

# Impact of Minimum Wage non-compliances on Employment in Cameroon

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**Abstract:** This paper investigates the impact of minimum wage theft for employment in Cameroon using the 2005 and 2010 Cameroon labour force surveys. To achieve these objectives, use is made of the Difference-in-Differences estimator, Heckman two step approach, instrumental variables approach. Empirical results revealed that minimum wage theft is more prevalent, deeper and severer among rural (female) workers than their urban (male) counterparts. Results also reveals a negative relationship between minimum wage theft and employment in 2005 and a deeper disincentive effect on employment between 2005 and 2010. These findings suggest that government should increase minimum wage theft control and impose penalty for violating firms.

**Keywords:** Minimum wage theft; employment; Heckman two-step approach; DID estimator; Cameroon

## I. INTRODUCTION

According to the National Institutes of Statistic (NIS), minimum wage rate in the Cameroon labour market has witnessed an increase between 1992 – 2008; it was 23514 FRS, 28216 FRS in the period 2008 –2013 and 36270 FRS from the 30<sup>th</sup> of June 2013 till date. Despite the increase in the minimum wage rate, some firms do not respect the stipulated rate which lead to minimum wage theft in the labour market and it intend affect the wages of the workers and reduce their welfare. Other things being equal, workers are expected to be paid where their supplementary or additional productivity are equal to the respective price especially in the informal sector of the country (NIS, 2010).

This minimum wage violation is more evident with the private sector especially the informal sector. Minimum wage violation in Cameroon, is done knowingly and unintentionally by employer in a number of ways, where employees work off the clock, not paying commensurate overtime rate, misclassifying workers, not paying a worker's final pay cheque after a job separation, paying by-the-day or by-the-job, and by not making unemployment insurance contribution or worker's compensation (Bobo, 2009).

The most convening explanations for minimum wage theft have to do with the relative monopoly power of firms. With extensive unemployment, there are lots of people willing and able to take jobs, so employers do not feel pressure to improve wages and standards in Cameroon. Also, the existence of little or no trade union in the informal sector leads to weak bargaining power of workers and make employers to steal their wages and do not respect labour laws in the Cameroon

labour market, thus making workers to be paid below their marginal productivity (NIS, 2010).

Due to minimum wage violation, workers are bound to compare between wage and reservation wage but once the reservation wage is greater than the earnings of the workers they decide not to work thus, reduces the level of employment (Borjas, 2010). On the other hand, some workers may shift their services to the other sectors in order to increase their monthly earnings (Borjas, 2010) and hence reducing the number of hours they offer in that sector of the labour market thus reducing labour supply. This fall in employment and labour hours input is likely to reduce productivity and quality which could intern reduces growth prospective in the sector and the economy at large if not regulated.

Another issue that emanate from minimum wage violation is that its significantly decrease the standard of living of workers (NIS, 2005), especially those in the agricultural informal sector and the non-agricultural informal sector of the Cameroon economy that occupied 53% and 37% respectively of Cameroon employment and increase the number of persons found below the poverty line or that are likely to remain below the poverty line in the Cameroon labour market (NIS, 2010).

Again, minimum wage violation (Bobo, 2009) can lead to misclassification of workers as temporal or contingent workers because they need to fill immediate needs and job gaps which is as a result of asymmetry of information and at times employers may not realize that their practices are depriving employees of their earnings or may be unaware that what they are doing is illegal. Even though, Cameroon has a long history of reviewing minimum wage law, it looks like no published work has addressed such a problem concerning the impact of minimum wage theft on employment using Cameroon data. Our present endeavour attempts to fill these research gaps in the Cameroon literature on minimum wages.

The rest of the paper is structured as follows: Section 2 reviews the literature. Section 3 dwells on the methodology and data used in the study. Section 4 presents empirical results and section 5 submits concluding remarks and policy implications.

## II. LITERATURE REVIEW

Many empirical studies have examined the concept of minimum wage using different econometric methods to show the relationship between different labour market outcomes and

it effect in terms of employment, labour supply, income redistribution and prices in different economies. Much of the justification for minimum wage regulation comes from the intention to provide income support to the poor. It seems however that in the presence of a minimum wage increase, some low-wage workers may gain and others lose, depending on the employment effect and the impact on average earnings.

The effects of minimum wage theft on employment are four-fold: firstly, some workers lose their job in the formal sector and assuming no unemployment benefit, receive zero income. Secondly, some workers previously employed in the formal sector find a job in the informal sector, and depending on the difference in wages in both sectors, may fall into poverty and unemployment. Thirdly, some workers who kept their jobs in the covered sector are now earning more due to the introduction of the minimum wage. A proportion of them might escape poverty and unemployment depending on the size of the minimum wage adjustment. Fourthly, a household may react to minimum wage non-compliance faced by one family member by increasing labour participation in the covered sector. At least two studies showed that the minimum wage may have a strong effect on the observed wage inequality (Bobo, 2009).

Based on the work of (Neumark & Wasche, 2007) and 17 more recent studies focusing on low- and middle-income (LMI) countries, (DPRU, 2016) presents the employment effects of minimum wage increases across various developed and developing countries derived from a review of 115 studies. The results include aggregate impacts for all workers coupled with the employment impacts for specific demographic groups, regions and sectors. Overall, employment elasticities in the studies reviewed a range from 2.17 (Katz & Krueger, 1992) to -4.6. The mean and median of all the cumulative elasticities are -0.22 and -0.11, respectively, suggesting that on average the impacts of various minimum wage hikes in the countries under review have been marginally negative.

According to the study of Zaakhir et al, (2018), they investigate the effect of multiple minimum wages, known as remuneration orders, on employment and working hours in Mauritius, using data between 2004 and 2014, the analysis indicates that a 10 percent increase in the minimum wages brings about a slightly positive effect on employment in the covered sector, with an estimated employment elasticity of 0.113, which is within the range of elasticities found in previous studies of employment effects of minimum wages in low- and middle-income countries. The positive employment effect of minimum wages is also associated with a 2.3 percent increase in average working hours for men but a 1.8 percent decline in average working hours for women in the covered sector. In the uncovered sector, the significant positive effect along the intensive margin, estimated at 4.2 percent, is driven by changes in labour supply among men

Minimum wages were first introduced in South Africa in the post-Apartheid period in 1999 in the Contract Cleaning

sector, followed by sectoral minima for the Civil Engineering and Private Security sectors in 2001. Since then, a few studies have been conducted in South Africa which explore the effects of the minimum wage on employment, and other labour market outcomes, as well as the impact of minimum wages on household poverty (Dinkelman et al, 2014). These studies tend to focus on a single sector, such as the Farm or the Domestic worker sectors, which are of course traditionally low-wage employee sectors. Hertz, (2005) concludes that employment changes experienced by Domestic workers since the introduction of the sectoral minimum wage were no different to workers in other sectors.

Minimum wage theft is when a firm pays an hourly rate less than the legislated minimum wage or makes improper deductions that reduce a worker's take-home pay below the minimum wage, that's minimum wage theft (Wage Authority Group, 2018). According to the Fair Labour Standards Action, which recommend the need for a Federal minimum wage, and many states have their own minimum wage protections. If an employee works 40 hours or fewer hours a week, he or she is entitled to be paid the applicable minimum wage for all the time they put in (Wage Authority Group, 2018).

Minimum wage violations can come in many different forms. Being forced to perform "off-the-clock" work essentially increases the total number of hours worked, regardless of the stated hourly rate of pay (Billhorn Law Firm, 1987). We have earned a national reputation for our aggressive advocacy and effective representation of workers who are being denied a lawful wage.

But there exist some items like employment taxes that a firm must deducts which require by law from the wages of the worker (Wage Authority Group, 2018). Some deductions that don't go to the benefit of the employer like union dues, insurance premiums, voluntary contributions to charitable and social organizations. Also, an employer can deduct the cost of board, lodging, or other "facilities" so long as the cost is reasonable, primarily for the benefit of the employee rather than the employer, the employee actually receives the benefit of the furnished facility (Wage Authority Group, 2018).

There are many deductions which are improper and unlawfully reduce workers' pay below the minimum wage, regardless of whether the employer takes the costs out of wages or requires employees to reimburse the employer such as tools and materials used in the employer's business, uniforms, including rental and laundering, cash register shortages, damage to the employer's property, financial losses due to an employee's negligence, and transaction fees associated with employee payroll debit cards (Wage Authority Group, 2018).

Popularized in the last decade by labour activists and progressive scholars, the term recognizes that when workers are not paid the minimum wage or overtime, their employers are in effect committing a form of Minimum Wage violation. It is intentionally provocative in its characterization of common employer behaviour as a crime. Forms of Minimum

Wage violation that disproportionately affect the poor and working class have been historically considered much less serious than property crimes that are more likely to affect the upper socio-economic strata of society (Hallett, 2019).

### III. ANALYTICAL FRAMEWORK AND METHODOLOGY

#### 3.1 Methodology

*Modelling the Impact of minimum wage violation on employment: The Difference-in-Differences Approach (DID) – cum univariate sample selection model*

To evaluate the impact of minimum wage violation on employment, we apply the Card & Krueger model (1994) in the standard difference-in-differences approach to the data. This is an attempt to isolate the direct impact of minimum wage violation on employment in Cameroon, be them formal or informal sector workers, where we must assume that in the absence of violation, outcome for these workers will remain stable. Two alternate specifications are commonly used in the literature of impact evaluation (Card & Krueger model, 1994) is written as follows:

$$E_i = \eta_0 + \eta_1 d_{2010} + \eta_2 V_i + \eta_3 d_{2010} * V_i + \epsilon_{1i} \quad (13)$$

$$E_i = \beta_0 + \beta_1 d_{2010} + \beta_2 V_i + \beta_3 d_{2010} * V_i + \sum_{i=8}^n \beta_i X_i + \epsilon_{2i} \quad (14)$$

where E and V are employment and minimum wage violation,  $d_{2010}$  is a dummy variable taking the value 1 for observation drawn from the 2010 survey and 0 for observations drawn from the 2005 survey.  $X_i$  is a vector of exogenous variables that capture individual and spatial characteristics - including level of education, age in quadratic form, location, and marital status.  $\beta$  and  $\eta$  are vectors of parameters to be estimated,  $\epsilon_{1i}$  and  $\epsilon_{2i}$  are the respective error terms.

In this context, the worker has the choice to participate in the labour market and this decision is likely not random. If the data are censored, then linear probability estimates of equation (18 and 19) would yield biased and inconsistent estimators.

The labour force participation (Bin et al, 2019) indicator can be define as below:

$$LFP_i = \begin{cases} 1 & \text{if individual participates in the labour market} \\ 0, & \text{otherwise} \end{cases} \quad (15)$$

The labour force participation decision can be modelled as follows:

$$LFP_i = Z_1 \gamma_1 + \epsilon_{3i} \quad (16)$$

$Z_i$  is a vector of exogenous variables comprising  $X_i$  correlates that belong to the employment function, a vector of 1's and instrumental variables, which may include - a construct of children less than 6 years and other wage earners. Since the instruments are not correlated with the product of the heteroskedastic errors. The point is that the vector Z could either be a derivative of X, that affect labour force

participation, LFP, but do not directly affect employment, and  $\beta_1$  is parameters to be estimated,  $\epsilon_3$  is the error term (Bin et al, 2020).

$$P(LFP_i = 1 | Z) = \Phi(Z_1 \gamma_1) \quad (17)$$

Where  $\Phi$  is a response probability generating function taking on values strictly between zero and one.  $0 \leq \Phi(\cdot) \leq 1$ , for all real numbers Z. This ensures that the estimated response probabilities are strictly between zero and one.

From the estimates of the probit model - Equation 22, we predict a probit density function (pdf) and cumulative probit density function (cdf). Dividing the probability density function by the cumulative density function gives the inverse Mills ratio IMR) according to Heckman (1979). The inverse mills ratio is expressed as:

$$IMR = \frac{\phi(PD)}{\Phi(PD)} \quad (18)$$

$\phi$  is the standard normal density function and  $\Phi$  is the standard normal cumulative density function or distribution function.

The estimated inverse Mills ratio is included as an additional explanatory variable in the structural employment equation (equation 19) to augment it to the canonical form in equation

$$Pr(E_i = 1 | X') = \Phi(\beta_0 + \beta_1 d_{2010} + \beta_2 V_i + \beta_3 d_{2010} * V_i + \sum_{i=8}^n \beta_i X_i + \lambda IMR) \quad (19)$$

Where,  $X'$  is a vector of all right hand-side variables.  $\Phi$  the cumulative density functions.  $\beta_0$  is the intercept for 2005;  $\beta_0 + \beta_1$  is the intercept for 2010;  $\beta_2$  is the effect of minimum wage violation on labour supply in 2005, and  $\beta_3$  is the effect of minimum wage violation on employment between 2005 and 2010. The total effect of minimum wage violation on employment in the period 2005-2010 (pooled survey) is therefore  $\beta_2 + \beta_3$ . Therefore,  $\beta_3$  measures the impact of minimum wage violation on employment over the five years and  $\epsilon_{4i}$  the error term (Moses et al, 2020).

#### 3.2 Presentation of Data

In this study, we used the first and second Cameroon labour force surveys undertaken in 2005 (CLFS 1) and 2010 (CLFS 2) by the National Institute of Statistics. The Cameroon labour force surveys is a survey that takes place after every five years; the first one was carried out in 2005 and the second one in 2010. It globally aims at providing users with a set of indicators: the first phase provides information on the employment market, working conditions and incomes from activities; the second enables to appreciate the contribution of the informal sector to the economy, in terms of employment and added value.

### IV. SUMMARY STATISTICS

As outlined in the methodology, two alternative specifications of a difference-in-differences approach are used

in order to investigate the impact of minimum wage violation on the employment. We present the descriptive statistics with employment and latter show the estimation results.

4.1. Descriptive Statistics

Table 4.1 summarizes individual variables from CLFS I, and CLFS II which are later used in econometric estimation and impact evaluation with respect to minimum wage violation and employment. In terms of location, rural workers were more violated as compare to their urban counterparts likewise female workers were more violated as compare to their male counterparts. Based on level of education, workers with lower levels of education i.e. primary level of education and secondary level of education suffer violations with about 36% as compare to less than 3% of the workers with higher levels of education. Violated married workers were about 52% in 2005 as compare to 48% in 2010 and over the period 2005-2010 about 48.9%. With a violation gap between married workers in 2005 and 2010. Due to minimum wage violation, about 34 % of workers were discouraged to participate in the labour market in 2005 and about 37% in 2010. For other wage earners about 20599 workers were violated as compare 17,010 workers that were violated in 2010. Also, for children less than 6 years old at least 15 of them were violated as compare to 5 non-violated workers in the periods 2005, 2010 and the overall period.

Table 4.1: Descriptive Statistics of variables

VARIABLES	(1)	(2)	(3)	(4)
	2005		2010	
	Violated	Non violated	Violated	Non violated
Employment	0.999 (0.0252)	0.998 (0.0430)	0.0625 (0.242)	0.0446 (0.206)
Rural	0.577 (0.494)	0.174 (0.379)	0.652 (0.476)	0.310 (0.463)
Age	33.31 (13.29)	36.23 (10.72)	32.37 (13.08)	35.88 (10.63)
Age square	1,286 (1,032)	1,428 (826.0)	1,219 (987.6)	1,400 (835.5)
Married	0.528 (0.499)	0.501 (0.500)	0.480 (0.500)	0.499 (0.500)
Primary Education	0.365 (0.482)	0.266 (0.442)	0.381 (0.486)	0.291 (0.454)
Secondary Education	0.337 (0.473)	0.537 (0.499)	0.340 (0.474)	0.465 (0.499)
Higher Education	0.0127 (0.112)	0.144 (0.351)	0.0251 (0.156)	0.143 (0.350)
Female	0.303 (0.460)	0.551 (0.498)	0.404 (0.491)	0.652 (0.476)
Children <6	6.479 (3.753)	5.639 (3.263)	6.081 (3.818)	5.060 (3.271)

Others wage earners	15,785 (5,290)	17,800 (7,445)	20,467 (9,226)	23,749 (11,596)
IMR	0.310 (0.265)	0.142 (0.155)	0.211 (0.251)	0.0703 (0.116)
IMR/FPAE	0.756 (0.0330)	0.780 (0.0184)	0.773 (0.0249)	0.789 (0.0126)
Observations	1,569	1,082	6,211	6,527

Source: Computed by the author using STATA 13 and the CLFS I and CLFS II and pooled data. Values in parentheses are the Standard errors.

4.2 Estimate of the impact of Minimum Wage Violation on Employment: Simple Regression Results

Table 4.2 shows the results from the difference-in-differences estimation of the impact of minimum wage violation on employment. The first specification estimates the employment equation without controls, whilst the second specification includes controls variables like age, age squared, levels of education, gender, area of residence and marital status.

4.2.1 Impact of Minimum Wage Violation on Employment: Simple Regression Results without other controls variables

Table 4.2: Difference-in-Differences Estimator (Simple Regression)

VARIABLES	(1)	(2)	(3)
	2005 OLS Coff	2010 OLS Coff	Overall OLS Coff
Violation	0.00121 (0.00133)	0.0177*** (0.00398)	0.00121 (0.00810)
Year Dummy D2010			-0.953*** (0.00673)
Violation Year dummy (VD2020)			0.0165* (0.00888)
Constant	0.998*** (0.00102)	0.0448*** (0.00278)	0.998*** (0.00623)
Observations	2,651	12,776	15,427
R-squared	0.03	0.02	0.752
VARIABLES	(1)	(2)	(3)
	2005 OLS Coff	2010 OLS Coff	Overall OLS Coff
Violation	0.00121 (0.00133)	0.0177*** (0.00398)	0.00121 (0.00810)
Year Dummy D2010			-0.953*** (0.00673)
Violation Year dummy (VD2020)			0.0165* (0.00888)
Constant	0.998*** (0.00102)	0.0448*** (0.00278)	0.998*** (0.00623)
Observations	2,651	12,776	15,427
R-squared	0.03	0.02	0.752

Source: Computed by the author using STATA 13, CLFS 2005, and CLFS 2010. Values in parentheses are the Standard errors. \*\*\* \*\* and \* represent 1%, 5% and 10% significance levels respectively.



The coefficient 0.0177 on the violation variable for the 2010 period is positive and significant at a 1% level, minimum wage violation significantly increase employment by about 1.7%, indicating that violating the wages of worker increase the treasury of the employment which encourage the firm to hire more thus, increase employment and these results are opposite to those of Card and Krueger (1994) for New Jersey and Pennsylvania. The significant negative coefficient on the year dummy variable indicates that the constant term shifted downwards between 2005 and 2010.

Table 4.3: Difference-in-Differences Estimator (Multiple Regression)

	Employment	Employment	Employment
VARIABLES	2005 ols	2010 ols	overall ols
Violation	-0.0613*** (0.00525)	0.0170*** (0.00461)	-0.0649*** (0.00449)
Year dummy (D2010)			-0.900*** (0.00442)
Violation*Year dummy (VD2020)			0.0867*** (0.00618)
Rural	0.0371*** (0.00482)	-0.00641 (0.00450)	0.0182*** (0.00338)
Age	0.0143*** (0.00118)	-0.00338*** (0.00105)	0.00653*** (0.000814)
Age square	-0.000168*** (1.53e-05)	4.93e-05*** (1.35e-05)	-7.16e-05*** (1.05e-05)
Marrital status	0.00956* (0.00492)	0.00596 (0.00442)	0.00740** (0.00340)
Primary education	-0.0207*** (0.00675)	-0.00519 (0.00603)	-0.0118** (0.00465)
Secondary education	-0.0410*** (0.00711)	0.0101 (0.00628)	-0.0158*** (0.00487)
Higher education	-0.0456*** (0.0110)	0.0195** (0.00899)	-0.0116 (0.00727)
Female	0.0317*** (0.00465)	-0.0166*** (0.00413)	0.00975*** (0.00320)
Constant	0.661*** (0.0224)	0.101*** (0.0201)	0.807*** (0.0156)
Observations	16,770	12,776	29,546
R-squared	0.039	0.005	0.723

Source: Computed by the author using STATA 13, CLFS 2005, and CLFS 2010. Values in parentheses are the Standard errors. \*\*\* \*\* and \* represent 1%, 5% and 10% significance levels respectively.

The value of the coefficient of the violation variable (V) - 0.0613, for the period 2005, and the pooled coefficient of - 0.0649 is significant at 1% shows a negative and significant relationship between minimum wage violation and employment in Cameroon. The variable on the Violation times year dummyVD2010 is 0.0867 which is significant at a 1% level shows a positive and significant relationship between minimum wage violation and employment in

Cameroon between the two periods. Other variables like ages, married and education correlate with employment inversely.

*Determinants of labour force participation using probit model*

In this subsection we focus our analysis on the probit results reported in Table 4.5. The marginal effects analysis offers the analytical benefit of allowing us to consider the effects of gender and locational disparities on the decision to participate in the labour market. The marginal effects result indicates that gender, level of education, urban residency, age, age squared, married and number of children under six years and other hours worked significantly affect the probability of labour force participation. In Table 4.6, column (3) reveals that there exists location and gender disparity in favour of male workers in the probability of participating in the labour market. Specifically, findings indicate that male workers compared to their female counterparts are more likely to make the decision of participating in the labour market. In this case, male workers have a probability of 5.12% higher than their female counterparts in making the decision of participating in the labour market.

Table 4.4: the determinants of labour force participation using probit model

	(1)	(2)
VARIABLES	probit coff	Marginal effect coff
Rural	-0.240*** (0.0152)	-0.0292*** (0.00186)
Age	0.180*** (0.00370)	0.0218*** (0.000502)
Age square	-0.00187*** (5.01e-05)	-0.000228*** (6.59e-06)
Married	0.242*** (0.0175)	0.0294*** (0.00212)
Primary	0.0350 (0.0219)	0.00425 (0.00266)
Secondary	0.0618*** (0.0230)	0.00751*** (0.00279)
Higher	0.216*** (0.0468)	0.0262*** (0.00565)
Male	0.422*** (0.0151)	0.0512*** (0.00183)
Other hours worked	-0.0994*** (0.00466)	-0.0121*** (0.000549)
Children less than 6 years	0.0247*** (0.00297)	0.00299*** (0.000355)
Others wage earners	0.000144** (5.12e-06)	1.74e-05*** (5.88e-07)
Constant	-3.359*** (0.0780)	
Observations	69,217	69,217

Source: Computed by the author using STATA 13, CLFS 2005, and CLFS 2010. Values in parentheses are the Standard errors. \*\*\* \*\* and \* represent 1%, 5% and 10% significance levels respectively.

Column (2) of Table 4.4 also show that the level of education is statistically very important in determining the probability of an individual participating in the labour market. Results also show that, secondary level education increases the probability of an individual participating in the labour market by 0.75% and higher educational attainment increase the probability of an individual participating in the labour market by 2.6% as compare to their counterparts with no level of education. These results are largely consistent with anticipated results. Table 4.4 equally predict that being a rural resident relative to urban residency reduces the probability of participating in the labour market. In particular, rural dwellers have a probability of participating in the labour market of 2.9% lower than their urban counterparts.

Also married workers have a probability of an individual participating in the labour market of 2.94% higher than their unmarried counterparts. Results further indicate that age is positively related to the probability of participating in the labour market. In particular, the probability of an individual participating in the labour market increases by 0.021 for every additional year of the individual below about 49 years. Meanwhile, for individuals above 49years old, the probability of participating in the labour market reduces for any additional year.

This finding shows that the age of workers exhibits a quadratic behaviour, which is a diminishing effect on the probability of labour force participation. The number of children below six years old captured at the cluster level was used to instrument and identify the probit choice models. The number of children below six years old in the same household hosting a worker significantly increases the probability of participating in labour market by 0.00299. other hours work captured at the cluster level was used to instrument and identify the probit choice models. Other hours work in the same household hosting a worker significantly decreases the probability of participating in labour market by 0.0121. The number others wage earners in the same household hosting a worker significantly increases the probability of participating in labour market by 0.0000174.

Table 4.5: Impact of Minimum wage violation on employment attributable to the 2008 review correcting for selection bias and instrumental variables.

	(1)	(2)	(3)	(4)
	Overall LS	Correcting for selection bias		IV coeffs
VARIABLES	Coffs	probit coeffs	Marginal effect	
Violation	-0.0649*** (0.00449)	0.365 (0.362)	0.104 (0.105)	0.431* (0.233)
Year Dummy D2010	-0.900*** (0.00442)	-4.599*** (0.219)	-1.315*** (0.0855)	-0.714*** (0.129)
Violation Year dummy (VD2020)	0.0867*** (0.00618)	-0.193 (0.363)	-0.0551 (0.104)	-0.383* (0.216)
Rural	0.0182*** (0.00338)	-0.0378 (0.0426)	-0.0108 (0.0122)	-0.0330** (0.0161)

Age	0.00653*** (0.000814)	-0.0360*** (0.0117)	-0.0103*** (0.00336)	0.00320 (0.00312)
Age Square	-7.16e-05*** (1.05e-05)	0.000494* (0.000141)	0.000141* (4.05e-05)	-2.85e-05 (3.63e-05)
No education	-0.0118** (0.00465)	-0.200** (0.0819)	-0.0573** (0.0235)	0.0146 (0.0112)
Primary education	-0.0158*** (0.00487)	-0.241*** (0.0724)	-0.0688*** (0.0208)	0.0397** (0.0179)
Secondary education	-0.0116 (0.00727)	-0.0975 (0.0682)	-0.0279 (0.0195)	0.0647** (0.0269)
Female	0.00975*** (0.00320)	-0.160*** (0.0395)	-0.0459*** (0.0113)	0.00768 (0.0117)
Inverse Mill Ratio		-0.203 (0.144)	-0.0581 (0.0411)	
Constant	0.807*** (0.0156)	3.732*** (0.332)		0.657*** (0.205)
	0.723			0.740
Observations	29,546	15,389	15,389	16,051

Source: Computed by the author using STATA 13, CLFS 2005, and CLFS 2010. Values in parentheses are the Standard errors. \*\*\* \*\* and \* represent 1%, 5% and 10% significance levels respectively.

Table 4.5 displays the estimates for the OLS, probit regression after correcting for sample selection and the instrumental variable regressions. The goal of this subsection is to assess the impact of minimum wage violation on employment in the Cameroon labour market. In particular, Column 1 harbour the OLS estimate, Column 2 and 3 indicates the probit regression estimates and their marginal effects, Column 4 shows the estimates of the instrumental variables. The ordinary least squares (OLS) results reveal preliminary findings that violation have a negative impact on employment and the DID estimator reveal violation is employment augmenting, this is explained by the fact that in the Cameroon labour market the level of unemployment is high and the poverty level is also increasing there by making worker to offer their services in the labour market irrespective of the wage.

The results also reveal that DID estimator has a negative and significant impact on employment. Of crucial importance is the difference-in-differences estimator, which gives the impact of violation on employment provoked by the change in the minimum wages between 2005 and 2010. The null hypothesis that nothing happened after the minimum wage was scaled up between 2005 and 2010 is  $H_0: \beta_3=0$ , against the alternative:  $H_a: \beta_3 \neq 0$ . The coefficient -0.383 of the interaction variable between violation and the year dummy (d2010) measures the change in the impact of the violation on employment. This gives the impact of minimum wage violations on employment between 2005 (before) and 2010 (after) the policy. This finding indicates that minimum wage violations between 2005 and 2010 engendered a decline in employment by about 38%.

Table 4.5 equally shows that being a rural resident relative to urban residency reduces the probability of gaining employment in the labour market. In particular, rural dwellers have a probability of being employed in the labour market of 3.3% lower than their urban counterparts. Also, workers with primary and secondary level of education have a probability of 3.9% and 6.4% of being employed in the labour market higher than their counterparts with no level of education. s

#### V. CONCLUDING REMARKS AND POLICY IMPLICATIONS

To achieve the objective, we adopted the Heckman (1979) sample selectivity bias approach, and instrumental variables to bring out TSLS estimate. Before applying the above technique, the traditional ordinary least square (OLS) estimate was presented. The ordinary least squares (OLS) results reveal preliminary findings that minimum wage theft have a negative impact on employment. The findings also reveal that DID estimator after sample selection bias and endogeneity issues has been handle minimum wage theft has a negative and significant impact on employment.

Of crucial importance is the difference-in-differences estimator, which gives the impact of violation on employment provoked by the change in the minimum wages between 2005

and 2010. The null hypothesis that nothing happened after the minimum wage was scaled up between 2005 and 2010 is  $H_0: \beta_3=0$ , against the alternative:  $H_a: \beta_3 \neq 0$ . The coefficient -0.383 of the interaction variable between violation and the year dummy (d2010) measures the change in the impact of the violation on employment. This gives the impact of minimum wage violations on employment between 2005 (before) and 2010 (after) the policy. This result indicates that minimum wage violations between 2005 and 2010 engendered a decline in employment by about 38%. These findings suggest that government should grant subsidise to high-cost firms and also increase minimum wage theft control and impose penalty for violating firms.

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