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An empirical assessment of the union 'facilitation effect' in the Ghanaian labor market

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Abstract

Workers effective access to mandatory non-wage benefits is key to achieving decent working conditions in the Ghanaian labor market. Thus, this paper investigates the effects of union presence on workers' reported access to non-wage benefits. The study draws its data from the 2012/ 2013 Ghana Living Standards Survey (GLSS VI) and specifies a Structural Equation Model (SEM) that controls for endogeneity and potential sample-selection biases. We find that unions have statistically significant facilitation effects among workers in Ghana, that is, unions appear to play an important role in improving workers' awareness of their work benefits. Furthermore, informal and larger firms exhibit lower facilitation effects. It is also found that despite the statutory nature of these non-wage benefits, non-compliance was present, even in the formal sector, particularly with respect to maternity leave benefits, which indicates a need for greater enforcement of these laws.

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I. Introduction

The steady rise in the number of dual-earner households in Ghana makes it imperative to promote family-friendly policies that maintain a good balance between work and family. These employment policies do not only enhance the quality of created jobs, but also help to reduce the inherent incompatibilities between family and work life, and ensure the continuation in labor market participation, especially by women. Non-wage compensation packages, among others, are at the core of family-friendly labor policies since they are used to attract, retain, motivate and reward employees, beyond traditional wage and salary payments (Budd, 2007).

In Ghana, while the typical focus has been on increasing levels of employment in the country, there is some indication that some attention is also being shifted to the quality of current jobs that individuals have had in recent periods, as stated in the country's 2015 national employment policy. As noted by Helppie and Macis (2009), non-wage benefits are an important determinant of the quality of jobs that people possess. Non-wage benefits like sick leave and maternity leave may be particularly important for women, who often have a dual responsibility to participate in the labor market, but also see to domestic household responsibilities. Despite the social and economic importance of non-wage benefits however, there are often issues of rising costs associated with provision of increased non-wage benefits, which may have repercussions for firm survival and competitiveness (Broderick & Gerhart, 1997). The present paper therefore examines the effectiveness of an often-overlooked role of unions in increasing access to already-existing statutory non-wage benefits in Ghana.

Unionization plays an important role in workers' access to a number of (non-wage) benefits (Freeman & Medoff, 1979; 1984, and Freeman, 1981) through two main mechanisms. The first of these is monopoly effects whereby unions are able to increase the total compensation of workers under threat of strike actions. The second is the collective voice effect, which involves the re-arrangement of workers' total compensation package to reflect the preferences of the average worker, ensuring greater benefits but lower wages.

Nevertheless, most studies (at the individual-level) assessing the access to non-wage benefits assume that workers have perfect information about their benefit plans[1], whereas in some cases workers lacking non-wage benefits may be truly uncovered, or simply ignorant of these entitlements. Thus, this situation gives rise to a third effect of unions, which has been acknowledged in the literature as a facilitation effect (Budd, 2007). This refers to the ability of unions to facilitate workers' knowledge and awareness of existing benefit packages (Leigh, 1976). With facilitation effects, unions do not affect the quantity or redistribution of employees'rights to benefits, but their compliance through enhanced awareness.

The presence of unions and their ability to educate workers about their benefit entitlements and the most efficient means of accessing them encourages employees to better exercise their legitimate non-wage benefits endowments, which is beneficial from both economic and social perspectives. Thus, this paper contributes to the literature by providing evidence of the union facilitation effects in the Ghanaian labor market where non-wage benefits coverage is universal.

This study on the determinants of non-wage benefits is motivated by the sparse economic literature on non-wage benefits and the union facilitation effect in sub-Saharan Africa in general, and Ghana in particular. This research, to the best of the author's knowledge, is the first of its kind in Ghana and will be able to shed some light on the role of unions as determinants of better working conditions through facilitation effects.

The study makes both a methodological and an empirical contribution to the existing literature. First, the study explicitly controls for issues of both self- and sample-selection in the analysis of the determinants of non-wage benefits, paying particular attention to the roles of unions. The empirical analysis builds on individual level data from the 6th round of the Ghana Living Standards Survey (2012/13). The econometric (structural equation) model relates the non-wage benefits to union presence and controls for potential endogeneity and sample selection biases. Union facilitation effects are assumed to be heterogeneous, that is, conditional on firms'size and formality status (Budd, 2005), and this is taken into account in the analysis.

1 See Belman and Heywood, 1991; Buchmueller, DiNardo and Valleta, 2002; Freeman and Medoff, 1979; 1984, Miller and Mulvey, 1992; Swidinsky and Kupferschmidt, 1991; Wunnava and Ewing, 1999.

Second, the study provides empirical evidence on the role of unions in improving access to non-wage benefits, and thereby contributing to the achievement of the country has set goal of improving the quality of jobs that people have. The study provides a rationale for continued efforts to increase union activity within the country, in particular, within the informal sector, given that increased access to non-wage benefits may be expected to improve the quality of work, and generally raise the welfare of workers (Helppie & Macis, 2009).

The paper is structured as follows: a review of the relevant literature is provided in the second (next) section, which includes a description of the current state of labor unionization in Ghana and a brief theory of unionization. A third section presents a description of the empirical methodology, data sources and summary statistics of the variables of interest. The results of the empirical findings are summed up in section four, while section five concludes and provides potential policy applications.

II. Literature review

According to the seminal paper by Freeman and Medoff (1979; 1984), unions have two main functions, and each ensures greater benefits packages for union members, compared to non-union members. First, the monopoly effect of unions guarantees that workers will receive wage and non-wage benefits above the competitive level necessary to clear the market as a result of unions threat of strike action against employers. Thus, differences in employee-benefit packages across firms could not only be explained by compensating differentials, where workers who prefer non-wage benefits will self-select into jobs which offer these, but with lower wages. While seemingly beneficial to workers, the monopoly effect of unions may also have negative consequences for economic efficiency and aggregate welfare, as it could lead to decreased employment by firms.

Second, the 'collective voice' posits that unionized workers will have higher levels of employee benefits through a re-arrangement of the total compensation package towards more benefits and less wages, holding total compensation constant. This theory assumes

that unions are political institutions with the selection of leaders done by majority voting. Therefore, unions base their negotiations on the needs of the average worker (Freeman & Medoff, 1984). It is assumed that the average worker is older, less mobile and therefore more likely to prefer benefits.

Almost all of the studies of individual-level survey data on whether or not a worker has access to non-wage benefits tend to assume that workers have perfect information about their benefit plans (for example, Belman & Heywood, 1991; Buchmueller et al., 2002; Freeman & Medoff, 1984; Miller & Mulvey, 1992; Swidinsky & Kupferschmidt, 1991; Wunnava & Ewing, 1999). Therefore, a worker who indicates a lack of non-wage benefit entitlement may truly be uncovered, or simply ignorant of these entitlements. An examination of differential response patterns among individual workers may therefore be indicative of awareness, rather than availability. This situation gives rise to a third effect of unions, which has been acknowledged in the literature as the facilitation effect (Budd, 2007). This refers to the ability of unions to facilitate workers' knowledge and awareness of existing benefit packages. For example, Leigh (1976) found that that unionized employees were more knowledgeable about their pension plans than non-union employees. With the facilitation effect, unions do not necessarily increase the actual quantity of employee benefits, but they increase the coverage of these benefits by raising awareness of their existence. This study assesses the evidence for union facilitation effects in the Ghanaian labor market.

According to Budd (2007), a critical preliminary indicator of union facilitation effects is the higher reporting of union benefits in workplaces with heavier union presence, even when benefits are legally mandated, with expected universal coverage. The presence of unions and their ability to educate workers on their benefit entitlements and the most efficient means of accessing them encourages employees to better exercise their legitimate non-wage benefits endowments, which is beneficial from both economic and social perspectives. According to Budd (2005), union facilitation effects differ by the productivity of workplaces, the sector of employment and by the size of establishments. In this study, interactions are therefore constructed between union presence and economic sectors, firm

size, formality and the gender of workers in the labor market. This helps to correct for potential heterogeneity in union facilitation effects in the study.

Under statutory universal non-wage benefits unions do not necessarily increase the total compensation of workers (monopoly effect), or its distribution (collective voice effect), but rather: i) increase effective coverage through sensitization to existing benefits packages, ii) inform on how these may be accessed iii) provide protection from employer retaliation as a result of valid accessing of these benefits. Due to the higher cost to employers of providing these benefits, it may be against employers' best interests to encourage worker awareness of the existing benefits. Hence, unions play an important role by channeling this information to workers through circulation of union publications, regular training workshops, among others. There are other reasons why unions play an important role in facilitating workers' access to their benefits. Collective agreements and compensation packages may be complex and difficult for workers to understand; employers may (unlawfully) attempt to retaliate against workers who try to access their benefits, and so on.

Although few studies on the facilitation effect of unions (compared to monopoly and collective voice effects) exist, these studies consistently show a positive role for unions on employees' coverage of benefits. For instance, according to Kramer (2008) and Budd (2005), union-represented workers are more likely, compared to nonunionized workers, to file worker compensation claims and receive more unemployment benefits. Union members are also more knowledgeable about their benefits packages (Budd & Brey, 2003). Furthermore, unionized workers are 1.3 times more likely than nonunionized workers to be allowed to use their own sick time to care for a sick child, representing 37%, compared to 28%, respectively (Lovell, 2004). Generally, unions make it safer for employees to not only be aware of these rights, but also take advantage of them, and in the most appropriate ways (Williams, 2006). An interesting finding on union facilitation effects is that they appear to be stronger among smaller firms, and also among low-wage occupations (Lee, 1978; Budd, 2005).

Although not all studies on union facilitation effects account for the potential self-selection bias, selection into union status may be a function of both worker and employer choices (Abowd & Farber, 1982). Workers may choose to enter a job with an active union presence, with the expectation of better working conditions (wage and non-wage benefits).

However, not all workers who desire union employment can find union jobs (Bryson & Freeman, 2006). Thus, this paper estimates a structural equation model coupled with an instrumental variable approach to correct for this potential source of self-selection bias. The assessment of the union facilitation effect was conducted by comparing access to benefits by workers who reported the presence and absence of unions at their workplaces over a set of statutory non-wage benefits.

2.1. Labor unionization in Ghana

Unionization in Ghana began in the mid-1900s, with protests by the employees of the Public Works Department and miners of the then Gold Coast, because of delays in their pay. Strikes by domestic workers and teachers also took place during the period so that by 1945, 14 trade unions formed the Trade Union Congress (TUC) of the Gold Coast. These included the Government School Teachers Union (1925); Motor Drivers Association (1928); Carpenters Association (1929); and the Motor Transport Union of Ashanti (1931), to name a few.

Trade Union rights are recognized by national legislations in Ghana through the ratification of a number of ILO conventions, and also through the 1992 Constitution and Labor Act. Eligible trade unions acquire collective bargaining certificates from the Labor Department and therefore have the right to enter into collective bargaining with employers. A challenge to this collective bargaining function has, however, been the inability of unions in Ghana to extend benefits to the over 80% of Ghanaian workers that are clustered in the informal sector. There is a large degree of non-compliance in the informal sector largely due to lack of enforcement and monitoring. The density of trade unions in the country however declined sharply in the wake of the implementation of the World Bank/ IMF Structural Adjustment Programs (SAP) of the 1980s, and the subsequent retrenchment of a number of public sector workers. According to the GSS (2008), more recently, trade union density has declined from 52% in 1999 to 37% in 2006, largely due to the inability of the formal sector to expand.

The two main trade union federations in Ghana include the Ghana Trade Union Congress (GTUC) with about 350,000 members, mostly from the formal sector; and the Ghana Federation of Labor (GFL) with about 10,000 workers - a number of trade unions are not affiliated with either of these two federations, and together have over 200,000 members (Britwum, 2009). Trade unions provide three main services: collective bargaining on monetary and non-monetary benefits[2], legal representation, and education, training and research. Apart from wage benefits, it is often the case that workers have little or no information about other non-wage benefits contained in their collective agreements, indicating some scope for improved dissemination activities by unions within the country. Workers in Ghana are entitled to statutory benefits such as social security, paid maternity leave, paid sick leave, paid annual leave, work injury compensation, paid overtime and severance pay. Non-statutory benefits may include free medical care, loans, education bursaries, free transport, to name a few.

In Ghana, despite the fact that these benefits (paid holidays, sick leave and maternity leave) are statutory and backed by laws, the mechanisms through which these laws are meant to be enforced are ineffective in practice, particularly in the informal sectors. Additionally, employers that fail to comply are unlikely to face detention and punishment, and therefore as a result, the law is often not adhered to. Unions may therefore play a critical role in not only raising awareness of the benefits of these rights, but also providing some guidance on the most effective ways to take advantage of these benefits. Indeed, Otoo, Osei-Boateng and Asafo-Adjaye (2009) indicated a strong correlation between unionization and access to benefits in Ghana, however, this analysis was mainly descriptive. The present study extends previous analysis by Otoo et al. (2009) by considering heterogeneous effects and selectivity issues under a micro econometric framework. The empirical methodology is described in the next section.

[2] It is estimated that about 2/3rd of all formal sector jobs are subject to collective bargaining agreements

III. Econometric specification and data

Non-wage benefits are not observed for the entire sample, but only for those individuals who are employed, thus a sample selection bias may be present if the available sample is not random. Moreover, the Ghanaian labor survey data described in the following subsection is characterized by an important rate of non-response regarding non-wage benefits of about 75% (of the employed sample). Such an important missing-responses rate motivates a sample selection bias correction even further in order to deal with a potential missing non-at random pattern (MNAR) in our data (Rubin, Stern & Vehovar, 1995).

Self-selection (endogeneity) bias may also be present if individuals deliberately select themselves into jobs offering statutory non-wage benefits. More specifically, more able workers may be more likely to seek high quality jobs characterized by union presence and granting higher total compensation packages (higher wages and non-wage benefits compliance). As this ability is not fully observed by the econometrician through survey data, it is implied as an unobserved determinant of the non-wage benefit (ε_i) and union presence ($Union_i$). This induces a correlation between union presence and ε_i in the following relation (1):

$$NWB_i = \beta Union_i + \gamma_1 X_i + \theta_1 \lambda_i + \varepsilon_i \qquad (1)$$

Where NWB_i represents the dichotomous outcome of interest, either: access to paid holidays, sick leave or maternity leave; *Union* is a dummy variable for union presence at workplaces while β measures the union facilitation effect ; X_i is a vector of control variables (including the constant term) and γ is its corresponding parameters vector. A random term (ε) with zero mean and no distributional assumptions represents other factors that remain unobserved.

Since (1) is censored and observed only for the employed population ($E\_i = 1$), we apply a two-step Heckman sample selection correction by introducing the Inverse Mills-ratio (IMR) - noted λ_i- in equation (1). We prefer a two-step approach due to its stability[3] properties as shown by Leung and Yu (1996; 2000), Puhani (2000) and Millimet & Tchernis

[3] Preliminary simultaneous estimates yield unreliable – non identified – estimated parameters.

(2013). In a first step, the probability of observing NWB_i in (1) is defined as $P[E\_i = 1] = \Phi[\theta' R_i, \rho]$ where R_i is a vector of determinants that may overlap those within X_i and ρ is the conditional correlation between the unobservables of the selection equation and the main outcome's residuals (ε_i). A common exclusion restriction – number of children - is the variable included in $R_i$but not in X_i. Finally the individual IMR is calculated[4] as the ratio of the density and complementary cumulative distribution functions evaluated at $\theta' R_i$, that is: $\phi[\theta' R_i, \rho]/(1 - \Phi[\theta' R_i, \rho])$. Given that one may argue that the number of children in the household may create incentives to prefer leisure (paid holidays) to wage benefits, we included the number of children as a determinant of the many NWB and verified that it is not statistically significant.

Given that union presence is endogenous to statutory non-wage benefit, we implemented an instrumental variable approach where a set of instruments (Z_i) only related to NWB_i through $Union_i$ and not correlated to ε_i are required in order to identify the union effect (β). Thus, we chose as instruments those determinants of union membership (presence) that are not related to the NWB under study (Budd & Na, 2000). These are transportation, housing and education costs at the regional level since Ghanaian Unions may grant transportation, housing and education allowances to its members. Thus higher regional costs on any of these three items should increase the propensity of unionization which in turn would facilitate these specific benefits (transportation, housing and education and no others) to union members. It can be easily argued that such costs at the regional level should not exhibit a causal relationship with respect to benefits such as paid holidays, maternity leave and sick leave. Thus, the exclusion restrictions that allow the identification of the facilitation effect rely on the random assignment of transportation, housing and education costs across Ghana's regions.

We estimate these costs from the GLSS data at the household level. Excluding workers who report having union presence at their workplace, remaining observations are aggregated for each of the regions of the country. We then estimate their associated costs at the regional level. Hence, our instrument set (Z_i) is given by the transportation expenditure, housing expenditure and education average expenditures at the regional level.

[4] The IMR is easily calculated following a heckman stata routine option.

Our approach follows Budd and Na (2000) who identified a broader set of analogous instruments to identify unions' impacts on monetary benefits in the US. Thus, the auxiliary equation is defined as:

$$Union_i = \gamma_2 X_i + \theta_2 \lambda_i + \gamma_3 Z_i + u_i \quad (2)$$

where $Union_i$ represents the dichotomous variable of interest that describes whether or not union presence is felt by the *i-th* worker. Union presence is coded as "1"; X_i and λ_i is the vector of exogenous variables and IMR introduced in the main equation (1) . A zero mean random term (u_i) represents other factors that remain unobserved.

3.1. Heterogeneous effects

Existing literature indicates the potential for heterogeneous union facilitation effects according to firm and sector characteristics (Blanch flower & Bryson, 2004; Saavedra & Torero, 2002). We therefore employ interaction effects between union presence and firm size (Union*Employees); and union presence and formality (Union*Formal). Given that the variable union is endogenous, its interaction terms - Union*Employees and Union*Formal – should also be treated following the same instrumental variable approach ruling equation (2) specification. Thus, interactions' auxiliary equations[5] arise naturally by multiplying equation (2) by our two heterogeneity factors: Number of employees ('Employees') and formality status ('Formal') :

$$Union * Formal = \gamma_f' X_i * \boldsymbol{Formal} + \theta_f \boldsymbol{Formal} * \lambda_i + \gamma_f' Z_i * \boldsymbol{Formal} + u_{fi} \quad (3i)$$

$$Union * Emp = \gamma_e' \boldsymbol{Emp} * X_i + \theta_e' \boldsymbol{Emp}_i + \gamma_e' Z_i * \boldsymbol{Emp} + u_{ei} \quad (3ii)$$

[5] See Wooldridge, p122, 2002 for a reference of this extension to the standard IV approach to interacted variables

3.2. Functional form

Despite the linear probability model (LPM) limitations, Anderson (1987) and Deke (2014) argue that it provides consistent estimates of the impact of a binary treatment variable (Union) on a binary outcome (NWB) that neither a probit nor a logit can provide. Further discussions and references are provided in Caudill (1988) and Horrace and Oaxaca (2006). Even though a non-linear– multinomial probit – specification should be the textbook choice[6] for equations (1) (2) and (3i; 3ii) they imply a complex likelihood function that require the empirical identification of second order moments such as the implied conditional correlations among them. It should be noted that sequential profits with endogenous dummy repressors could theoretically be identified by the non-linearity's imposed by the parametric distribution (without instruments or exclusion restrictions) as argued by Wilde (2000) if there is enough variability among $X_i's$ to exploit the non-linearities. Nevertheless, a preliminary estimation of such a model with exclusion restrictions (instruments) pointed to a lack of empirical identification due to the complexity of the likelihood function dealing with a fourth dimensional integral which is in line with the computational stability issues motivated by Keane (1992) among others. Thus, we posit a LPM for equations (1), (2) and (3i;3ii).

3.3. Data

Our empirical analysis builds on the sixth round of the Ghana Living Standards Survey (GLSS 6). The second, third, fourth and fifth rounds, were carried out in 1988, 1991/92, 1998/99 and 2005/06 respectively. The sixth round of GLSS (GLSS-6) which started on 18th October, 2012 ended on 17th September, 2013. This survey covered a nationally representative sample of 18,000 households in 1200 enumeration areas. A two-stage stratified sampling design was adopted with the 1200 enumeration areas selected as the primary sampling units (PSU) for the study. At the secondary stage, 15 households were systematically selected from each PSU to arrive at the 18000 observations for the study.

[6] Such models bound the estimated probability within the 0-1 interval whilst the linear-probability model does not. Nevertheless, neither model is supposed to be the true one.

Detailed information was collected on households' demographic characteristics, education, health, employment and time use, migration and tourism, housing conditions, household agriculture and access to financial services and asset ownership. Previous rounds of the survey always identified a special focus of the data collection activity. In the 5th round for example, the emphasis was on the Non-Farm Household Enterprises. In the 6th and latest round, the Labour Force Module was the focus of interest, with additional information collected on child labour and household financial services. Summary statistics of study variables are presented in Table A1 (see appendices). The sample is restricted to workers between the ages of 15 and 65 years of age (the period that individuals are legally able to be employed in Ghana).

Only 25% of the employed sample report an answer to questions related to non-wage benefits and union presence as can be seen in Table A1, where the number of respondents is about 6, 530 (6, 526 for union), whereas the working age sample is about 39, 986. The high non-response rate - 75% with respect to the employed sample - motivates the implementation of a sample selection bias correction as argued in the previous section. From the remaining 25%, about 39.8%, 41.2% and 17% report having access to paid holidays, sick leave and maternity leave, respectively while a third (30.6%) of workers also appear to have unions present at their workplace[7]. This however varies by industry with the highest rates of unionization in Ghana observed in the utilities sector, and the lowest in the construction sector. Overall, the unionization rate among formal sector workers was approximately 74%, with a greater proportion found in the public sector as reported by Gockel and Vormawor (2004). This however represented only about 7.5% of the total labour force, given the large informal sector that remained non-unionized. There have been attempts by the Ghana Trade Union Congress in recent periods to rectify this situation. According to our survey (2013), half of the formal sector workers were unionized.

The average worker has about 11 years of education, with the majority of more educated workers being men. In Ghana, this disparity in educational attainment among men

[7] Here, the survey question is: *Is there a trade union at the place where (Name) works?* 'Union presence at workplaces' does not necessarily imply the physical presence of the union at the work site, but a feeling on the part of workers that unions are interested and involved in matters relating to worker welfare, and continually negotiating on their behalf for improved terms of service.

and women has been noted (Baah-Boateng, 2012), and a number of campaigns targeted at increasing the education levels of females have been launched. These have seen some level of success, especially at lower levels of education. With respect to the various occupations, about 1% of workers are clerks; 12% belong to the crafts industry; 1.2% are managers; 3.6% operate machinery; 4.4% are professionals; 20%, a good proportion, work in the services and sales sector; 1.5% are technicians; 4.2% are unskilled; while the greater majority, a little over half of the sample (52%), are skilled agricultural workers. Moreover, 41.2% of the sample reside in urban areas, and 30.3% of workers were classified as poor in the GLSS dataset. With respect to employee or firm size, the average establishment has about 6.6 workers, ranging from 0 (self-employed) to 2,800. Finally, 28% of the employed sample belong to the public sector.

Firms which have their businesses registered with the Registrar-General in Ghana are considered to be fully formal. Degrees of formality are typically present in the Ghanaian labor market and for the purposes of this research the following are classified as belonging to the formal sector in the GLSS data; workers in the Civil service, other public services, parastatals, NGOs, Co-operatives, International Organizations and in the formal private sector. We follow the GLSS definition of informality that classifies informal firms as the ones with no established procedures for keeping records, recruitment, promotions and dismissals. In this paper, informality is considered as a lack of compliance indicator to mandatory labor regulations.

A third of all workers in the sample are located in the northern parts of the country (Northern, Upper East and Upper West regions), while the remaining workers are from the southern regions (Western, Central, Eastern, Ashanti, Brong Ahafo, Volta and Greater Accra). The highest population densities in the country are observed in the Ashanti, Greater Accra and Eastern regions, while the lowest densities are found in the Central, Upper East and Upper West regions. About 23% of workers report that at the time of their employment, they were not given written or verbal contracts of their terms of employment.

Table 1: Share of Workers (%) with Union Presence Reported that Do Not Receive Non-Wage Benefits, by Formality status

Paid Holidays		Sick Leave		Maternity Leave	
Formal	Informal	Formal	Informal	Formal	Informal
11.1	78.4	13.3	75.9	50.1	87

About 11%, 13% and 50% of all workers who belong to unions in the formal sector report that they do not receive paid holidays, sick leave or maternity leave benefits, respectively. These proportions are considerably lower than rates observed in the informal sector: 78%, 76% and 87% respectively. It is interesting to note that despite union presence, (female) workers report the least access to maternity benefits (50.1%). This signals a role for unions to play in facilitating these benefits to workers in the formal sector, where such mandatory benefits are expected to be relatively easier to enforce. Increased focus may be placed on women's rights to maternity benefits. Additionally, unions may play an important role in protecting workers from being targeted because of accessing these benefits.

IV. Estimation results

The main estimation results are presented for each non-wage benefit in Table 2: paid holidays, sick leave and maternity leave. Regressions for maternity leave are restricted to only women in the sample by definition, given that men are not entitled to paternity leave. The control variables of the main equations and the auxiliary equations (2, 3i and 3ii) are presented in the appendices in Tables A.2 and A.3 respectively.

Table 2: Union facilitation effects on Non-wage benefits, LPM main equations

	Dependent variable		
Variables	**Paid Holidays**	**Sick Leave**	**Maternity Leave**
Union	**-0.498*** **	**-0.383***	**-0.248**
	(-2.75)	**(-1.88)**	**(-1.22)**
Union*# Employees	**-0.000193+**	**-0.0000266**	**-0.000229**
	(-1.48)	**(-0.19)**	**(-0.81)**
Union*Formality	**0.266***	**0.109**	**0.819*** **
	(1.94)	**(0.71)**	**(3.29)**
Mills - ratio Inverse	0.766***	1.103***	1.256***
	(3.67)	(4.86)	(3.21)
Number of employees	0.0002**	0.00002	0.00002
	(2.32)	(0.16)	(0.12)
Male	0.310***	0.448***	-
	(4.00)	(5.33)	
Potential Experience	0.006***	0.007***	0.006***
	(6.71)	(6.90)	(3.32)
Urban	0.367***	0.502***	0.519***
	(4.40)	(5.55)	(3.18)
Education (in years)	0.036***	0.040***	0.026***
	(8.42)	(8.79)	(3.37)

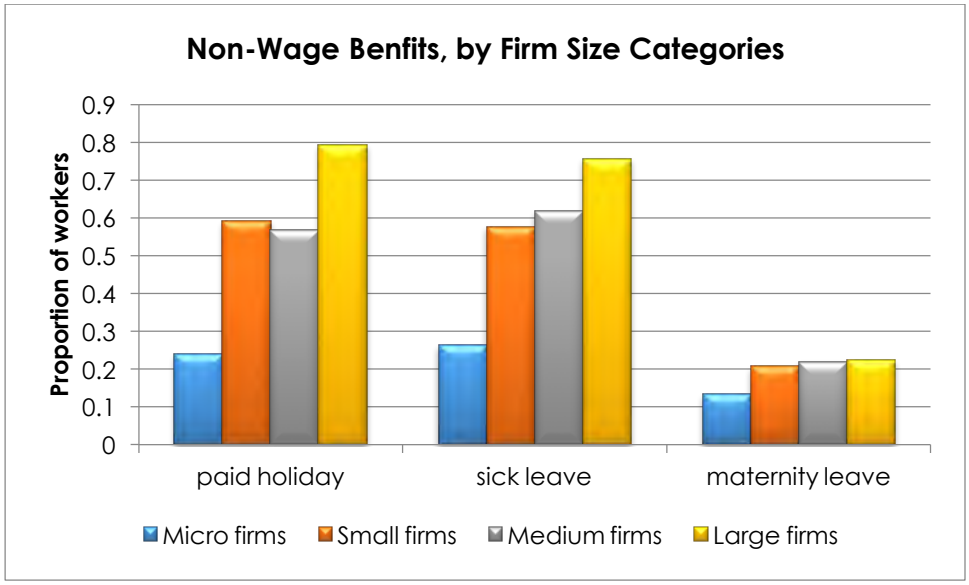
t-statistics in parenthesis, * p<0.1, **p<0.05, ***p<0.01. Control variables in Table A.2.

As expected, facilitation effects on compliant firms - formal ones - are highly significant and particularly important for maternity leave. The facilitation effect improvement on paid holidays is statistically significant and equal to 26%. Access to paid holidays increases slightly as firms get bigger - by 2% per 100 workers - which is in line with findings by Lee (1978) and Budd (2005). The sample selection bias correction verifies its importance

as the IMR is highly significant at every NWB[8]. The positive sign of the IMR coefficient implies that unobservable leading to higher NWB imply a higher probability of being employed. This could be explained by unobserved skills that increase workers' likelihood of getting a job while ensuring them a higher compensation package through NWB.

Potential work experience is an important determining factor for access to non-wage benefits, as are socioeconomic variables such as education and urbanization. With respect to occupations, clerical workers, managers, professionals and technical workers are more likely to have access to paid holidays and sick leave, compared to skilled agricultural workers in the sample. Generally, men are more likely to report access to paid holidays and sick leave, compared to women. Workers from poor households are less likely to report access to non-wage benefit entitlements. Workers in larger firms are more likely to report access to paid holidays, although large firms with union presence are less likely to report access to this benefit. The graph below shows that the proportion of non-wage benefit entitlements increase with firm size. Given that large firms already have workers with relatively high non-wage benefits, we argue that the scope for unions is smaller among large firms, compared to smaller firms.

Figure 1: Non-Wage Benefits, by Firm Size, GLSS6



[8] It should be noted that these estimates provide with facilitation effects that cannot be shifted by the indirect effect of union's presence on the IMR since Union (endogenous regressor) is not included among the selection equation determinants.

Surprisingly, workers in the public sector are less likely to report access to benefits, compared to workers in the private sector (Table A.2). As expected, formal workers are however more likely to report access. Workers in the northern parts of the country are less likely to report access to benefits, compared to workers in southern areas of the country, and finally, workers with no verbal or written contracts are less likely to report access to benefits (Table A.2).

4.1. Discussion of results

These estimates verify some stylized facts. For instance, workers are more likely to report having access to these benefits when unions are present at workplaces (Budd, 2007). This is in accordance with the ability of unions to not only educate and raise the awareness of workers'non-wage benefit entitlements, but also on their ability to train them on the most efficient ways to utilize these benefits. For instance, according to Osei-Boateng and Torgbe (2012), during training and education sessions to improve members understanding of the processes and contents of their collective bargaining agreements, it was observed that members had limited knowledge, or no idea about non-wage benefit entitlements contained in their agreements.

Empirically, there is evidence of the union facilitation effect. For instance, Hirsch, MacPherson and DuMond (1997) attribute higher levels of workers receiving compensation among unionized workers, compared to similar nonunion individuals. For instance, in the United States, among hourly workers who took leave, 47% of unionized employees, compared to 61% of non-unionized employees, said that they returned to work when they did because they "couldn't afford financially to take more time" (Budd & Brey, 2003).

Also, the difference between unionized and non-unionized workers is attributed to unions'pursuit of workers' compensation claims. Comparing hourly workers who take leave, 46% of unionized workers, compared to 29% of non-unionized workers received full pay while on leave. In other words, more than one and a half times as many unionized workers as nonunionized workers are fully paid while on leave (Budd & Brey, 2003). In the US 1998 National Study of Employers, the Families and Work Institute found that 65% of companies

with at least 30% of unionized workers provided paid leave to care for mildly ill children, while 46 % of companies with non-unionized workers did so (Galinsky & Bond, 1998). According to Budd and McCall (1997), hourly unionized workers were more likely to receive unemployment insurance benefits compared to nonunion individuals.

We find that union facilitation effects are present for workers in Ghana, and appear to be heterogeneous across sector and firm characteristics. First, workers in the formal sector are more likely to report access to non-wage benefits, compared to workers in the informal sector. Unions seem to facilitate paid holidays only at informal firms, that is, informal firms'unions seem to struggle when facilitating sick and maternity leave. A couple of reasons may explain the differential union facilitation effects for the formal and informal sector. First, the proportion of unionization is much lower in the informal, compared to the formal sector, which limits union activity and coverage and therefore, the ability of unions to raise awareness of statutory benefits. Additionally, in the informal sectors of Ghana, there is a large degree of non-compliance largely due to the lack of enforcement and monitoring of access of workers to these statutory benefits.

Firm size is positively related to access to non-wage benefits since larger more productive firms may offer more competitive compensation packages including higher NWB (Saavedra & Torero, 2002). Nevertheless, the process of union information dissemination may be more successful in larger firms, which may explain its lack of significance for benefits other than paid holidays. Rather, smaller firms may be more likely to benefit from increased union presence and activities in raising awareness of workers' non-wage benefit entitlements, given the lower compliance rates in these firms.

V. Conclusions and policy implications

The research study involves an examination of the evidence for union facilitation effects within the Ghanaian labor market. To do this, data from the most recent round of the Ghana Living Standards Survey (GLSS) was used, which includes a special module on the labor market. In order to control for potential self- and sample- selection biases, we

employed a structural equation model. We also included interaction effects of unions, with firm size and formality, to account for the presence of heterogeneous effects in union presence.

We found that unions have statistically significant facilitation effects among workers in Ghana, that is, unions appear to play an important role in improving workers' awareness of their statutory benefits. We also find that informal sector firms exhibit lower facilitation effects. Although access to these rights is backed by law, we find high levels of non-compliance, particularly in the informal sector, and especially with respect to maternity leave benefits.

We also found important NWB facilitation effects for formal firms which imply that there is room for improvement on working conditions within the informal sector. Our results also suggest that formalization policies could improve informal workers' employment quality. It is important to assess the facilitation effect of union presence at various workplaces across the country, from a social and economic perspective. Workers may be eligible for various forms of non-wage benefits and entitlements, but may not take advantage of these if they are unaware of their existence. By law, as enshrined in the Labor Act (Act 651), for instance, all workers are entitled to paid holidays/ annual leave (Article 20), sick leave (Article 24) and maternity leave for all female workers (Article 57). The National Pension Act (Act 766) also mandates employers to pay social security/ pension contributions for their employees. However, it is observed that not all paid workers in the public and private formal sectors report having entitlements towards these benefits (GLSS 6, 2012/ 2013). Where awareness is higher among workers who report the presence of unions at their workplaces, it then becomes important to encourage greater unionized presence at workplaces particularly at the lower levels, in addition to the dissemination of union publications among these workers in order to increase awareness of worker rights. This has important implications for the social and economic well-being of workers.

It is important that existing laws mandated to provide these non-wage benefits to workers are enforced. This might imply greater work on the part of the umbrella union bodies, to increase awareness of workers' entitlements. Indeed, these efforts would be neatly aligned with a main objective of the newly-minted National Employment Policy (2015)

of Ghana, which seeks to improve the quality of work among those who are already employed. Increased coverage of statutory benefits would be a significant means of improving the quality of work among Ghanaian workers. As Table 1(ii) shows, there is considerable scope for increased union presence in the country. Despite these benefits being statutory, we found that in the formal sector, where these laws may be easily implemented, 11%, 13% and over 70% of workers reported that they did not have access to paid holidays, sick leave and maternity leave, respectively. In the informal sector, these non-compliance rates were even higher. Recently, a lot of effort has been placed on the unionization of the informal sector, which makes up over 80% of the total workforce in Ghana. Efforts started as early as 1979 with unions such as the Ghana Private Road Transport Union (GPRTU) and the General Agricultural Workers Union (GAWU) being set up (Adu-Amankwah, 1999). The TUC has also taken various steps including the encouragement of its affiliates to organize in the informal sector, the establishment of an informal sector desk, among others, to increase the coverage of unionization within the informal sector. Currently, seven of the national unions affiliated to the GTUC and the industrial and Commercial Workers Union (ICU) are involved in unionizing workers in the informal sector. Additionally, the TUC has also granted associate membership to five informal sector associations. Although the current proportion of organized informal sector workers is lower than the total population of workers in the informal sector, there is some promise. According to Baah (2009), trade unions have achieved some success in improving the conditions of work of some informal sector workers in the areas of policy advocacy (for example, tax exemption for minimum wage earners in the informal sector in 2005); and economic gains and capacity enhancement (for example, GPRTU and GAWU facilitate access to institutional credit and basic tools such as cutlasses, for their members). The research shows that there is scope to do even more.

The study also has important implications for poverty status of households. This is because non-wage benefits such as paid holidays and maternity help to remove noted incompatibilities between domestic responsibilities and labor market work, particularly for women. Women may no longer have to quit their jobs in order to see to domestic responsibilities. Their continued presence in the labor market is therefore likely to be associated with increased and continued income-earning potentials. Therefore, not only do

these non-wage benefits increase welfare of workers directly, but they also have important implications for labor market continuity and household income, indirectly.

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Appendix

Table A1: Descriptive Statistics

Variable	Observations	Mean	Standard Deviation	Min	Max
Paid Holidays	6530	0.398	0.49	0	1
Sick Leave	6530	0.412	0.492	0	1
Maternal leave	2285	0.29	0.45	0	1
Male	39986	0.467	0.5	0	1
Union	6526	0.306	0.461	0	1
Potential Experience	29232	19.677	13.008	0	65
Urban	39986	0.412	0.492	0	1
Education (in years)	29232	11.096	2.23	0	16
Occupations					
Clerical	30850	0.01	0.101	0	1
Craft	30850	0.118	0.322	0	1
Managers	30850	0.012	0.11	0	1
Plants/ Machine	30850	0.036	0.185	0	1
Professionals	30850	0.044	0.206	0	1
Service/ Sales	30850	0.2	0.4	0	1
Technical/ AssocProfs	30850	0.015	0.121	0	1
Unskilled	30850	0.042	0.201	0	1
Skilled Agric workers	30850	0.522	0.5	0	1
Poor	39986	0.303	0.46	0	1
Number of Employees	27915	6.619	46.914	0	2800
Public sector	4876	0.28	0.449	0	1
Formality	6535	0.471	0.5	0	1
North	39986	0.321	0.467	0	1
No Contract	6530	0.231	0.421	0	1
#Hhold Child	39986	0.762	0.979	0	7
Instruments					
Housing	39986	726.830	330.784	318.205	1565.489
Transport	39986	735.828	319.285	368.106	1530.744
Education	39986	995.532	440.864	424.864	1824.074

Table A2: Main equations (NWB) control variables

		Dependent variable	
Variables	**Paid Holidays**	**Sick Leave**	**Maternity Leave**
Clerical	0.174***	0.173***	0.0763
	(4.16)	(3.87)	(0.82)
Craft	-0.0493	-0.0373	0.00858
	(-1.43)	(-1.02)	(0.10)
Managers	0.180***	0.156***	0.0625
	(4.04)	(3.26)	(0.59)
Plant and machine	0.0108	-0.0134	0.0205
	(0.30)	(-0.35)	(0.14)
Professionals	0.248***	0.198***	0.0813
	(6.74)	(5.06)	(0.93)
Service and sales	0.0501+	0.0601+	-0.00225
	(1.45)	(1.64)	(-0.03)
Technical and Assoc.Prof	0.153***	0.161***	0.165*
	(3.80)	(3.75)	(1.67)
Unskilled	-0.00707	-0.0360	0.0271
	(-0.20)	(-0.95)	(0.31)
Poor	-0.270***	-0.347***	-0.419***
	(-4.21)	(-4.97)	(-3.35)
Number of employees	0.000211**	0.0000154	0.0000154
	(2.32)	(0.16)	(0.12)
Public sector	0.265***	0.232***	-0.163
	(4.01)	(3.28)	(-1.41)
Formality	0.262***	0.294***	0.0498
	(8.05)	(8.43)	(1.10)
North	-0.140***	-0.226***	-0.204**
	(-3.18)	(-4.76)	(-2.48)
No contract	-0.106***	-0.0993***	-0.0761***
	(-8.60)	(-7.37)	(-3.11)
Constant	-1.825***	-2.506***	-2.608***
	(-4.34)	(-5.49)	(-3.22)

t-statistics in parenthesis, * p<0.1, **p<0.05, ***p<0.01

Table A3: Auxiliary equation (2) estimates

Dependent variable: Union presence			
Variables	**Paid Holidays**	**Sick Leave**	**Maternity Leave**
Male	0.0186	0.0187	-
	(1.17)	(1.18)	
Potential Experience	0.003***	0.003***	-0.001
	(6.67)	(6.58)	(-0.71)
Urban	0.0366**	0.0358**	-0.0227
	(2.02)	(1.98)	(-0.75)
Education (in years)	0.0196***	0.0195***	0.0189***
	(9.94)	(9.92)	(6.18)
Skilled Agric Workers	-0.0161	-0.0162	0.0398
	(-0.76)	(-0.77)	(0.85)
Public sector	0.366***	0.366***	0.445***
	(21.51)	(21.51)	(15.68)
Formality	0.129***	0.129***	0.0598**
	(8.78)	(8.80)	(2.41)
North	-0.0804***	-0.0828***	-0.103***
	(-3.97)	(-4.07)	(-3.24)
Housing Expenditure	-0.0000108	-0.00000210	0.0000254
	(-0.27)	(-0.05)	(0.36)
Transport Expenditure	0.0000963**	0.0000977**	0.000267***
	(2.42)	(2.30)	(4.34)
Education Expenditure	-0.000194***	-0.000203***	-0.000378***
	(-5.67)	(-5.78)	(-7.37)
Mills ratio inverse	0.0178	0.0178	-0.0754
	(0.49)	(0.49)	(-1.31)
Constant	-0.0535	-0.0496	0.260*
	(-0.65)	(-0.60)	(1.96)

t-statistics in parenthesis, * p<0.1, **p<0.05, ***p<0.01

Table A3: Auxiliary equation (3ii) estimates

Dependent variable: Union and # of Employees interaction			
Variables	**Paid Holidays**	**Sick Leave**	**Maternity Leave**
Employees*Housing Exp	0.00231***	0.00231***	0.00386***
	(30.73)	(30.75)	(43.88)
Employees*Transport Exp	-0.00291***	-0.00291***	-0.00161***
	(-38.05)	(-38.06)	(-13.94)
Employees*Education Exp	0.000554***	0.000553***	-0.00195***
	(8.09)	(8.06)	(-16.99)
Employees*Male	0.376***	0.376***	-
	(19.93)	(19.94)	
Employees*Potential Exper	0.0152***	0.0152***	0.00294***
	(29.09)	(29.11)	(2.78)
Employees*Urban	0.0686**	0.0688**	-0.455***
	(2.24)	(2.24)	(-11.48)
Employees*Education(yrs)	-0.0315***	-0.0315***	0.0839***
	(-11.30)	(-11.30)	(18.63)
Employees*SkilledAgricWorker	-0.387***	-0.387***	0.516***
	(-7.23)	(-7.23)	(7.23)
Employees*Public sector	-0.250***	-0.250***	-0.0169
	(-22.25)	(-22.26)	(-0.51)
Employees*North	0.537***	0.537***	0.155*
	(7.19)	(7.19)	(1.82)
Employees*MillsRatio	0.221***	0.221***	-0.0318
	(6.45)	(6.45)	(-0.62)
Constant	-2.633***	-2.634***	0.260
	(-5.31)	(-5.31)	(0.47)

t-statistics in parenthesis, * p<0.1, **p<0.05, ***p<0.01

Table A5: Auxiliary equation (3i) estimates

Dependent variable: Union and Formality status interaction			
Variables	**Paid Holidays**	**Sick Leave**	**Maternity Leave**
Formality*Housing Exp	0.0000404	0.0000481	0.000121+
	(0.82)	(0.97)	(1.53)
Formality *Transport Exp	0.0000287	0.0000220	0.000143**
	(0.63)	(0.48)	(2.14)
Formality *Education Exp	-0.000198***	-0.000201***	-0.000339***
	(-5.38)	(-5.36)	(-5.90)
Formality *Male	0.0198*	0.0208*	-
	(1.77)	(1.86)	
Formality *Potential Exper	0.00339***	0.00334***	0.000868
	(8.29)	(8.16)	(1.34)
Formality *Urban	0.0234*	0.0234*	-0.0274
	(1.82)	(1.80)	(-1.33)
Formality *Education(yrs)	0.0286***	0.0286***	0.0382***
	(14.23)	(14.18)	(11.92)
Formality *SkilledAgricWorker	0.0284	0.0271	0.245**
	(0.59)	(0.56)	(2.49)
Formality *Public sector	0.348***	0.348***	0.409***
	(24.94)	(24.92)	(17.74)
Formality *North	-0.0703***	-0.0719***	-0.0928***
	(-3.20)	(-3.22)	(-2.66)
Formality *MillsRatio Inverse	-0.00485	-0.00257	-0.0593**
	(-0.28)	(-0.14)	(-2.21)
Constant	0.00497	0.00493	0.00927
	(0.86)	(0.85)	(1.00)

t-statistics in parenthesis, * p<0.1, **p<0.05, ***p<0.01

Appendix: Heckman Selection Equation

	Paid Holidays
male	0.252***
	(17.33)
union	0.0311*
	(1.65)
pot_exp	0.00327***
	(5.88)
urban	0.301***
	(20.05)
no_educ	-0.196***
	(-2.72)
clerical	0.0829**
	(2.40)
craft	-0.0164
	(-0.64)
managers	0.169***
	(4.38)
plants_mach	0.00142
	(0.05)
professionals	0.286***
	(10.21)
service_sales	0.0138
	(0.53)
tech_assocprofs	0.109***
	(3.36)
unskilled	-0.0203
	(-0.75)
Poor	-0.236***
	(-11.56)
employees	0.000304***
	(4.94)
union_emp	-0.000297***
	(-3.24)
pub	0.189***
	(11.50)
formal2	0.0534***
	(3.62)
union_form	0.301***
	(11.97)
north	-0.116***
	(-5.88)
no_cont	-0.0568***
	(-5.53)
_cons	-1.063***
	(-29.48)
select	
male	0.464***
	(24.39)
pot_exp	0.00409***
	(5.62)
urban	0.504***
	(25.30)

no_educ	-0.319***
	(-3.14)
hhch_2	-0.0202***
	(-2.72)
Poor	-0.361***
	(-13.06)
north	-0.233***
	(-8.59)
_cons	-1.488***
	(-56.45)
athrho	
_cons	1.923***
	(48.44)
lnsigma	
_cons	-0.471***
	(-26.17)
N	27699
R^2	