policies that incentivize employees lead to better performance as depicted by higher productivity rates in Europe and the US (Bloom and Van Reenen, 2007). Based on this reasoning, we are interested in examining the effect of adequate FFWP policies on Lebanese firms' productivity. Specifically, we focus on the provision of two practices, which are maternity leave and childcare. We focus on these types of FFWP because they not only reflect positively on the working attitudes of both parents, but also substantially impact child well-being. Rossin (2011) argues that parental leave practices considerably reduce maternal stress, and lower risks of birth defects, breastfeeding disabilities, and infant mortality rates. Childcare services and maternal leave programs could help with both the economic needs of rearing a newborn and the ease of reintegration of the mother into the labor force. That is, these practices are beneficial simultaneously to both parents and children on emotional and economic levels.

To the best of our knowledge, there has not yet been an empirical study that uses comprehensive and nationally representative data on both employees and their employers operating in the private sector in Lebanon to examine the effect of FFWP on firm productivity in the country. Thus, our paper contributes to the literature by attempting to fill in this gap. We use the Lebanese Employee-Employer dataset (2011) provided by the World Bank. This survey provides detailed information on the socio-economic characteristics of employees as well as information on the structure of firms. The remainder of this paper is organized as follows. Section 2 gives an overview of women's economic participation in the Lebanese labor market. Section 3 presents the related literature on the provision of FFWP. Section 4 describes the data variables and introduces the research methodology, while section 5 analyses the empirical findings. Finally, section 6 provides policy implications and concluding remarks.

2. Overview on the women economic participation in the Lebanese labor market

The size of the crisis in Lebanon is enormous. The country was already facing an unparalleled economic crisis when the global COVID-19 epidemic began, and the situation further deteriorated with the Beirut Port Explosion on 4 August 2020, categorized as the strongest non-nuclear explosion ever. Women were already at a significant disadvantage before the economic

collapse, making them more exposed to the catastrophic impacts of the crisis. As a result, as the country's economic, financial, and budgetary crises worsen, Lebanon is anticipated to suffer significant losses that will impact women directly.[2] The COVID-19 epidemic thus constitutes a crisis inside a crisis. It is happening during a serious socioeconomic breakdown that has shaken the country and severely harmed women's economic participation.[3]

It is important to break down how the COVID-19 crisis is affecting women's economic participation. A recent survey of a sample of almost 1,987 respondents (Lebanese and Syrians) suggests that 48% of women, contrasted to 40% of men, reported that they have been laid off.[4] Moreover, 7% of female respondents experienced wage reduction compared to only 3% of male respondents. Thus, given the existing large disparities in labor market participation rates between men and women, the fact that women are reporting layoffs and income and salary decreases in greater numbers is of major concern and might result in a protracted drop in women's participation in the economy. Nonetheless, women undertake much more domestic and care labor than men, with under half of surveyed men saying they had ever done domestic work compared to nearly all of the women.[5] Women are in the vanguard of home schooling, caring for the ill and disabled, and cleaning as a result of COVID-19's lockdown measures and school closures.[6] Thus, they struggle in balancing their work duties and their home and family responsibilities. This is leading both to a higher rate of unemployment among women in Lebanon while women who remain employed may be less productive in their jobs due to being overwhelmed with responsibilities at home.

With an estimated loss of $3.5 billion, the port explosion significantly worsened the Lebanese economy and shut down the main channel of economic activity.[7] While the economic impact of the explosion is widely discussed, the effect of the blast on gender inequality in Lebanon remains on the sidelines. Evidence from a recent report confirms that the gender gap widened

[2] World Bank, 2020, Lebanon's economic report—updated October 2020.
[3] CARE, 2020, Rapid Gender Analysis—COVID-19 and Beyond.
[4] UNFPA, 2020, GENDER ALERT ON COVID-19 LEBANON, https://lebanon.unfpa.org/sites/default/files/pub-pdf/gender%20alert%20on%20covidlebanon%20issue%202%20english.pdf
[5] UN Women and Promundo, "Understanding Masculinities: Results from the International Men and Gender Equality Survey (IMA GES) Lebanon," 2017, https://imagesmena.org/wp-content/uploads/sites/5/2017/12/IMAGES_Leb_Report_Final_Web_Dec13.pdf.
[6] NCLW, UN Women, UNFPA, WHO, "Gender alert on Covid-19 in Lebanon. Women, Gender and the Economy", Issue No. 2, May 15, 2020.
[7] World Bank with the European Union and the United Nations, "Beirut Rapid Damage and Needs Assessment", August 31, 2020

following the explosion.[8] The report argues that women have lower rates of job retention, less access to paid work, and receive lower wages than men because work opportunities after the blast were concentrated in male-dominated sectors (e.g., fixing windows, doors, walls, reconstruction…). The rate of women's participation in these sectors is extremely low, and they will likely miss these job opportunities.

Moreover, data suggest that there were a high number of women-led businesses in the explosion radius. According to a report by Mercy Corps, one-fifth of the 1,164 businesses across 24 neighborhoods in Beirut most affected by the explosion were owned by women. Additionally, women-led businesses are more likely to employ women. As stated in the same report, women constitute 70% of the staff when the employer is a woman.[9] This is why the closure of these businesses will lead to a significant drop in women's participation in the Lebanese labor market. The impact of the COVID-19 pandemic compounded with the port explosion is likely to substantially push back what gains have been made on gender equality in the country.

3. Family-Friendly Practices and Firm Performance: Survey of literature

In this section, we explore several studies that examine the effect of FFWP on firm productivity. Given the diverse nature of the literature, we focus on two sub-topics; the first one provides related literature on developed countries while the second offers an overview of developing ones. The purpose behind this division is to compare how FFWP are implemented differently between the two sets of countries.

3.1. Family-friendly work practices and productivity in developed countries

Several studies have examined the effect of FFWP on firm productivity. Bassanini and Venn (2008) analyze the effect of several employment policies on the productivity of firms located in a number of the Organization for Economic Co-operation and Development (OECD) countries. The authors show that family-friendly policies that aim at promoting a balance between work and family, such as parental leave, are positively correlated with firm productivity. Adema et al. (2015) add that employers, in some of the OECD countries, report positive outcomes of family leave laws. They stress the fact that firms benefit from employee retention and an

[8] NCLW et al, "Gender alert on Covid-19 in Lebanon".
[9] Mercy Corps, 2020, "Beirut micro, small, medium enterprise (MSME) Joint Rapid Needs Assessment", September.

increase in their productivity and loyalty. Nevertheless, Bassanini and Venn (2008) present the second point of view that states that FFWP and more specifically, parental leave, decreases parents' access to training which in turn leads to lowered productivity. Also, hiring new workers to replace workers on parental leave decreases productivity since these new workers may lack needed skills (Bassanini and Venn, 2008). They conclude that long leaves might lead to depreciation of human capital which ultimately results in lowering productivity.

Overall, the literature is rich in evidence covering the US and can be described as optimistic when studying the impact of FFWP on the productivity of firms as well as the employee outcomes. For example, Delaney and Huselid (1996) find that human resource management practices, like training, can positively affect firm performance and this effect is analogous in both for-profit and non-profit organizations. By the same token, Arthur (2003) suggests that there exists a positive relationship between work-family balance practices and shareholder returns. However, he stresses the fact that this relationship might be stronger in high-tech industries and firms with a high percentage of female workers. This finding is confirmed also by Konrad and Mangel (2000) and Perry-Smith and Blum (2000).

Additionally, in the US, Batt (2002) studies the relationship between human resource practices, quit rates of employees, and the private sector's performance. He found a positive relationship between sales growth and launching family-friendly and high-involvement work practices. However, a negative association was found between quit rates and the provision of such practices. These findings highlight the importance of FFWP in improving firm performance and ensuring business continuity. Besides, Black and Lynch (2001) find that it is how work and human resources practices are executed inside the firm that is related to higher efficiency and productivity. Thus, organizing meetings during working hours among the employees and their managers to discuss their working environment concerns has a critical and positive effect on productivity. They additionally find that unionized businesses that embrace new supportive working environment practices have significantly higher productivity than comparative non-unionized firms (Black and Lynch, 2001). Nonetheless, while Ichniowski et al. (1995) confirm the positive association between implementing family-friendly employment practices and firm productivity, they stress the importance of not implementing these practices in isolation. Baughman et al. (2003) examine the cost of providing employment benefits and FFWP. They suggest that firms providing parental leave and childcare encounter quantifiable decreases in

employee turnover and entry-level wages. This counterbalances part of the expense of these advantages and benefits and minimizes their costs.

Bardoel et al. (1999) examine the Australian case and find that employers might want to study the demographics of their employees to design human resource approaches and policies that will most efficiently result in better productivity results. Organizations with demographic factors that include high numbers of female employees, union members, and long-serving employees are more likely to consider adopting family-friendly work practices. Besides, De Cieri et al. (2005) emphasize that in Australia, implementing work-family balance policies makes the organization a place that attracts high skilled employees, leading to better performance and higher productivity. Skinner and Chapman (2013) further suggest that Australian firms face positive outcomes in productivity when implementing policies to reduce work-family conflicts since employees respond to these policies with some kind of loyalty, effort, and productivity.

Moving to the UK case, Budd and Mumford (2004) find that unions are positively correlated with the availability of parental and special paid leaves. Then, in their later work, they note that it is the accessibility of family-friendly work policies that lead to better performance, not just their availability (Budd and Mumford, 2006). As cited in Dex et al. (2001), firms that offer practices such as benefits, training, and parental leave perform better than firms that do not implement these policies. They emphasize that employers find positive impacts of FFWP on employees' relationships, turnover, satisfaction, productivity, and retention. Gray (2002) compares the performance of firms adopting family-friendly work practices to firms that do not. She concludes that adopting FFWP and especially practices that allow employees to maintain their full-time presence such as childcare assistance yields better performance than adopting part-time work, work from home, or not adopting such practices at all.

In a more recent study, Tsou and Yang (2019) examine the effect of gender structure on firm productivity in China and conclude that firm productivity improves with the inclusion of more educated female workers irrespective of other performance determinants such as trading and having foreign ownership. They also argue that this effect is present more in small-sized firms as compared to big ones, and more in private firms than in public ones.

Decreasing operating costs, enhancing productivity levels within the firm, and increasing sales are some of a firm's payoffs when implementing FFWP policies in developed countries. In these countries, FFWPs were characterized by positive human management strategies that create a friendly atmosphere between employees and employers and enhanced human capital.

3.2. Family-friendly work practices and productivity in developing countries

While the study of FFWP is common in western literature, far less attention has been given to studying FFWP in developing economies, partially due to the need for substantial adaptation in these countries given institutional and cultural differences (Ojo et al., 2014). Studies about developing countries focus on the role of FFWP in enhancing firm productivity levels and how these policies are beneficial for both firms and workers. A study concerning commercial banks in Lagos State, Nigeria shows that the existence of parental leave policies increased employee motivation and commitment to work efficiently (Obiageli et al., 2015). Another similar study in Kenya found that it is crucial to include work practices that ensure a balance between work duties and family responsibilities since they boosted employee performance (Muli, 2014). Likewise, Idrovo and Bosch (2019) find that there exists a positive correlation between family-supportive behaviors and level of satisfaction and employee motivation in firms in the private sector in Colombia and Chile.

In Nigeria, Ojo et al. (2014) take a different approach by comparing work-life practices across the educational, banking, and power sectors. While maternity leave was available across all three sectors, paternity leave was only available in the banking sector. Conversely, full-time contracts were available in all sectors whereas part-time contracts were unavailable in the banking sector. More importantly, they find that the usage of these policies has less to do with their availability and more to do with the organizational culture in the country. Despite the prevalence of paternal leave in the banking sector, the unavailability of part-time jobs in that sector delivers a louder message: an organizational culture that disapproves of FFWP. Such organizational culture obstacles may lead to the labor force's disinclination to benefit from FFWP (Ojo et al., 2014). Moreover, Baral and Bhargava (2011) study the importance of FFWP on the productivity of workers in the Indian context, by implementing initiatives such as flexible working hours and alternative work arrangements. Their findings indicate that family-friendliness in the workplace does not only affect the employee to better manage their work but

also influences employee attitudes and behavior. On another level, a study conducted in Turkey suggests a spillover effect between family and work conflicts; a conflict in one usually triggers a conflict in the other (Atay et al., 2020). The authors go even further to say that employees who encounter a work-life problem are simultaneously more likely to experience work-related problems and to not open up about any of these problems. That is why it is essential to balance between work and family, two vital elements of a person's life (Atay et al., 2020).

Evidence from the Middle East and North Africa (MENA) region is not abundant. Abdo (2019) states that although the International Monetary Fund (IMF) calls for an expansion in female workforce investment in Egypt and Tunisia, it did not promote policies to address the absence of decent work conditions such as childcare systems and a safe and flexible work environment. A study conducted in Egypt shows workers can stimulate business performance when provided with a friendly and engaging environment (Gamal El-Din Mohamed Radi, 2018). The author notes that the Procter and Gamble Company in Egypt is considered one of the most admired companies given its reputation for providing FFWP and a supportive work environment.

Lekchiri and Eversole (2020) examine the case of working Moroccan women and how they balance between their work and their families. The authors find that the excessive family obligations of women and the expectations of their professional duties contribute to an undue burden on them, resulting in difficulty performing both tasks effectively, and having an unbalanced work-life. Thus, they claim that employers must implement FFWP to ensure an increase in women's productivity. Additionally, Semlali and Hassi (2016), studying the case of Moroccan women working in the Information Technology (IT) sector, highlight the importance of the accessibility of FFWP such as maternity leave, childcare help, and telework in improving women's wellbeing, increasing their productivity, and in promoting gender equality.

In Lebanon, it is well known that the workforce witnesses low job satisfaction and poor retention (El-Jardali et al., 2009). Thus, it is important to examine the impact of different work-life balance practices on worker performance and productivity. However, little has been done regarding this matter. Massoud et al. (2020) finds, after surveying 120 staff at Al Jinan University in Lebanon, that work-life balance policies lead to decreased stress and increased levels of concentration among employees. Adding to the institutional factors hindering FFWP introduction, it is important to acknowledge the presence of disruptive informality in the

Lebanese labor market. Informality is commonly defined by small-sized firms that do not provide social security services to their employees. It is agreed upon in the literature that countries in the MENA region exhibit the most informal economies in the world (Alloush et al., 2013). In large informal sectors, the provision of social security, training opportunities, and fringe benefits are not the norm. This said, the work environment overall does not encourage working parents to benefit from the FFWP that exist, let alone working mothers in patriarchal systems. Furthermore, the literature suggests that—on top of the lack of decent work conditions, low wages, and absence of employment benefits—women are usually subject to discrimination in the informal market in terms of hiring and wages (Elbadawi and Loayza, 2008; Alloush et al., 2013). This makes our discussion about FFWP in Lebanon much more interesting and dynamic: a more family-friendly work environment solution could require better policies on both levels within the firm and within the informal economy. Interestingly, El Helou (2020) in her policy paper regarding parental leave in Lebanon, suggests that adopting FFWP such as parental leave has an impact on closing the gap between men and women's economic participation. Thus, more women will participate in the labor force, leading to improved labor productivity and citizen welfare. This in turn will enhance the economic performance of the country.

Overall, results of FFWP in developing countries are relatively similar to what was found previously in developed ones: pro-FFWP outcomes are positively correlated with firm and employee status. However, further studies need to tackle the situation in developing countries, especially in the MENA region, to get a clearer image of FFWP outcomes in multiple sectors and areas.

4. Research Methodology

4.1. Data and Survey

In this paper, we use the Lebanese Employee-Employer Survey, a comprehensive dataset conducted by the World Bank in 2011. This survey is especially relevant to our work as it covers a sample of workers and firms operating in the private sector in Lebanon. The questionnaire was carried out among a random selection of 764 different firms and 1,841 individuals. The variables include diverse employee and company characteristics from both the employee and employer questionnaires. Moreover, the dataset is rich in variables that include the

demographic, socio-economic, and job features of workers. The latter variables are provided across different provinces (*mohafazas*) and allow us to observe key variables on parental leave and childcare provision from the employer questionnaire. Specifically, we examine the effects of parental leave and childcare practices on firm productivity.

4.2. Variables

The dependent variable under study in this paper is defined as the natural log of a firm's total sales. This variable has been commonly used as an indicator of firm performance (Bloom et al. 2009; Bloom et al., 2011; Abdo Ahmad and Fakih, 2021). The independent variables include a set of characteristics that represents i) the availability of family-friendly work practices, ii) socio-economic variables, and iii) firm and workplace-related characteristics. To start, the key independent variables include the provision of maternity leave and childcare. The maternity leave variable is defined as a binary variable that takes the value of one if maternity leave is available at the workplace and zero otherwise. Childcare is defined as a binary variable that takes the value of one if childcare policy exists and zero otherwise.

The socio-economic characteristics include a gender variable that takes the value of one if the respondent is male and zero otherwise. The age variable is measured in years, and the number of education years is also incorporated into the analysis. Three dummies are included for education: high school education that takes the value of one if the respondent's education years are between 13 and 15 years and zero otherwise; college education that takes the value of one if the respondent's education years are 16 years and zero otherwise; and more than college education that takes the value of one if the respondent's education years are greater than 16 years and zero otherwise. Additionally, we use a variable *Lebanese* defined as a binary variable that takes the value of one if the respondent's nationality is Lebanese and zero otherwise. Having children is also a binary variable that takes the value one if the respondent has children and zero otherwise.

Moving onto the third set of variables, which includes firm characteristics, we use the natural log of the current salary of the respondent, the natural log of the hours worked, the number of skilled workers, and the number of female workers. It also includes the National Social Security Fund (NSSF) variable which is a binary variable that takes the value of one if the respondent is registered in the National Social Security Fund and zero otherwise, and a pension variable that

takes the value of one if the respondent has a private pension scheme and zero otherwise. It also covers a binary variable *change the job* if the respondent wants to quit their job and zero otherwise. Additionally, a full-time binary variable is included that takes the value of one if the respondent works on a full-time basis and zero otherwise. Also, two binary variables are included for the firm size: a medium-firm variable which takes the value of one if the firm has between 20 and 99 workers and zero otherwise; and a large firm variable that takes the value of one if the firm has more than 100 workers and zero otherwise.

Additionally, regional characteristics are also included in our analysis in the form of six[10] binary variables for the mouhafazas of Beirut, Mount Lebanon, the North, Bekaa, the South, and Nabatieh. The latter variables take the value one if the respondent is from the particular mouhafaza and zero otherwise.

4.3. Sample Statistics

Table 1 represents the descriptive statistics of the variables used in our analysis. The independent variables show that 58.7% and 3.58% have access to maternity leave and childcare services, respectively. While both figures seem alarmingly low, having almost all of the surveyed individuals with no childcare services seems critical, as this has been proven in the literature to hinder women from accessing the job market, contributing to lower female labor force participation.

Moving to socio-economic characteristics, we find that 65.1% of the respondents are male, while 37.8% of the sample has children. The descriptive statistics also show that the average age of the sample is approximately 34 years old and that the respondents have an average of 13 years of education. We also find that 95% of the surveyed people are Lebanese. The statistics of the workplace-related variables indicate that 57.9% are benefiting from the NSSF, while only 7.5% of the respondents have a pension.

Table 2 reports the correlation matrix of some variables used in our analysis. While we cannot determine the association between the variables just by looking at the correlations, we can determine the direction of the relationship between the variables if the numbers are statistically

[10] This survey covers only six mouhafazas because data were collected in 2011, before the new division of administrative regions into the current eight mouhafazas.

significant. We observe that maternity leave and firm performance are positively correlated. Moreover, having NSSF is positively correlated with firm performance. We also find a positive correlation between working in a medium or large enterprise and having maternity leave. However, working hours is negatively correlated with having maternity leave.

Finally, Table 3 presents the Variance Inflation Factor (VIF), which is usually used to examine the level of multi-collinearity between the independent variables. Thus, whenever the VIF value is less than 10, a multicollinearity problem between the explanatory variables does not exist. The results of this test show that all the VIF scores are less than 10 with a mean of 2.1, suggesting an absence of a collinearity problem between the variables. Thus the variables are safe to be used in the statistical analysis.

5. Empirical Model and Results

The statistical model used in this paper is the Tobit model since the dependent variable, log of sales, is truncated at zero. The data has left censoring data in the dependent variable. The regression results are presented in tables 4 and 5. In each table, we run three regressions. Column 1 controls for the key variables, i.e., maternity leave, and the basic socioeconomic variables. In column 2, we add workplace and firm-related variables, while in column 3, we add the regions to account for regional differences. It is worth mentioning that socio-economic and firm variables are defined as control variables.

5.1 Impact of maternity leave on firm performance

In our first set of models, we focus on maternity leave and its effects on firm productivity. Table 4 presents the results and the goodness of fit indicators. We notice primarily that maternity leave demonstrates a strong and positive marginal effect across all columns, implying that the presence of maternity leave policies in private firms in Lebanon boosts productivity. This is in line with the literature presented previously (Semlali and Hassi, 2016), suggesting the presence of a positive correlation between the provision of FFWP and firm performance.

Moving on to socio-economic variables, we find that the addition of more variables strengthened the significance of age and having children. That is, our results in columns 2 and 3 now suggest that older workers strongly and negatively impact overall firm productivity, and having more children is found to strongly boost workers' productivity. Furthermore, as

expected, the higher the education level of a worker, the stronger the positive effect this has on firm productivity. This is seen in our results whereby a high school education is not statistically significant across all three columns. However, workers spending one year at college exhibit a positive significance throughout Table 4. Even more so, workers who spend more than one year at college reveal a positive and even stronger marginal effect.

Concerning workplace and firm variables, we notice that the number of working hours exhibits strongly significant and positive marginal effects in columns 2 and 3. This implies that the more working hours employees register, the higher the probability that the firm experiences higher sales, which is reasonable. Furthermore, we find that employees who quit their jobs weigh negatively on the likelihood of high productivity of the firm in both columns 2 and 3 with negative 46.9% and 65.2% respectively, with this significance getting stronger in column 3. This may reveal a lot about the work environment in these firms and pushes even further for implementing FFWP in Lebanese firms. Similarly, employees who get their pension also have a positive effect in column 2. In the last column, the positive relationship remains and the significance rises, delivering a message about positive reinforcements and their impact on firm performance. On another note, the skill level of employees is strongly and positively significant in column 2, implying that higher-skilled workers add to the firm's sales. Skilled workers in a company improve the firm's likelihood of witnessing better productivity levels by 6.9%. This boosts employer willingness to encourage and motivate good employees to intensify the positive implications of this result.

When controlling for regional variables, skill level loses its statistical significance level but retains its positive marginal effect. Moreover, our results show a strong and consistent positive correlation between the number of female workers and firm productivity. This is an expected result that goes in line with the findings of Tsou and Yang (2019) and comes to support our argument about improving gender equality in the Lebanese labor market. Seeing the positive returns that female workers bring to the private sector, it would be an economic waste to not utilize this potential in economic activities in the country and particularly in the private sector. Finally, when assessing the impact of firm size on productivity, we find that medium-sized companies experience a positive and significant relationship with firm productivity in columns 2 and 3. We reason that this relates to the financing and growth opportunities available to such

firms discussed in our paper, allowing them to experience high sales levels (Beck and Demirguc-Kunt, 2006).

Our Model in column 1 reports a pseudo-R-squared value of 12.1%. The highest adjusted pseudo-R-squared values signify a good-fitting model. As predicted, adding more controls in a model could improve the pseudo-R-squared value. It increased to 49.2% in Model 2 and 55% in Model 3, indicating that the model estimated in column 3 has the best explanatory power.

5.2 Impact of childcare on firm performance

Table 5 displays the results of our second set of models, presenting the effects of childcare provision on firm performance in addition to the goodness of fit indicators. We add our variables by categories in the same way we did in Table 4. To begin, the case for the creation of childcare policies is quite interesting. The marginal effects are positive, hinting that the presence of childcare policies increases the probability of a firm experiencing higher productivity by 21.3, 8.6, and 7.3% respectively; however, the results are not statistically significant across all three models. This hints at the relative importance of childcare as only one aspect of FFWP and the need to reinforce multiple FFWP to reap their renowned benefits. This is strongly in line with the literature on this policy type (Baughman et al., 2003; Semlali and Hassi, 2016).

Moving onto socio-economic variables, it is important to highlight that the age of workers is still overall negative and significant. In addition, similar to our results from the first set of regressions, an increased number of children has a positive and important effect on the firm's performance across all three columns. Here, we highlight a relevant finding by Waldfogel (1997) about the negative effect of childbearing on female wages and relate it to the possibility that this pushes parents to remain in their jobs and make up for this loss in income at the expense of time spent with their children. Again, we notice that as individuals spend more years in college, they increase the likelihood of bearing more positive returns for their firms, depicted by consistently positive and significant marginal effects. We might infer here that this would be the case across most labor research.

When analyzing workplace and firm variables, our results reflect the significant positive effects of higher wages on firm productivity, soaring to 65.8% and 75.9% respectively in columns 2 and 3. It is safe to abide by the commonly acknowledged view that higher wages instigate

workers to avoid wrong-doing to avoid being laid off from high-paying jobs—a direct translation into higher productivity. We also find a favorable but insignificant relationship between pension and firm productivity in both columns 2 and 3. In addition, we recognize that quitting a job is negatively associated with firm productivity across all models. The negative relationships gain significance in column 3 which is consistent with Table 4 results, recalling the positive link between positive reinforcement, labor turnover, and firm productivity established in the results of Table 4. Interestingly, we find that full-time employees are extremely beneficial to the level of sales in a company across all models in Table 5. This is highly in line with Gray's (2002) work stressing the importance of FFWP—especially childcare assistance—in improving permanent full-time performance within the firm rather than only covering superficial aspects and offering part-time or work from home contracts. Finally, the presence of female workers yields strong and significant marginal effects in columns 2 and 3, boosting firm productivity by 1.8% and 1.4% respectively. Medium-sized companies witness the same results as in Table 4. Compared to small enterprises, medium-sized companies witness stronger and positive returns to productivity, highlighting the importance of firm size and financing strategies on firm productivity (Evans, 1987; Yasuda, 2005; Brown et al., 2005).

The pseudo-R-squared value also increases when adding more control variables, improving from 9.8% in column 1 to 45.1% in column 2, to reach 52.3% in column 3. While adding variable may increase the R-squared, as is the case with this model, it is not assured that this will happen. Thus, this seems to be the best model among those studied here.

6. Conclusion and Policy Implications

Using a comprehensive cross-sectional survey for raw data, this paper examines how maternity leave and childcare policies affect the productivity of Lebanese firms in the private sector as depicted by firm performance. This contributes to the debate about the importance of having universal parental leave and adopting inclusive childcare policies as the first step toward greater gender equality in Lebanon.

Our results highlight the significant and positive returns that women bring to the labor market as well as the advantages of maternity leave and childcare on firm productivity. However, our

study suggests that only maternity leave is statistically significant in impacting firm performance, making it a more attractive practice than childcare benefits provision. Reflecting on the costs that private firms incur as a result of providing maternity leave and childcare support and understanding the burden that this imposes on them, we advocate that government aid can go a long way in achieving the goal of a more inclusive labor market. When 24.5% of the Lebanese labor market is composed of women (ILO, 2020), not accounting for them is a labor policy mistake that brings more harm than good. This is especially important in light of existing evidence by Siregar et al. (2019) suggesting that the actual incurred costs of implementing maternity leave policies are much lower than the opportunity cost of not implementing them as they contribute to several measures such as decreased child mortality and morbidity rates, improved maternal health, lower maternal cancer rates, and overall higher pregnancy trends in the coming 20-30 years.

Seeing that most of our sample is comprised of formal firms offering social security benefits to their employees and acknowledging that informal firms do not usually offer social security or many employment benefits to their workers, our results can only be generalized to formal firms in the private sector without giving many insights on the reality of informal practices in Lebanon. This is an important gap as informal employment is estimated to comprise 57% of the Lebanese economy according to the most recent figures from the Labour Force and Household Living Conditions Survey (2019). In other words, the effects of the absence of family-friendly work practices could be in large part related to the informal economy which requires an entire assessment and study on its own. Mitigating the effects of an unequal and flawed workplace hence requires more attention to compel firms to offer adequate NSSF and FFWP. A possible means for strengthening supervision and regulation could be through establishing unions that would mandate gender-equal workplace policies.

Given the importance of the subject matter, it is advised that data be collected and provided to a public audience for further research especially given the dearth of available data on Lebanon. Moreover, the findings of this paper may be used to produce policy papers to be submitted to policymakers, such as the Lebanese parliament, and to encourage them to draft laws advocating for changes to Lebanon's parental leave policies. Overall, our work can help with the accumulation of scholarly knowledge on the subject of FFWP in the MENA region where research on this topic in the region is still in the infancy phases.

In conclusion, the availability of data on this topic remains limited. This said, as panel data gradually become more available, researchers can better uncover the trends and impacts that maternity leave, childcare support, and FFWP in general, have on a company's performance across time. In the long run, an important labor policy might be the need to implement national policies aiming to enhance women's economic participation. This is especially relevant to Lebanon, a country that ranks consistently low on gender indices. This has been even more damaged over the last two years following the COVID-19 pandemic and the Beirut blast of August 4, 2020. Taken together, women have witnessed an unprecedented increase in home tasks and care work.

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Tables

Table 1: Descriptive statistics of variables used in the analysis

	Mean	Standard Deviation
Dependent variable		
Log sales	4.590	1.639
Independent variables		
FFWP variables		
Maternity leave	0.587	0.493
Childcare	0.035	0.498
Socioeconomic variables		
Male	0.651	0.477
Age	34.363	11.408
Children	0.378	0.485
Education in years	13.228	4.206
High school	0.183	0.387
College 1 year	0.112	0.316
College 2+ years	0.259	0.438
Lebanese	0.950	0.219
Workplace and firm variables		
Log wage	6.792	0.528
Log working hours	2.215	1.285
NSSF	0.579	0.494
Pension	0.075	0.264
Change job	0.301	0.459
Full time	0.064	0.244
Skilled workers	7.244	16.061
Female workers	15.095	37.512
Medium	0.268	0.444
Large	0.226	0.419
Region		
Beirut	0.255	0.437
Mount Lebanon	0.444	0.497
North Lebanon	0.102	0.303
Bekaa	0.086	0.281
South Lebanon	0.083	0.275
Nabatieh	0.029	0.169
Number of Observations	509	

Table 2: Correlation matrix of variables

Variables	Firm performance	Maternity leave	Childcare	Log wage	Log working hours	NSSF	Pension	Change job	Full time	Skilled workers	Female workers	Medium	Large
Firm performance	1.000												
Maternity leave	0.283*	1.000											
Childcare	0.139	0.472*	1.000										
Log wage	0.573*	0.277*	0.113*	1.000									
Log working hours	0.013	-0.075*	-0.079*	0.054	1.000								
NSSF	0.312*	0.460*	0.213*	0.474*	-0.051	1.000							
Pension	0.236*	0.076*	0.098*	0.272*	-0.040	0.140*	1.000						
Change job	-0.165	-0.159*	-0.086*	-0.263*	-0.051	-0.284*	-0.060	1.000					
Full time	-0.049	-0.006	0.015	-0.107*	-0.105*	-0.146*	0.045	0.070	1.000				
Skilled workers	0.528*	0.279*	0.173*	0.178*	-0.019	0.185*	0.069	-0.018	0.003	1.000			
Female workers	0.562*	0.154*	0.147*	0.131	-0.003	0.131*	0.083	-0.039	-0.015	0.688*	1.000		
Medium	0.604*	0.190*	0.088*	0.184*	-0.035	0.251*	0.091*	-0.113*	0.003	0.042	0.140*	1.000	
Large	0.236	0.266*	0.121*	0.159	0.006	0.217	0.038	0.048	0.010	0.577*	0.407*	-	1.000

*	*	*	0.327*

Note: Correlation coefficients with Bonferroni-adjusted significance levels. *=10%; **=5%; ***=1%.

Table 3: Collinearity diagnostics among the explanatory variables

Variable	VIF	SQRT-VIF	Tolerance	R-Squared
Maternity leave	2.22	1.49	0.4498	0.5502
Childcare	1.49	1.22	0.6725	0.3275
Male	1.62	1.27	0.6183	0.3817
Age	1.81	1.35	0.5528	0.4472
Children	2.03	1.42	0.4937	0.5063
Education years	4.50	2.12	0.2222	0.7778
High School	2.38	1.54	0.4199	0.5801
College 1 year	2.00	1.42	0.4990	0.5010
College 2+ years	3.74	1.93	0.2676	0.7324
Lebanese	1.26	1.12	0.7943	0.2057
Log wage	2.09	1.45	0.4780	0.5220
Log hours	1.86	1.36	0.5369	0.4631
NSSF	1.92	1.38	0.5221	0.4779
Pension	1.21	1.10	0.8289	0.1711
Change job	1.47	1.21	0.6805	0.3195
Full time	1.48	1.22	0.6744	0.3256
Skilled workers	3.33	1.82	0.3006	0.6994
Female workers	2.53	1.59	0.3946	0.6054
Medium	1.36	1.17	0.7333	0.2667
Large	1.78	1.34	0.5606	0.4394
Mean VIF	2.1			

Table 4: Maternity leave and firm performance (Tobit model)

	(1)	(2)	(3)
FFWP variables			
Maternity leave	1.147**	0.894**	0.667*
	(0.523)	(0.342)	(0.322)
Socio-Economic variables			
Male	0.425	0.345	0.120
	(0.453)	(0.297)	(0.295)
Age	-0.020	-0.038**	-0.060***
	(0.020)	(0.014)	(0.015)
Children	1.033*	0.971**	1.059***
	(0.528)	(0.359)	(0.333)
Education years	-0.122	-0.128**	-0.131**
	(0.087)	(0.053)	(0.049)
High school	0.749	0.536	0.350
	(0.662)	(0.393)	(0.380)
College 1 year	1.714*	1.473*	1.497**
	(0.927)	(0.766)	(0.691)
College 2+ year	4.460***	2.903**	2.577**
	(1.550)	(1.049)	(0.962)
Lebanese	-1.124	0.283	-0.441
	(0.709)	(0.540)	(0.596)
Workplace and firm variables			
Log wage		0.392	0.546
		(0.360)	(0.345)
Log hours		1.858**	1.539*
		(0.814)	(0.758)
NSSF		-0.066	0.321
		(0.359)	(0.386)
Pension		0.875	1.926*
		(1.152)	(1.104)
Change job		-0.469	-0.652*
		(0.351)	(0.339)
Full time		1.170*	1.355**
		(0.583)	(0.604)
Skilled workers		0.069**	0.045
		(0.030)	(0.028)
Female workers		0.015***	0.013***
		(0.005)	(0.004)
Medium		1.085***	1.152***
		(0.366)	(0.334)
Large		0.000	0.000
		(0.000)	(0.000)
Region variables			
Beirut			0.000
			(0.000)
Mount Lebanon			0.386
			(0.494)
North Lebanon			0.459

			(0.576)
Bekaa			0.243
			(0.614)
South Lebanon			-0.488
			(0.545)
Nabatieh			-0.954
			(0.726)
Number of Observations	509	509	509
Pseudo R2	0.121	0.492	0.550
Log-pseudolikelihood	-81.833	-38.186	-33.850

Notes: Robust standard errors in parentheses, with *=10%; **=5%; ***=1%.

Table 5: Childcare and firm performance (Tobit model)

	(1)	(2)	(3)
FFWP variables			
Childcare	0.213	0.086	0.073
	(0.456)	(0.295)	(0.264)
Socioeconomic variables			
Male	0.089	0.011	-0.172
	(0.449)	(0.290)	(0.273)
Age	-0.018	-0.032**	-0.059***
	(0.021)	(0.015)	(0.016)
Children	1.154**	0.741*	0.906**
	(0.552)	(0.379)	(0.346)
Education years	-0.067	-0.101*	-0.115**
	(0.088)	(0.056)	(0.050)
High school	0.526	0.338	0.206
	(0.694)	(0.428)	(0.400)
College 1 year	2.002**	1.417	1.489*
	(0.962)	(0.836)	(0.736)
College 2+ years	3.456**	1.868*	1.817*
	(1.567)	(1.050)	(0.936)
Lebanese	-1.597**	-0.263	-0.932
	(0.715)	(0.542)	(0.580)
Workplace and firm variables			
Log wage		0.658*	0.759**
		(0.376)	(0.348)
Log hours		1.111	0.964
		(0.839)	(0.749)
NSSF		-0.020	0.401
		(0.393)	(0.412)
Pension		0.212	1.621
		(1.239)	(1.172)
Change job		-0.549	-0.765*
		(0.389)	(0.367)
Full time		1.257*	1.469**
		(0.629)	(0.633)
Skilled workers		0.083**	0.051
		(0.032)	(0.030)
Female workers		0.018***	0.014***
		(0.005)	(0.005)
Medium		0.991**	1.108***
		(0.400)	(0.358)
Large		0.000	0.000
		(0.000)	(0.000)
Region variables			
Beirut			0.000
			(0.000)
Mount Lebanon			0.615
			(0.513)
North Lebanon			0.695

			(0.606)
Bekaa			0.420
			(0.641)
South Lebanon			-0.429
			(0.580)
Nabatieh			-0.815
			(0.765)
Number of Observations	509	509	509
Pseudo R2	0.098	0.451	0.523
Log pseudolikelihood	-84.015	-41.296	-35.852

Notes: Robust standard errors in parentheses, with *=10%; **=5%; ***=1%.