Minimum Wage Compliance in the Private Sector: The Case of Wage and Salary Workers in Jordan

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ABSTRACT

The study is concerned with the characteristics of wage and salary workers earning below the minimum wage (MW) in the private sector in Jordan. This study gives considerable cause for concern as we find that MW regulations are noticeably violated by employers. About 16.5% of the workers in the private sector receive wages below the prevailing MW rate, whilst measures of the depth of shortfall (MW-gap) is around 27% (about 41 JD). Unsurprisingly, the study finds that the measures of violation are more acute among informal occupations (about 27%). However, earning below MW tends to be a phenomenon not only in informal sector; rather it extends beyond that to formal activities (almost 6%). In general, female, younger, less educated workers and those employed in micro and small firms are more likely to earn below the applicable MW rate. The study applies descriptive methods and logistic regression in analyzing the data, which was obtained from the first wave of JLMPS (2010).

Keywords: Minimum wage violation, informal sector, wage and salary workers.

INTRODUCTION

More than 90 percent of the countries in the world apply minimum wage (MW) policies through legislation and collective bargaining systems (Benassi, 2011). The consequences of utilizing MW policy depend arguably on the dynamics of the labor market and on the level of compliance with legislation and regulations of MW. It is generally accepted that formal enforcement and compliance in most developing countries is weak and differ widely from the situation in the developed countries (Bhorat and Stanwix, 2013; Neumark and Wascher, 2008). MW research in developing countries has recently

received growing attention (Alaniz, *et al.*, 2011; Neumark and Wascher, 2008).

Jordan has established MW regulations to improve the economic situation of low-paid workers. In effect, this intervention has been expected to reduce wage inequality and discrimination, to improve income distribution, and to support other social and economic policies designed to combat poverty. However, while MW is widely debated in the country at different levels, little concentration has been dedicated to documenting and assessing the implementation of and compliance with it. We are not aware of any study conducted on MW in Jordan, that focuses specifically on wage workers earning below the MW.

Primarily, the current study shows which segments of workforce that are more likely to earn less than the MW in the private sector. This is very essential not only for MW policies, but also for other social and labor market policies. In effect, this paper aims to investigate levels and severity of non-compliance with MW and whether

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violation of MW is an informal sector phenomenon or extends beyond that to formal activities. It contributes to the current growing literature on the enforcement of labor acts and regulations in the developing countries. The study employs detailed data obtained from the first wave of Jordan Labor Market Panel Survey (JLMPS) carried out in 2010.

Five sections remain in the study. The next section discusses labor market and MW fixing in Jordan, followed by an overview analysis of the literature in section (iii). The methodological issues, including the source of the data, are discussed in section (iv). Section (v) provides the results of the study. The last section concludes the paper.

2. Labor market and MW fixing in Jordan

To deal with the economic structural imbalances facing its economy, in 1989, Jordan commenced a process of economic reform and entered a period of rapid adjustment to the global economy. However, like many Arab economies, Jordan's economy and labor market are still suffering from a number of persistent features, which are intrinsically related to each other. This includes high unemployment rates, which are more severe amongst youth and female workers, dualism and informality of several economic activities, low productivity, inequality of opportunities, large public sector, arguably worrying levels of poverty, and vulnerability to external factors.

Table 1

The evolution of the labor market indicators in Jordan (2009-2012)

Indicator	Year			
	2009	2010	2011	2012
LFP*	40.1	39.5	39	38
LFP (women)	14.9	14.7	14.7	14.1
LFP (men)	64.8	63.5	62.8	61.3
Wage workers relative to all workers.	83.4	83.5	84.3	84.1
Wage workers (women)	94.7	94.8	94.9	95.9
Wage workers (men)	81.3	81.3	82.2	81.7
Unemployment	12.9	12.5	12.9	12.2
Unemployment (women)	24.1	21.7	21.2	19.9
Unemployment	10.3	10.4	11	10.4
Unemployment (youth)	27	28.1	29.9	29.3

Source: Labor Statistics (2009-2013), Department of Statistics (DoS). *LFP stands for Labor Force participation (Refined rates).

Although its employment share decreased since the 1990s, the public sector in Jordan employs a large fraction of the workforce, around 38%. According to the data utilized in the current study, the size of informal sector is large (around 44%, see also UNDP, 2013) making the generation of decent jobs more difficult. High unemployment is a daunting challenge facing the country (see Table 1). This problem is coupled with low participation rates especially for female, and youth unemployment which has proven more difficult to resolve and is expected to remain high in the medium terms, particularly after the 'Arab Spring'. Youth unemployment

rates have remained in the double digits over the last decade. Typically, the mismatch between human capital and skills demanded in the labor market is considered a key driving force of the latter problem in Jordan. The integration of youth into labor market is considered as a vital national objective in national employment strategies adopted by the government (MOL, 2011).

However, it is worth mentioning the fact that Jordan is characterized as simultaneously a sending and receiving labor market. It is estimated that more than (300) thousands well-educated Jordanians work in the Gulf region, while hundreds of thousands of Arab and Asian workers occupy unskilled jobs inside the country (MOL, 2104). The large influx of Syrian refugees has created additional challenges at all levels, since 2011, including but not limited to the labor market. Table (1) presents some indicators of the labor market in Jordan for the period (2009-2011).

In late 1999, Jordan introduced additional articles to the Labor Act no 8 (1996) so as to start implementing the MW. The following original two articles show how in general MW is fixed and monitored in Jordan:

"Article 52:

A. Upon the recommendation of the Minister, the Council of Ministries shall form a committee constituted from an equal number of representatives of the Ministry, employees and the employers, the Council shall appoint its president from its members, this committee shall determine the minimum of wages in the Jordanian Dinar generally or for a specified area or occupation, the term of membership in such committee shall be two years renewable.

B. The committee shall hold its meetings whenever necessary by an invitation of its president, its decisions shall be submitted to the Minister if such decisions were not taken unanimously so that the Minister shall submit the matter to the Council of Ministers to take the decision in this regard provided that when determining the wage, the costs of living shall be taken into consideration, the final decisions issued by virtue of this article shall be published in the official gazette including the date in which they become effective.

Article 53:

The employer or his representative shall be punished by a fine not less than twenty five JDs and not exceeding one hundred JDs for each case in which he pays an employee a wage less than the decided minimum for wages in addition to deciding that the employee shall be given the wage difference, the penalty shall be aggravated in case the contravention was recurred" (Labor Law no. 8, 1999, pp. 23)

The fixing of the MW in Jordan must take into account the interests of the social parties involved (the workers, the employers and the government). In this context, the process of fixing MW must respect the freedom of collective bargaining, according to ILO's database (www.ilo.org/travdatabase). Theoretically, MW in Jordan aims to satisfy the needs of workers and their families, taking into consideration the overall levels of wages, cost of living, and unemployment prevailing in the country, in addition to social security benefits and the requirements of economic development (ILO's database, www.ilo.org/travdatabase). Also, the law stipulates that the tripartite committee responsible for setting and adjusting the MW can use multilevel or special MW rates, for certain sectors, activities or worker groups. The law and related regulations further emphasize the importance of the issue of MW compliance. Labor inspection and other appropriate measures must be taken to ensure the effective application of all provisions relating to MW in both the formal and informal sectors.

Table (2) tracks and summarizes MW adjustments in

Jordan since 1999. It shows that, practically, the country applies monthly MW rate (universal monthly rate) for certain sectors. The determination of MW and the process of reviewing it clearly consider types of employment or sector. The nominal MW has been modified six times by the representative committee since it was first set in 1999 at (80) JD monthly. The law excludes agriculture workers and non-wage family workers, and sets lowers rates for clothing production and domestic workers. The adjustment of the rate appears to be neither regular nor indexed by yearly inflation rates or average/median wages. The MW rate does not also vary across regions. For part-time workers MW is proportional to the number of hours worked. The maximum number of hours per week that people can work in the private sector is (48) plus overtime hours.

Table 2
Minimum wage (MW) practice in Jordan

Nominal MW in *Monthly* J.D[1]	Effective from	Measurement considerations	Excluded Sectors/Groups
80	1/10/1999	Hourly, weekly, MW rates must be calculated based on the monthly rate. -Average weekly hours is 48 hours (6 days a week). - In kind payments are included. Overtime payments are not included.	Agriculture workers, domestic workers, non-wage family workers, -Trainees must be paid MW in the final stages of their training schemes
85	1/1/2003		The above apply
95	1/8/2005		The above apply
110	1/6/2006		The above apply with the following changes: Effective for clothing production workers from 1/7/2006.
150	1/1/2009		The above apply with the following changes: clothing production workers and domestic workers can be paid the previous rate (110 JD).
190	1/2/2012		The above apply With the following changes: *Non-Jordanian workers can be paid based on the previous rate (150 JD) clothing production workers and domestic workers can be paid the pre-previous rate (110 JD).

Jordan applies fixed exchange rate against USD. 1 JD ≈ 0.71 USD. Sources: Labor Law 8, 1996 and its amendments.

Table (3) depicts the evolution of real MW (RMW) and real average wage (RAW) in Jordan for the period 2000-2011. As mentioned above, the process of setting MW appears not to be closely and fully aligned with *yearly* basis macroeconomic indicators, in particular inflation and average/median wages. RMW exhibits big positive increases in certain years, after processes of social dialogue and as a consequence of increasing living costs. However, the percentage of RMW relative to RAW tends to be somewhat acceptable as it varies between 31% and 41%.

Table 3
The evolution of the real MW, total and private real averages wages (RAW) in Jordan 2000-2011
2006=100

Year	RMW	RAW (ALL)	RAW (Private)	% RMW	% RAW (ALL)	% RAW (Private sector)	RMW/RAW
2000	95.77	270.55	241.82				0.35
2001	94.11	272.89	241.13	-1.74	0.86	-0.29	0.34
2002	92.41	277.22	246.03	-1.81	1.59	2.03	0.33
2003	95.93	275.37	238.13	3.82	-0.67	-3.21	0.35
2004	93.45	266.03	230.85	-2.59	-3.39	-3.05	0.35
2005	94.67	278.35	248.61	1.31	4.63	7.69	0.34
2006	103.66	279.95	256.96	9.49	0.57	3.36	0.37
2007	105.06	291.24	263.55	1.35	4.03	2.56	0.36
2008	92.27	293.26	268.96	-12.17	0.69	2.05	0.31
2009	126.54	307.87	285.09	37.14	4.98	6.00	0.41
2010	120.54	314.92	293.23	-4.75	2.29	2.86	0.38
2011	115.43	320.08	300.08	-4.24	1.64	2.33	0.36

Source of data: CPI for 2000-2011 is used to measure the real terms, DOS Statistical Year Book, different years.

3. The effects of MW on labor market and non-compliance with its laws in the literature

The literature pertaining to MW is enormous and ramified. It has handled a range of themes and aspects including potential influences of MW on overall employment and hours worked; youth employment; women employment; informal employment; income distribution and inequality; poverty incidence; average and median wages; wages in the informal sector; new hires vs. layoffs (Alaniz, *et al*., 2011). However, studies dealing with non-compliance are comparatively fewer.

The existing empirical studies in developing countries have imitated the burgeoning MW research conducted on the US and other developed countries. In general, the sign, extent and significance of the influence of MW on labor market dynamics, in particular aggregate employment, employment of low-skills and teenager workers, wage levels, and wage distribution have been a field of conflict among different competing theoretical and empirical studies, particularly in recent years. Earlier review of the literature can be found in Card and Krueger (1995), while Neumark and Wascher (2008) evaluate extensively recent

studies of MW, both in developing and developed countries.

Neo-classical economic theory postulates that labor markets are subject to the same dynamics as other markets. Under the perfect competition, it states that imposing MW will have negative influence on labor market, importantly employment measures. Most of the earlier studies came to conclusions in favor of this view, particularly for low-skilled and younger workers (Card and Krueger, 1995). Some recent empirical studies show mixed, weak, no, or even positive impacts of MW on employment (for developing countries, see Gindling, *et al.*, 2014; Alaniz, *et al.*, 2011; Lemos, 2009). Monopsonistic and job search theories have recently gained more attention and reliability. The latter two have turned out to be very strong competing models to the traditional Neo-classical theory, as they provide theoretical basis for the possibility of finding positive or weak negative impacts of MW on employment. Manning (2003) and Garloff (2008) give detailed reviews of such models.

Nevertheless, it is evident in several studies on developing countries that when MWs are set at relatively high levels in relation to median wage, labor market may suffer from negative employment effects (Andalon and Pages, 2008).

In addition to innate ability, accumulated human capital (i.e. education, training, and experience) lies at the heart of standard economic theories of wage determination, through augmenting/signaling labor productivity. Therefore, workers characterized with low level of education, experience, and training are more likely to earn less than others equipped with better levels of human capital. This of course applies to the probability of earning at MW and receiving sub-minimum wages.

Empirically, non-compliance with minimum wage laws appears to be a significant phenomenon particularly in the developing countries (Alaniz, *et al.*, 2011). The literature in developing countries on violation of the MW

remains scarce (Gindling *et al.*, 2014; Bhorat, *et al.* 2012; Ronconi, 2008) despite the potential importance of MW enforcement in fighting poverty, achieving better wage distribution, and social justice. According to Almeida and Ronconi (2012), non-compliance behavior of some firms and employers may result in distortions in resource allocation, and constrains competition in markets. The latter study and Ronconi (2008) point out that developing countries are generally characterized with a lack of compliance with labor regulations, including MW, due to imperfect enforcement not due to the lack of ideal regulations. Enforcement of MW regulations is also found to vary across employers in different geographical locations and across different industries (Basu, *et al.*, 2010).

Apart from (Nguyen, 2010), who finds low level of non-compliance in Vietnam, the recent studies show that large proportions of workforce in many developing countries earn sub-minimum wages. In some countries, like Kenya (Andalon and Pages, 2008), this amounts to a very high level of (70) % in a number of occupations. In South Africa and Argentina (Bhorat, *et al.*, 2012; Ronconi, 2008) almost only half of the workers are practically entitled to receiving wages above MWs. In Costa Rica, more than (30) % of the legally covered workforce earn less than the MW (Gindling *et al.*, (2014). Other recent studies have also observed similar trends in other developing countries (Kanbur, *et al.*, 2013; Strobl and Walsh, 2001).

The existing studies in developing countries also find that among types of workers, non-compliance is much higher for women relative to men, more acute among less educated, youth and teenagers, and in rural areas. Below MW jobs also tend to be concentrated in similar economic private activities, primarily in the informal sector, and micro and small size firms (see Gindling *et al.*, 2014; Kanbur, *et al.*, 2013; Almeida and Ronconi, 2012; Andalon and Pages, 2008).

Labor economists employ several techniques to

identify compliance levels (Alaniz, *et al*., 2011). First, ideal implementation of MW by authorities must supposedly affect the wage distribution. Typically, this can be investigated by looking for spikes at MWs or around it in wage distribution of various groups and sectors. If one detects no spikes in the distribution, this will be a sign of non-compliance with MW laws. Second, percentage shares of workers obtaining lower than MWs are also used and reported in non-compliance studies. Most recently, Bhorat, *et al*. (2013) have developed a new technique for measuring violations of the MWs, a method providing more accurate and deeper estimations of non-compliance. This method is based on the well-known Foster-Greer-Thorbecke (FGT) poverty measurement methods (see Foster and Greer and Thorbecke, 1984). In addition to the average percent of those earning below the MW, this method further provides measures that reflect the extent of underpayment and severity of non-enforcement (Bhorat and Stanwix, 2013; Kanbur, *et al*. 2013). Basically, according to this method, the measures of minimum wage violation take the following form:

$$V_\alpha = \frac{1}{n} \sum_i^k \left(\frac{mw - w_i}{mw}\right)^\alpha$$

Where *V* stands for measures of violation, *n* is the total sample size of the relevant workers, and *w* is the wage of each worker earning below minimum wage *(mw)*. In general, a larger α places greater emphasis on lower wages. Setting *α* = 1 (*V1*), and *α* =2 (*V2*) yields violation indicators of MW shortfall depth (following the poverty literature, it can be termed MW-gap measure) and severity measure, respectively. The measure V_0 (so *α* = 0) is simply the headcount ratio (k/n) measured by the second method mentioned above. For subgroups, such as female workers, the above equation is utilized in the same way but only for the subsample of a chosen subgroup. Alternatively, and perhaps more appropriately, one can use the overall estimated measures (i.e. *V0, V1*, and *V2*),

using the above setting and scale them by the ratio (*n/n_s*), where *n_s* represents the subsample of a particular subgroup of workers. For example, for females, this can be carried out by adding up *V_a* values per female worker and multiply the total by (*n*/sample size of female workers). Kanbur, *et al*. (2013) furthermore add the ratio (*V1/V0*) to their reported results. The later measure gives the average share of workers paid below the MW for all sub-minimum wage workers or subgroups of them. Having calculated V1 and V2, one can then easily quantify the MW-gap, or MW shortfall depth in percent and monetary terms.

4. Data and methodological issues

The data used in this study is drawn mainly from the first wave of the Jordan Labor Market Panel Survey (JLMPS). This survey was primarily funded by the Economic Research Forum (ERF) and administered in 2010 by ERF with the co-operation of the Department of Statistics (DoS) and the National Centre of Human Resources Development. It was designed to be representative at the national, regional, and geographic stratification levels. Interviews were conducted in person and for each member of a household. The population of interest for this study is the workers who identify themselves as private wage and salary workers. The effective *gross* monthly MW in 2010 was (150) JD (almost 212 USD).

JLMPS collected very detailed data on a sample of around (26) thousands individuals (around 5 thousands households). The available data includes personal, demographic, economic, and social characteristics of the individuals and households in the selected sample. Outstandingly, wage and salary workers were further asked to report on their net wages, bonuses, overtime payments, frequency and methods of wage payments, working hours during different reference periods, and gross wages for those covered by social security. Such data is of great importance for MW studies. The design of

JLMPS and the richness of its data on wages and the number of working hours minimize various sampling and compiling errors, that typically characterize household and labor surveys. For example, it makes the issue of observing part-time workers much easier as the survey gathered data not only on monthly rates but also on yearly, daily and hourly wages and salaries. This means better measurement of workers receiving less than the minimum monthly wage by additionally considering the hourly wages. The normal working hours in Jordan's private sector are eight per day (48 hours over a maximum of six days in any one week, in effect approximately 208 hours per month).The following two points summarize our approach to compute gross wages of wage and salary workers in the private sector, which enabled us to measure non-compliance with MW and related measures:

1. The gross monthly wages of formal private workers covered by social security are utilized. They were scaled for the standard number of monthly working hours, specifically those working less than (35) hours a week (arguably part-time workers) or those working more than (48) hours a week without overtime payments. Gross wages were divided by the actual average number of working hours per month and then multiplied by 208. The survey, in this context, directly asks respondents to report their working hours, days and weeks over the last three months. This facilitates measuring actual average number of working hours per month for each of formal and informal workers.

2. To obtain the gross monthly wages of the informal workers, we utilize the available data on net wages, bonuses and incentives, which are both considered by the law as part of gross wages. The same procedures mentioned above were used to cope with part-time workers and those with over 208 working hours.

In addition to JLMPS, we utilize data reported in annual reports published by the Department of Statistics (DoS) in Jordan. As for labor market, most of the published indicators are drawn from the Employment and Unemployment Survey (EUS) which gathers cross sectional data quarterly. However, wage data in EUS is categorical and therefore is not as detailed as JLMPS. Wage data is classified as categories starting from the very low level of less (100) JD to higher wage levels (+500 JD). We utilize such wage data to draw general views on the situation of low-paid in Jordan, focusing on the period before 2010 (from 2005-2010).

The next section analyzes wage distributions and MW violation by looking for spikes at or around MW. This depends on plotting the Kernel density of the natural logarithm of wages. To test the different levels of non-compliance, we construct Kernel density figures for different groups, then we utilize FGT techniques, which was first used in this field by Bhorat, *et al*., (2013), as mentioned above.

Furthermore, the study employs *logistic regression* to assess the statistical significance of the influence of various socioeconomic variables on the probability of earning below the MW. The dependent variable is dichotomous; where (*zero*) represents workers in the private sector who earn MW or higher and (*one*) stands for otherwise (i.e. workers earning lower than MW).

Relying on the method of Maximum Likelihood, logistic regression estimates the probability of a dichotomous dependent variable, given the values of explanatory variables. As the probability lies between (0-1) and the relationship linking it with its determinants is non-linear, this technique estimates a logit model that produces natural logarithms of odd ratios (i.e. probability of occurring divided by probability of not occurring of an event). (Gujarati, 2015)

The estimated model in the current study is as follows:

$$\ln\left(\frac{P_i}{1 - P_i}\right) = X_i\beta + \varepsilon_i$$

Where **P** stands for the probability of earning below the monthly MW. **X** is the explanatory variables. **β** is the vector of logit coefficients (log odds), ε is a random error term, **i** denotes the individual worker, and **ln** is the natural log. The positive sign of a log odd (i.e. an estimated

coefficient) means that the odds that the dependent variable equals one increases as the value of an explanatory variable increases and vice versa. Simply, in case of our study, a positive coefficient means that the probability of having wages below the MW tends to increase when a certain explanatory variable increases and so on. In addition to *gender* and *experienc*e, the logistic analysis incorporates educational attainment, captured by *years of education and educational levels*. The measure of *experience* is constructed as the age of the respondent in 2010 minus years of education, as given by the respondent, minus the assumed age of starting education (six years in Jordan). The data enables us to take into account the role of *informality* in the private sector, which is approximated by social security coverage. A respondent is considered to be working in the formal sector if he/she is covered by social security; otherwise they are considered informal workers. The logistic model also includes other explanatory variables,

namely *firm size*, *occupation*, *age groups*, *MW coverage*, and *interaction* between gender and occupation.

5. Empirical Results

Table (4) shows overtime evolution of monthly nominal wage data obtained from EUS for (2005-2010). It clearly reveals that low-paid workers have always represented a significant proportion of all public and private workers in Jordan. In 2010, about 19% of workers earn less than (200) JD monthly. Considering the MW prevailed in 2010, which was (150) JD, EUS interestingly seems to suggest somehow similar overall findings reported below using JLMPS. Assuming that workers distribute evenly within each category, about 14% of all workers, including wage and salary workers, tend to earn the relevant MW and lower in 2010. However, such overall categorical data is less reliable than JLMPS in detecting MW related questions, in particular spikes in wage distributions.

Table 4

Distribution of Jordanian workers (+15 year old) by wage category for (2005-2010)

Year	< 100	100-199	200-299	300-499	500+
2005	10.4	50.2	25.9	8.7	4.8
2006	8.9	48.7	27.7	9.5	5.2
2007	6.1	40.5	34.1	11.7	7.5
2008	3.5	27	41.1	19.5	8.9
2009	3.4	20.4	39.8	26.4	10.1
2010	**2.1**	**16.5**	**42**	**29.5**	**9.9**

Source: EUS Annual Reports, DoS, also available online at http://www.dos.gov.jo

The patterns above suggest that MW polices possibly have not fully succeeded in accomplishing its objectives, emphasizing the importance of studying MW to better understand the characteristics of sub-minimum wage workers and MW legislation enforcement in Jordan.

The remaining part of this section relies completely on tables and figures constructed using JLMPS. In Table (5),

we measure the share of covered wage and salary workers earning below, at and above the MW for each employment sector relative to economywide total wage workers and relative to the total of which inside each sector. It also shows the contribution of each sector to the total employment of wage and salary workers. Almost 8% and 3.8% of all wage and salary workers covered by the

MW Act appear to earn below and at the MW, respectively. Overall, the later proportions are roughly comparable to what is reported above using EUS. As expected, receiving below MW tends to be a private sector phenomenon. Wage and salary workers in the private sector are extremely more likely to obtain below-MW jobs in comparison with their counterparts employed in the government (Only 1%, compared to 16.5%). Consequently, the current study handles the issue of earning below MW, or non-compliance with MW regulations, only in the private sector.

Table 5

Share of *covered** wage and salary workers below MW by Sector of employment

Sector of employment	Above MW	At MW	Below MW**	% Contribution to all *covered* wage workers in Jordan
Government	51.16 (*97.4*)[a]	0.82 (*1.55*)[a]	0.55 (*1.05*)[a]	52.53
Public enterprises	1.84	0.04	0	1.88
Private	34.23 (*76.9*)[a]	2.94 (*6.6*)[a]	7.35 (*16.5*)[a]	44.52
International bodies	0.8	0	0.04	0.84
Cooperative	0.15	0.02	0.04	0.22
Total	**88.18**	**3.83**	**7.99**	**100**

Based on JLMPS, *Uncovered wage workers represent about 5% of the total. **a** Figures in parentheses represent shares relative to covered wage workers within every sector alone.** Equivalent to *V0* reported in the tables below.

5.1 Wage Distribution using Kernel method

In labor market studies, the method of Kernel estimates is typically utilized to show the entire density of wages and salaries, and the effect of labor market institutions, including MW, on the distribution and inequality of wages. Human capital (e.g. education, on-job training, and experience), occupation, sector and the law enforcement are among the factors that may impact the level and the distribution of wages. Essentially, wage discrimination, mainly by gender, also plays a significant role. One also must expect that perfect or strong enforcement of MW laws compresses lower tails of the density of wages for the covered sectors and occupations.

Figures (1 through 4) show Kernel density estimates of log monthly wages for different groups of workers. A vertical line in each of the figures indicates the value of MW in 2010 in log (almost *5.01*). Figure (1) compares uncovered workers, mainly domestic and agriculture workers with the covered ones. On the other hand, Figure (2) compares the wage distributions of formal versus informal activities. Figures (3) and (4) in turn handle effects of MW on wage distributions in both the formal and informal sectors by gender.

Several important points can be summarized from the

figures. First, they provide great evidence that the MW does not compress the lower tail of the density of wages, regardless of the sector, type of coverage or gender. This is despite the fact that about 6.6% of private wage and salary workers, as depicted in Table (5), receive exactly the MW. Accordingly, this graphical presentation does not show obvious *spikes* in the wage distributions for covered workers versus uncovered workers; and formal versus informal for both women and men. Therefore, this provides evidence that a certain level of non-compliance exists in Jordan.
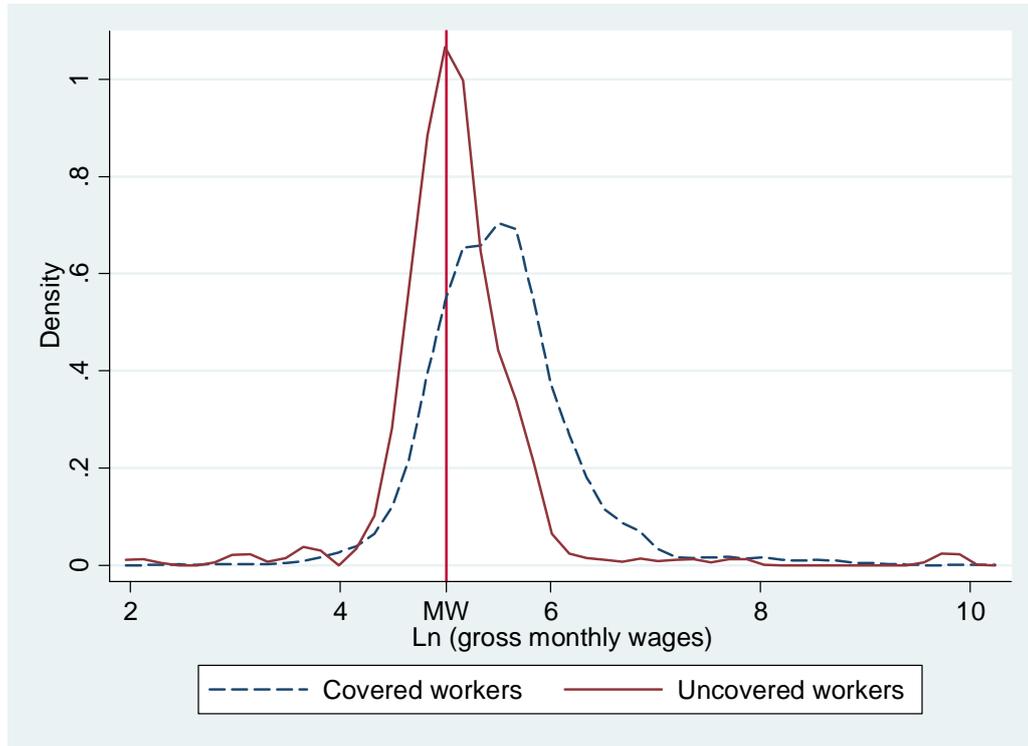

Figure 1: Kernel distribution of wages in private sector for covered and uncovered wage and salary workers

Interestingly, the figures show that the share of workers earning below MW differs by worker groups. This is consistent with other findings reported in the tables above and below. Formal workers tend to be considerably less likely to earn left to the vertical line demonstrating the MW. A similar trend prevails in terms of gender, where women have a much higher prevalence of receiving less than the MW, both in formal and informal jobs.

5.2 Violation degrees of MW regulations

Following Bhorat, *et al.* (2013) and Kanbur, *et al.* (2013), we calculate four interrelated measures (i.e. V0, V1, V2 and the ratio V1/V0). The measure V_0 simply represents the headcount ratio, while $V1$ is termed MW-gap measure or MW shortfall depth, which reflects the extent of the underpayment. By measuring MW gap, we can further determine the severity of the non-enforcement of MW acts by calculating V2 (see section iii).
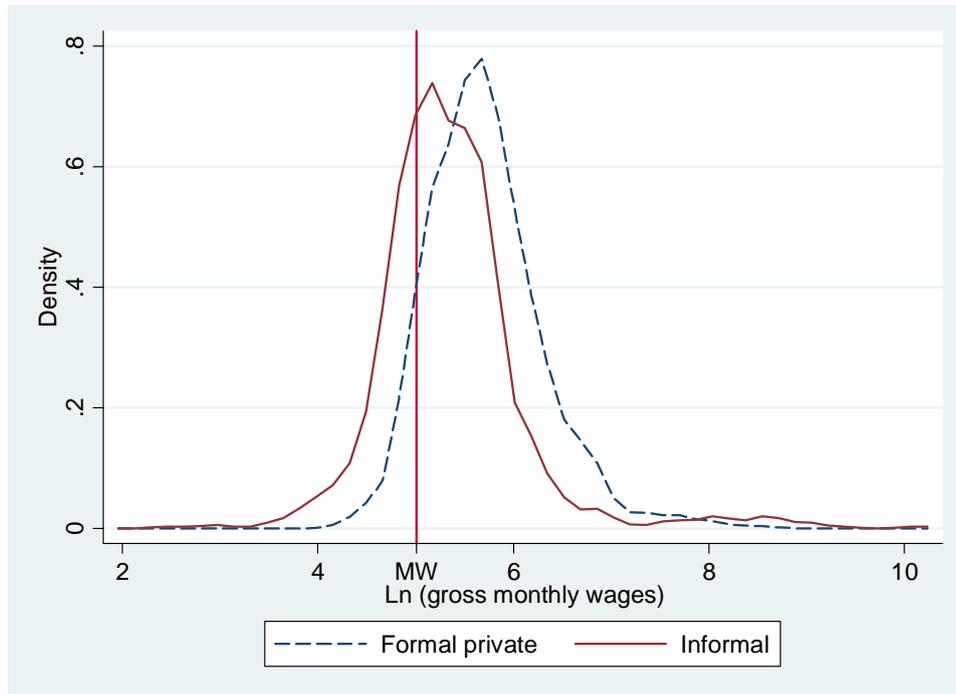
Figure 2: Kernel distribution of wages for covered wage and salary workers in the private sector as a whole, and for private formal and informal sectors
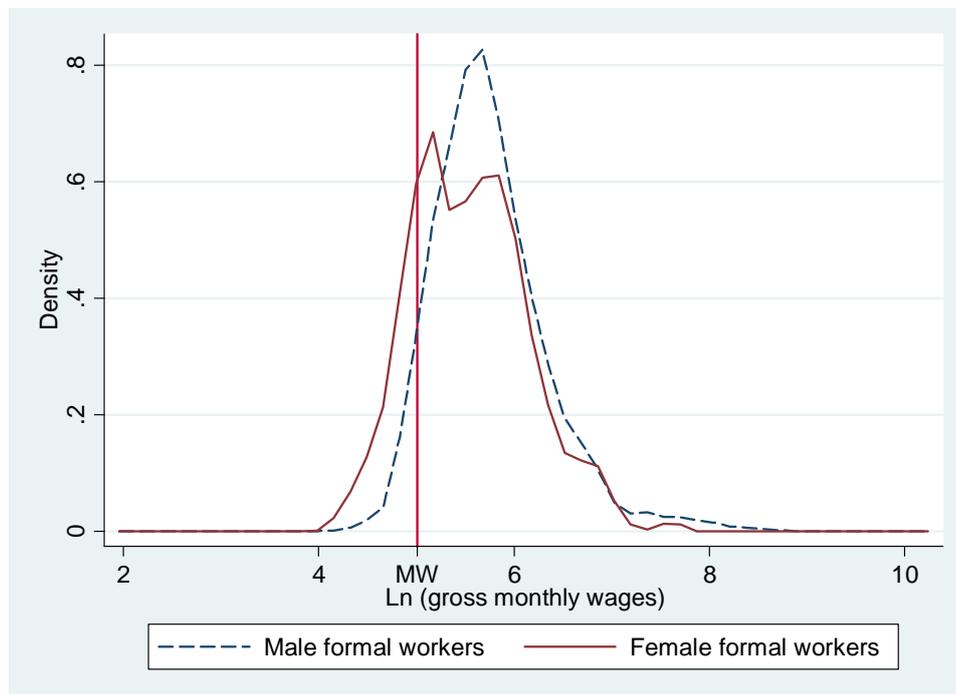

Figure 3: Kernel distribution of wages for covered wage and salary workers in the private formal sector by sex
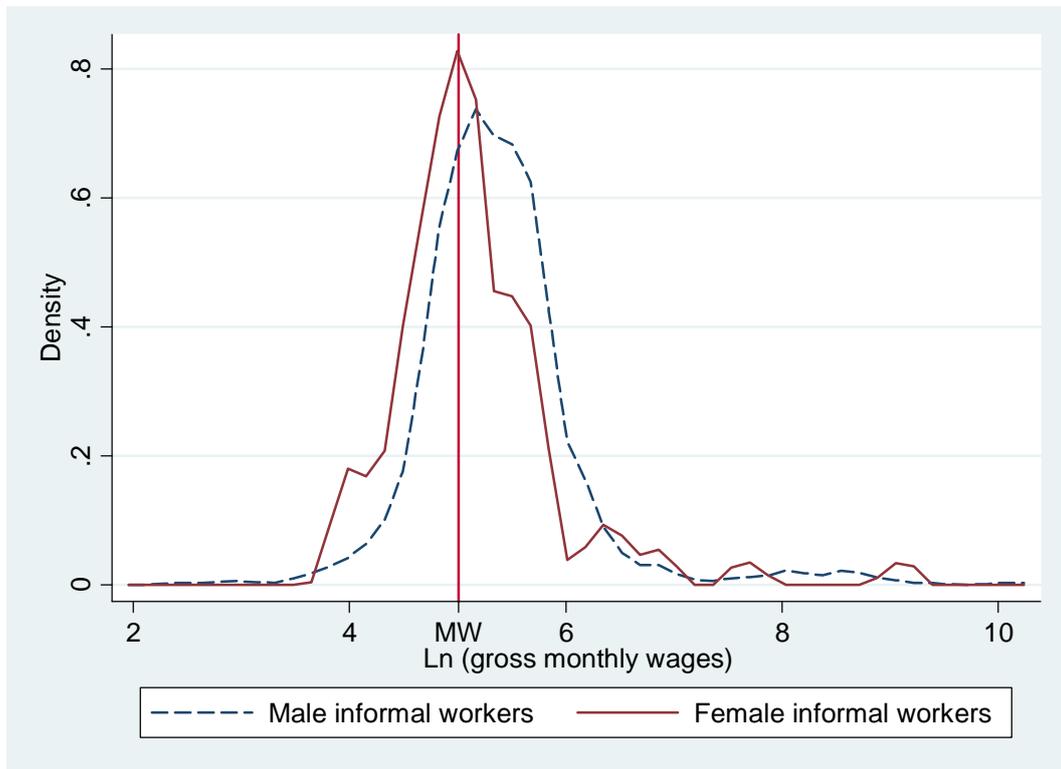
Figure 4: Kernel distribution of wages for covered wage and salary workers in the informal sector by sex

Appendix (1) reports the results of MW violation measures by gender, type of employment, age group, occupation, education, and firm size for covered wage and salary workers in the private sector. The headcount ratio (V0) averages around 0.165, suggesting that around 16.5% of the wage and salary workers earn less than the MW. This in turn reflects the average risk of non-compliance incidence in Jordan's labor market. Overall, V1 measure is 0.045 which means that MW-gap for all relevant workers ranges around 4.5% relative to the MW applied in Jordan. To measure the average percent or monetary gap for those earning below MW, the ratio V1/V0 is measured. For the entire sample, this ratio amounts to 0.274 (or 27.4%). In monetary terms, this ratio is about (41) JD. Having broken down the sample into different categories, we find appealing results as shown in

Appendix (1) and (2):

Female workers have a higher risk of falling into below-MW jobs, with the *V0* measure averaging at almost 21% compared to about 16% for male workers. In this context, the results show that women suffer from a higher level of MW-gap, as V1 values are 6% and 4 % for female workers and male workers, respectively. Sequentially, this is translated into a greater level of severity of earning below-MW as depicted by *V2* measure. Based on the ratio *V1/V0* , the monetary MW shortfall depth or gap is unsurprisingly higher for females earning below MW (46 JD vs. 40). These results are in line with the Kernel estimation graphical results presented above.

It is indicated in Appendix (1) that those paid under the MW make up around 27 % of the total covered wage and salary workforce in the *informal sector*. Workers in

the formal sector are subject to this risk, with only a 6% share. *V1* and *V2* measures give similar results in terms of differences by formality type. The gaps appear to be much more severe for *young workers (15-24)*, and to lesser extent for those exceeding retirement age (60+). This could be due to the fact that these two groups are more likely to accept low-paid jobs, particularly in the informal sector.

Appendix (1) also focuses on *occupations* that pay below MW rates for some workers. Appendix (2) partly repeats the exercise for female workers concentrating on the most economically important occupations, by taking into account their percent contribution to total wage employment and reporting only V1 measure. Of course, we should bear in mind the above results when we consider earning by occupation, most importantly the effect of informality. *Protective services* jobs, which normally attract males and particularly low educated youths and those retired from the army, appear to hold the highest likelihood of MW-gap incidence. The workers in this type of jobs are followed by sale workers, personal care workers and cleaners and helpers. These occupations are not merely occupied by men, see Appendix (2), and therefore a notable share of workers of them earn under the MW rate and appear to suffer from higher MW-gap severity. This conclusion extends to other important low paid occupations in the case of females. Female workers have fewer occupational opportunities and typically prefer occupations in teaching and health in both private and public sectors. They also engage in other low-paid, such as those mentioned in Appendix (2), including cleaning and secretarial jobs. Female workers employed in *teaching occupations* tend to be the most important group of labor suffering from non-compliance with the MW in Jordan. This is due to the fact that about quarter of female wage and salary workers work in this sector and about quarter of those working in the later sector are paid under the MW. Although their contributions to overall female employment is much lower than the contribution

of teaching, *personal service and cleaning* jobs should receive special attention since more than 60% of them pay under the MW.

As suggested in Appendix (1), education tends to be inversely associated with the probability of a worker to earn under the MW rate in Jordan. This also applies in terms of V1 and V2 measures. Although university and post-secondary education holders enjoy lower levels of V1, those among them employed in below-MW jobs appear to experience much higher MW-gap, as represented by the ratio *V0/V1*. Accordingly, the monetary gap of the university education amounts to about 50 JD (V0/V1 is 34%). This finding is partly attributed to two important results in contrast to others. The first is the role of gender, particularly in teaching occupations. The second is role of age, as young new entrants to labor market lack work experience, and may accept lower starting wages for the sake of higher wages later over their work life cycle.

The last part of Appendix (1) shows that *firm size* is negatively associated with the tendency of earning below MW. Larger firms seem to comply with MW regulations in a way better than smaller ones. This result is partly due to the fact that large firms typically work in the formal sector and receive more attention and visits by labor inspectors and other governmental agencies.

Determinants of Earning Below MW: Logistic Estimation

The multivariate logistic specification begins by estimating basic models as reported in Appendix (3). The first and second models incorporate human capital factors (i.e. years of education, experience), sex and informality. The third model excludes years of education from the specification to avoid potential multicollinearity with education levels. Appendix (4) exhibits the results of a more detailed logistic model that simultaneously takes into account the role of all variables discussed in the preceding section. The dependent variable in the

estimated models in Appendix (3) and (4) is binary taking *one* if a worker earns below MW and *zero* if they earn MW or higher. On the other hand, Appendix (5) shows descriptive statistics of the main explanatory variables.

In the standard models, all signs prove to be significant and in line with the literature in the developing countries. The results reported in Appendix (3) confirm the findings discussed in the previous section on the influence of sex, informality, human capital, and occupation.

Appendix (3) reports the log odds, which show that females and those working in the informal sector are significantly more likely to earn below MW even after controlling for experience and education (years or levels). Model 3 includes a dummy variable of the role of occupations, focusing on whether earning in certain occupations has greater odds of falling below MW in Jordan. The later model compares between the occupations mentioned earlier in Appendix (2) (i.e. Teaching general, keyboard clerks, personal service workers, sales workers, personal care workers, and cleaners and helpers) with the others in Jordan's labor market. The log odds of this variable is positive (0.36) and significant at 1%.

In addition to the variables included in Appendix (3), the full model incorporates more variables (see Appendix 4). These are: the interaction between sex and occupation to assess more deeply the role of gender; a dummy to take into consideration the effect of the regulations of the law which excludes some occupations from the coverage of the law; the role of age as represented by age groups, and the role of firm size. Years of education and experience variables are excluded from the full model to reduce potential multicollinearity with education levels and age groups.

Appendix (4) reports the results of the full model, showing in addition to log odds the average marginal effect of each explanatory variable. A marginal effect gives the change in the probability of an event, earning

below MW in this study, if an explanatory variable increases by one unit, holding all other explanatory variables fixed at their *means*. A marginal effect measures also the change in the probability of an event when a categorical or binary variable changes to another category relative to a reference category, given that all other explanatory variables fixed at their means. Most of the determinants in the full model emerged as statistically significant variables in shaping the probability of earning below the MW in Jordan at different significance levels.

The remaining part of the current section discusses the results shown in Appendix (4):

Apart from *vocational education* and *read and write* categories, which are insignificant and significant only at a 10 % level respectively, each *education category* appears to significantly influence the dependent variable. Relative to the reference category (*illiterate*), more education results in decreasing the probability of a worker to earn below MW. The strongest effect is exerted by the category of university and over. This means, holding other variables constant at their means, obtaining university and higher education decreases the likelihood of earning wages lower than MW by around 28% in comparison with illiterate workers (15%, 10%, 6% and 9% compared with the other categories mentioned in the appendix). Of course, the sings of log odds in terms of education are expectedly negative. Having broken up *age* into groups and excluded experience, the full model finds that all *age groups* older than the reference group (15-19), are statistically associated with lower levels of the probability of the dependent variable. To some extent, this applies to the second group from the bottom (20-24), implying that older workers, compared with youth employees (15-24 age group), enjoy a lower risk of getting paid below MW. The later result comes similar to the descriptive analysis provided in the previous section.

Regarding the influence of *occupation*al differences, the full model indicates that incorporating a dummy variable reflecting this dimension yields a significant

positive log odds. In terms of the probability, employment in the occupations reported in Appendix (2) raises the probability by 5%, regardless of gender, indicating that they are associated with greater levels of non-compliance. The model furthermore considers the potential effect of the *interaction* between *gender* and *occupation*. The log odds of the interaction term turns out to be statistically positive. The full model compares males and females in the group of occupations reported in Appendix (2) with their male and female counterparts in the other occupations. It predicts that females working in such a group of occupations are 22% and 26% more likely to receive wages and salaries below the MW than females in other occupation and males in the same group of occupations, respectively. Furthermore, gender differences are emphasized by the other results, where the marginal probability effect turns out to be 7% for female workers in the other occupations compared with their male counterparts in the same group. In contrast, the possibility of earning below MW increases only by 2%, when one compares males in this group of occupations with males in the other occupations. All the marginal effects of the interaction between gender and occupation emerged as significant at 1%.

Altogether, the findings discussed above on the role of gender match well with other indicators characterizing labor market in Jordan (see Table 1). The labor market suffers from lower levels of women's labor force participation (WLFP), and higher unemployment rates among women compared with men. The higher level of non-compliance facing female workers probably contribute to their lower participation and labor supply. Actually, as indicated in Table (1), WLFP has deteriorated after 2009, when the government increased the MW to become 150 JD. However, other factors may have also intervened in this trend, such as Arab Spring and the influx of the Syrian refugees into the country. This argument applies to youth, who have worrying levels of unemployment (see below results on the role of age groups).

The full model provides evidence on how *informality*

and *firm size* affect the probability of getting paid below the MW (non-compliance) in Jordan. Having adjusted the model fully for other variables, on average, informal workers have a higher probability of this kind of risk than their formal counterparts in the private sector (by around 9% on average). *Firm size* emerges to manifest a highly significant effect, as micro firms (1-4) are found to have the highest chance of paying their workers wages that are lower than the MW. This evidence extends somehow to firms employing (5-9) workers. Employment in larger firms, after controlling for formality and other variables, increases the likelihood of compliance with MW laws in Jordan. Of course, the probability of non-compliance is much higher in informal firms, by adding almost 9% for each category representing the firm size variable.

6. Conclusion and policy implications

The findings of the present study give considerable cause for concern as we find that MW regulations are significantly violated by employers in the private sector in Jordan. There exists a considerable gap between MW regulations stated in labor acts and their effective implementation and control. This exists noticeably in several occupations and for a number of segments of workforce. About 16.5% of the covered workers in the private sector receive wages below the MW, whilst measures of the depth of shortfall (MW-gap) amount to 27% for those earning below the MW. We find that violation measures are more acute among informal occupations. This phenomenon appears to extend beyond that to formal activities in the private sector. As expected, female workers are found to suffer from MW violation much more than their male counterparts, particularly in teaching occupations, personal service, cleaning and helping jobs. The study also shows that younger and less educated workers are more likely to earn below the applicable MW rate. Further, enforcement of labor regulations is weak and evasion of the labor law tends to be higher in micro and small firms. Logistic regression models and descriptive statistics utilized in the study have produced equivalent results. The

findings presented by this study are in agreement with evidence found in other developing countries (see Gindling *et al.*, 2014; Kanbur, *et al.*, 2013; Almeida and Ronconi, 2012; Andalon and Pages, 2008).

Several policy lessons can be drawn from the evidence discussed in this study. The results show that the enforcement of the regulations of MW in Jordan is somehow weak, restricting the efficacy of wage policymaking in particular and social policy in general. The MW is an attractive instrument for promoting more equitable labor market, better wage and income distribution, and lower levels of poverty. It is sometimes utilized as a policy tool for raising wages not only for low-paid but also all workers. Hence, better and more labor inspection must be carried out by the Ministry of Labor to enhance the compliance levels in the country. The efforts should pay attention to the most vulnerable worker groups, including informal workers, youths and females, particularly in certain occupations as well as small and micro firms. Informal workers typically earn lower wages and are therefore the group most in need of protection. This in turn underlines the importance of facilitating transition from the informal economy to the formal one. The setting and application of the MW have to prevent the exploitation of female workers. One of the worrying issues in the context of female workers, which has received a great attention from different circles, in particular the press, is the wages of female teachers in private schools. Labor market offers limited opportunities for women, that results in weakening their wage negotiation power with employers. In this regard, the newly-initiated Jordanian Teacher Syndicate is requested to boost its efforts in this regard in order to enhance the socio-economic situation of female teachers in this sector, through developing further measures to set up an effective implementation system. Youth's wages and labor market opportunities are vital perspectives in Jordan. The study shows that youth workers are more likely to earn below

the statutory MW, while the economy suffers from high youth unemployment rates. Taken together, the latter two characteristics pose the question of whether the MW in Jordan is associated with youth unemployment, particularly educated youth workers. This aspect is a valuable subject from a policy point of view and for future research. The design of the wage policymaking, particularly the MW setting, should not deter labor force entry of young Jordanians. Future adjustments should probably take into account the need of waiving the MW for young people through a sub-minimum wage alongside the national MW rate. This has become more important after the recent influx of millions of Syrian refugees, which arguably has soared competition facing youth Jordanians in the labor market. Improvements in the legal and institutional frameworks should be coupled with a better implementation of other policies targeting youths and females such as jobs generation, entrepreneurship, and training. In general, social dialogue and effective tripartite consultation should be equally employed in parallel to convince employers of the benefits of compliance with the MW regulations.

Finally, the analysis provided in this paper on wage distributions (using Kernel method), supported by the other two methods, is not completely ideal. Analyzing wage distributions necessitates not only using cross-sectional data, but also tracking changes over time. To better judge the influence of labor market institutions on Jordan's labor market, such as imposing or adjusting the MW, micro panel or many detailed cross-section data (before and after an invent) should be utilized. This in effect will facilitate studying other important issues related to MW (e.g. employment effects, youth and women unemployment and participation rates, formality, median and average wages in formal and informal sectors, and impacts of increasing or decreasing MWs). The latter important inquiries are fruitful topics for potential future research.

Appendix (1)

Minimum wage violation by gender, type of employment, age group, occupation and education for covered wage and salary workers in the private sector*

Violation	All	Gender		Type of employment		Age Group										
		Female	Male	Informal	Formal	50-54	55-59	30-34	40-44	45-49	25-29	35-39	60+	20-24	15-19
V0	0.165	0.207	0.158	0.267	0.06	0.082	0.091	0.101	0.106	0.114	*0.147*	0.155	0.158	0.199	0.5
V1	0.045	0.063	0.042	0.077	0.012	0.026	0.017	0.029	0.024	0.024	*0.043*	0.035	0.037	0.049	0.172
V2	0.018	0.025	0.017	0.032	0.004	0.012	0.006	0.011	0.01	0.009	*0.018*	0.011	0.015	0.017	0.082
V1/V0	0.274	0.304	0.267	0.288	0.206	0.313	0.19	0.286	0.229	0.211	*0.29*	0.225	0.234	0.248	0.345

*Rounding of figures results in small changes

Appendix (1) continues

Violation	Occupation											
	Handicraft and printing workers	Electrical and electronic trades workers	Building and related trades w., excluding electrician	General and keyboard clerks	Drivers and mobile plant operators	Numerical and material recording clerks	Stationary plant and machine operators	Teaching professionals	Street and related sales and service w.	Refuse w. and other elementary w.	Legal, social, cultural and related associate professional	Food p., wood w., and other craft and related trades w.
V0	0.056	0.067	0.081	0.097	0.111	0.115	0.178	0.181	0.222	0.225	0.231	0.238
V1	0.005	0.027	0.025	0.022	0.022	0.045	0.046	0.053	0.119	0.081	0.052	0.065
V2	0.000	0.013	0.011	0.006	0.008	0.02	0.021	0.019	0.072	0.036	0.012	0.025
V1/V0	0.087	0.4	0.31	0.221	0.202	0.391	0.258	0.29	0.533	0.361	0.224	0.275

Appendix (1) continues

Violation	Occupation					Education						
	Food preparation assistants	Metal, machinery and related trades w.	Cleaners and helpers	Personal care workers	Sale w.	Protective services w.	Illiterate	Reads and writes	Basic	Vocational	Secondary	Post-Secondary	University +
V0	0.25	0.252	0.262	0.273	0.333	0.367	0.27	0.201	0.214	0.25	0.133	0.158	0.047
V1	0.064	0.09	0.055	0.097	0.091	0.071	0.068	0.050	0.061	0.057	0.033	0.042	0.016
V2	0.017	0.044	0.017	0.044	0.036	0.019	0.023	0.021	0.025	0.016	0.012	0.014	0.007
V1/V0	0.257	0.357	0.21	0.356	0.274	0.195	0.246	0.248	0.285	0.228	0.25	0.266	0.337

Appendix (1) continues

Violation	Firm Size						
	1-4	5-9	10-24	25-49	50-99	100+	do not know
V0	0.361	0.194	0.099	0.108	0.063	0.033	0.174
V1	0.102	0.047	0.03	0.022	0.019	0.006	0.035
V2	0.042	0.015	0.012	0.006	0.008	0.001	0.009
V1/V0	0.283	0.242	0.303	0.204	0.302	0.182	0.201

Appendix (2)
Highest *V0* average values in important occupation groups for female wage workers

	Teaching	*General and keyboard clerks*	*Personal service workers*	*sales workers*	*Personal care workers*	*Cleaners and helpers*
V0	0.239	0.171	0.385	0.692	0.333	0.625
% contribution to total female wage and salary employment (covered private sector)	23.7	10.9	3.5	3.5	2.4	6.4

Appendix (3)
Results of logistic regression models of determinants of MW (earning less than MW=1, earning otherwise=0)

Variable	*Model 1* *Coeff.*	*Model 2* *Coeff.*	*Model 3* *Coeff.*
Intercept	(-1.28) [a]	(-1.52) [a]	(-1.50)[a]
Informality (reference=Formal)	(1.60) [a]	(1.61)[a]	(1.61)[a]
Sex (reference=Male)	(0.87)[a]	(0.92)[a]	(0.84)[a]
Years of Education*	(-0.16)[a]		
Experience	(-0.037) [a]	(-0.039)[a]	(-0.037)[a]
Experience^2	(-0.0001) [a]	(-0.0001) [a]	(-0.0001) [a]
Education (reference=Illiterate)			
Reads and writes		(-0.80) [b]	(-0.83) [b]
Basic		(-1.29) [a]	(-1.30) [a]
Vocational		(-0.98) [b]	(-0.98) [b]
Secondary		(-1.81) [a]	(-1.87) [a]
Post-Secondary		(-1.60) [a]	(-1.65) [a]
University+		(-3.00) [a]	(-3.03) [a]
Occupations (Reference= other Occupations not mentioned in Appendix 2)			(0.36) [a]
Pseudo R^2	(0.163)	(0.165)	(0.168)
L. likelihood	(-783.55)	(-772.11)	(-768.77)
LR χ^2	(304.34) [a]	(304.12) [a]	(310.78) [a]

a, b, c significant at 1%, 5%, 10% respectively.*Years of education are excluded from the other two models to reduce potential multicollinearity with education levels.

Appendix (4)
Results of logistic regression (the full model) of determinants of MW (earning less than MW=1, earning otherwise=0)

Variable	Full Model	Full Model
	Coefficient	Average Marginal Effect
Intercept	(0.65)	
Informality (reference= Formal)	(0.90)[a]	(0.09)[a]
Sex (reference=Male)	(0.61)[b]	(0.11)[a]
Education (reference=Illiterate)		
Reads and writes	(-0.68)[c]	(-0.13)[c]
Basic	(-1.03)[a]	(-0.18)[a]
Vocational	(-0.35)	(-0.07)
Secondary	(-1.39)[a]	(-0.22)[a]
Post-Secondary	(-1.08)[a]	-(0.19)[a]
University+	(-2.33)[a]	-(0.28)[a]
Occupations (reference= other Occupations not mentioned in Appendix 2)	(0.24)[b]	(0.05)[b]
Interaction (sex.occupation) FF**	(0.89)[a]	(0.22)[a]
MM**		(0.02)[a]
FM1 **		(0.07)[a]
FM2 **		(0.26)[a]
Covered occupations (reference= covered occupations)	(0.87)[a]	(0.12)[a]
Firm Size (reference=1- 4 workers)[#]		
5-9	(-0.57)[a]	-(0.08)[a]
10-24	(-1.13)[a]	-(0.14)[a]
25-49	(-0.87)[a]	-(0.12)[a]
50-99	(-1.30)[a]	-(0.15)[a]
100+	(-1.39)[a]	-(0.16)[a]
Age Group (reference=15-19)		
20-24	(-1.06)[a]	-(0.19)[a]
25-29	(-1.41)[a]	-(0.24)[a]
30-34	(-1.76)[a]	-(0.27)[a]
35-39	(-1.52)[a]	-(0.25)[a]
40-44	(-1.79)[a]	-(0.27)[a]
45-49	(-1.44)[a]	-(0.24)[a]
50-54	(-2.28)[a]	-(0.30)[a]
55-59	(-1.51)[a]	-(0.25)[a]
60+	(-1.16)[b]	-(0.21)[b]
Pseudo R² :(0.2174), L. likelihood:(-731.46), LR χ2 (406.41)[a], the full model correctly classifies (88%) of the individual observations of the dependent variable. N= (1942).		

a, b, c significant at 1%, 5%, 10% respectively. # The coefficient of the respondents saying that they do not know is not reported. **FF: Females in certain occupations vs. other female workers, MM: Males in certain occupations vs. other male workers, FM1: Females in occupations (not mentioned in Appendix 2) vs. males in the same occupations, FM2: Females in occupations (mentioned in Appendix 2) vs. males in the same occupations.

Appendix (5)
Descriptive statistics of the main variables utilized in the full logistic model (N=1942)

Explanatory Variable	Mean	Std. Dev.	Min	Max
Years of Education	11.51	3.81	0	23
Experience	13.95	11.05	0	56
Formality	1.47	0.50	1	2
Education levels	4.36	1.85	1	7
Sex	1.19	0.39	1	2
Firm size	3.42	2.10	1	7
Age group	4.08	2.11	0	10

Source: JLMPS

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مدى الالتزام بالحد الأدنى للأجور في القطاع الخاص: حالة العاملين بأجر في الأردن

إبراهيم الهوارين¹، وفؤاد كريشان²

ملخص

تتناول الدراسة الحالية خصائص العاملين بأجر الذين يتقاضون أقل من الحد الأدنى للأجور في القطاع الخاص في الأردن. توصلت الدراسة إلى أن بعض أصحاب العمل لا يلتزمون بقانون الحد الأدنى للأجور، وأن هنالك ما يقارب (16.5 %) من العاملين بأجر المشمولين بالقانون يتقاضون أجوراً تحت الحد الأدنى، في حين أن الفجوة النسبية بلغت حوالي (27 %)، أي بواقع (41) ديناراً، ووجدت الدراسة ان انتهاك قانون الحد الأدنى للأجور يتركز اكثر في الانشطة الاقتصادية غير المنظمة، بواقع تقريبي يشكل (27 %) من العمال، وبواقع (6 %) في الأنشطة المنظمة، وأظهرت الدراسة ان العمال الإناث والشباب وذوي التعليم الأقل والعاملين في المنشآت الصغيرة هم الأكثر احتمالية للتوظيف بأجر أقل من الحد الأدنى. اعتمدت الدراسة على استخدام طرق التحليل الإحصائي الوصفية والانحدار اللوجستي، وموظفةً بيانات المسح التتبعي لسوق العمل الأردني الجولة الأولى (2010).

الكلمات الدالة: انتهاك الحد الأدنى للأجور، القطاع غير المنظم، العمال بأجر.

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