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# **Research Article**

# HEALTH, GENDER AND THE LABOUR MARKET: EVIDENCE FROM GHANA

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#### **ARTICLE INFO**

#### ABSTRACT

Article History: Received 20<sup>th</sup>January, 2016 Received in revised form 29thFebruary, 2016 Accepted 30<sup>th</sup>March, 2016 Published online 28th April, 2016 The effect of health on the outcomes of the labour market in the world and Ghana to be precise cannot be underestimated. This study therefore looks at how ill-health, both own and that of spouse, affects hours of work and wage rate of males and females on the Ghanaian labour market. The data set used is the fifth round of the Ghana Living and Standard Survey, also known as the GLSS 5. The Heckman's two stage method used found out that the impact of spousal health is more prominent in determining hours of work than own ill-health. Also the effect of ill-health of one's spouse is very pronounced for males compared to their female counterparts. The findings revealed that men whose spouses stop work due to illness tend to increase their labour supply as against those whose spouses experienced no illness. The result, however, differs to what is observed in the female model. Also, males who worked or whose spouses worked though sick, supplied less hours of work to the labour market. It must be noted that morbidity barely influence wage rate except for males whose spouses experience sickness.

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# **INTRODUCTION**

#### **Background**

The need to eradicate poverty from the world especially in less developed countries has dominated both literature and public deliberations from the mid 20th century. One crucial strategy to achieve this objective is to stimulate economic growth via higher labour force participation and productivity rate of the economically active population especially among females. With decent employment and also high participation rate in the labour market, workers be it males or females can earn stable high incomes which will improve their standard of living. Moreover a rapid and sustained growth in the economy will improve revenue mobilization of the government which can further be used to create more employment avenues.

To eliminate poverty, the government of Ghana together with other development agencies has embarked upon a number of interventions which include health reforms. Nevertheless despite the numerous interventions, females still lag behind their male counterparts in terms of participation rate in the

labour market. Aryeetey and Baah-Boateng (2007) found out that the gender gap in labour force participation furtherdeteriorated in favor of men from the disparity rate of 4.7 in 1998 to 6.2 percentage points in 2000. The fifth Ghana Living Standards Survey (GLSS 5) also revealed that though therate reduced to 1.5 percent in 2006, the gap still persisted. The survey further indicated that the economic activity rate for males exceeded females for all age groups except for those aged 15 to 24 (GSS et al., 2009).

The household surveys carried out in 1991 and 1998<sup>1</sup> divulged that women generally occupy lower and middle strata at their work places especially in the formal sector. The surveys also indicated that only 9% of women occupied administrative and managerial position whiles over 75% of clerical, sales and service workers were women. Thus women form over twothirds of employees in the lowerstratum of the public sector and less than one-tenth of employees in the upper stratum (Sackey, 2005).

<sup>&</sup>lt;sup>1</sup> The household surveys conducted in 1991 and 1998 are the GLSS 3 and 4 respectively.

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In addition, the GLSS 5 has pointed out that males still dominate women in the area of paid employment. Estimates from the survey indicate that 27% of men working are paid employees whiles the percentage for females is 8.9. Moreover, in contrast to the percentage for males (5.4), only 3.7% of women of the working class are employers (GSS *et al.*, 2009). Moreover, a greater proportion of workers who are engaged in self employment and unpaid family jobs are females. The GLSS 5 estimated that about 28.5 percent of working women are engaged in family enterprises which, in most cases, are unpaid. Also the percentage of females (56.9) who are self-employed outweighs that of men (53.1). This scenario also holds for the distribution of employment status of men and women in both rural and urban areas (GSS *et al.*, 2009).

These distributions of men and women on the labour market over the years continue to hamper productivity especially for females making it difficult to achieve the Millennium Development Goals and also the nation's poverty reduction targets. There is therefore a need to ascertain whether health status have any effect on the labour market outcomes of workers in the Ghanaian economyvia changes in morbidity status. If yes, is the effect the same for both males and females on the labour market?

#### **Objectives of the study**

The main objective of this paper is to establish the effect of health status on labour market outcomes. Specifically the study will seek to:

- Measure the extent to which own ill-health influence labour supply of men and women.
- Analyse the effect of own ill-health on wage of men and women in households.

#### **Justification**

The role that health enrichment plays in economic growth and development is one of the emerging areas of economics as a discipline. However, most research in Ghana which has explored the determinants of the labour market outcomes of individuals have concentrated mainly on educational attainment and experience as the crucial human capitalto the neglect of health status (see Sackey (2005), Nyarkoah (2011)). Moreover, only few studies have investigated whether the effects of these health indicators on the labour market are the same for both males and females. These loopholes in the literature make the effects of health status on the Ghanaian economy at the micro level unclear.

This study fills these gaps by investigating the effect of health on the hours of work and wage of males and females. Furthermore, the need to ascertain the impact of ill-health of spouse on the labour market activities of individuals is also addressed in the study. The findings of this study will therefore aid in policy formulations that link health improvement to economic progress. Moreover it will act as a medium to test the applicability of the human capital model in the context of the Ghanaian labour market.

#### **REVIEW OF LITERATURE**

Studies on the effects of health on economic activities have been conducted at both macro and micro level. However, since this study is micro in perspective, the reviewing of the empirical literature will be skewed to research that analysed the effects of health on individual's economic activities.

Evidence from the work of Keech *et al.* (1998) is not different from findingsof studies that have been reviewed earlier. In their study, they found out that on the average a worker from the United Kingdom with influenza and/or influenza-like disease missed 2.8 days from work per each episode. It further showed that on the return to work the worker could not work at his/her normal rate until a mean of 3.5 days after the occurrence of the sickness.

Using the Heckman two-stage method and data from the 1987-89 living standard survey for Ghana and 1985-87 for Cote D'Ivoire, Schultz and Tansel (1997) found out that lost days due to poor health accounted for 26% and 33% reduction in wages in Ghana and Cote D'Ivoire respectively. Moreover, their estimate showed that ill health resulted in a reduction of hours of work in Ghana and Cote D'Ivoire by 21% and 32% respectively. Again poor adult health status caused annual earning in Ghana and Cote D'Ivoire to decline by 32% and 65% respectively though these effects diminish as disabled days increases.

Literature on the linkages of own-health and labour market outcomes do not always use morbidity as the measure of health but also employ other individual specific health indicators. These indicators include height-for age, body mass index (BMI), nutrition and/or calorie intake.

For instance, Hoddinott *et al.* (2008) used an economic data on 1424 Guatemalan individuals (aged 25 - 42 years) between 2002 and 2004 to estimate the effect on nutritional intervention at early childhood on the annual income, hours of work and average hourly wage of adults. They found out that the exposure to atole (a nutritional supplement) before age 3 had a positive impact on hourly wage of men. Specifically the nutritional intervention increased the hourly wage of males by US\$ 0.42 which presents an increment of 46 percent. However, the studies showed that the intervention had no impact on annual income and hours of work.

Deolalikar (1988) used panel data methods to estimate the effect of calorie intake and nutritional status (measured by weight-for-height) on the wage and farm production of individual in rural south India. The study brought to light that both market wage and farm output are highly elastic with respect to weight-for-height. However, the daily intake of calorie had no impact on both labour market outcomes. They concluded that while the human body can adapt to malnutrition in the short run, chronic inadequate nutrition can hamper economic activities. This result contradicts the finding of Pitt *et al.* (1990). His estimation, using data from National Socio-Economic Survey of Indonesia, indicated that higher level and greater variance in the calories consumed by males compared to females play a role in the greater participation by men in economic activities.

Other research has also proved that height and weight have a strong influence on the economic status of workers. For example, using data from the European Community Household panel, d'Hombres and Brunello (2005) evaluated the effect of BMI on wages in 9 European countries. The study revealed that there is a negative relationship between BMI and wages in the

European countries at the "olive belt" <sup>2</sup>whiles the effect on the countries at the "beer belt"<sup>3</sup> is positive.

Judge and Cable (2004) also found that social esteem, leadership emergence and performance at work in Britain are all positively influenced by physical height. Moreover, the study revealed that its (height) impact on the performance of men is relatively higher than females though the difference is not very significant. Furthermore, it showed that height is significantly related to income of the worker. This conforms to the result of Hersch (2008) who found out that taller immigrants in the United States earn more wage than their shorter counterparts.

In his work, Cawley (2004) used several regression tools to obtain a more robust estimate for the effect of weight on wage using data from National Longitudinal Survey of Youth (NLSY) which is a representative survey for all American youth. He found out that weight has a negative influence on the wage of white females. Additionally, a difference in weight of about 65 pounds results in a wage differential of 9 percent which is equivalent to three years of working experience or one and half years of schooling.

Yimer and Omar (2011) examined the impacts of health profile on wage using cross-sectional data from urban Ethiopia. The study showed that though height has a significant impact on the wage of both sexes, the marginal effect is relatively high for women than men at almost all quantiles of the wage distribution. Furthermore, it revealed significant and large differences in the height-wage premium at all quantiles between the young and old cohorts. BMI was also found to significantly influence wages at all quantiles especially for the young cohorts and women.

# METHODOLOGY

#### **Conceptual framework**

Even though there are many theories that analyse thelabour market, this study uses the neoclassical labour-leisure model. This model was chosen due to its underlying assumption that the decision of the optimal level of market hours and wage is a rational and utility maximization outcome. This model is combined with the Grossman's *concept of health capital and demand for health model* (Grossman, 1972). This health production model stipulates that health like all other outputs requires inputs for its production. Substituting health status into the standard labour-leisure model and maximizing the individual's utility function with respect to the total constraints (time and income) gives labour supply (hours of work) and wage functions as follows:

| H= H (P, | ,W, T, V, X <sub>i</sub> ) | (16) |
|----------|----------------------------|------|
| W=W (P,  | , T, V, X <sub>i</sub> )   |      |

The study adopts the Heckit approach to estimate the models above. This is because the direct application of the Ordinary Least Square (OLS) method to the models above to compute their parameter estimates will yield inconsistent results. This is because observed information on wage and hours of work is available only for individuals who are working. The sample in this case exclude individuals whose reservation wages are above the prevailing market wage rate. As a result OLS estimates cannot be used for the estimation.

The sample selection bias problem can be solved by the Heckman two-stage or the Heckit estimator. This method solves the inconsistency by augmenting the OLS estimation with the inverse mills ratio. Since wage outcomes and the decision of hours of work are preceded by the decision of whether to work or not, the Heckit procedure, first of all, estimates the probability of participating in the labour market using a logit model depending on the assumption made about the error terms. The coefficients of thelogit model are then used to compute the inverse mills ratio which is included in the OLS regression as an explanatory variable (see Amemiya (1985), Cameron and Trivedi (2006)).

$$\begin{split} H_{i} = \alpha_{1} + \alpha_{2} Exp + \alpha_{3} W_{i} + \alpha_{4} V_{i} + \alpha_{5} Empstatus + \alpha_{6} age + \alpha_{7} Educ + \alpha_{8} Loc + \alpha_{9} migsta + \alpha_{10} marsta + \alpha_{11} Indus + \alpha_{12} Selfhealth + \alpha_{13} spousehealth + \alpha_{14} INVMILLS + \varepsilon......(3) \end{split}$$

$$\begin{split} W_{i} &= \beta_{1} + \beta_{2} Exp + \beta_{3} V_{i} + \beta_{4} Empstatus + \beta_{5} age + \beta_{6} Educ + \beta_{7} Loc + \beta_{3} migsta + \\ \beta_{9} marsta + \beta_{10} Indus + \beta_{11} Selfhealth + \beta_{12} spousehealth + \beta_{13} INVMILLS + \varepsilon.....(4) \end{split}$$

#### Where;

H is the hours of work, W is own wage rate, V is the non labour income whilst i stands for the individual.

The rest of the explanatory variables are dummy variables. Empstatus represents the employment status of the worker where 0, 1, 2 and 3 denotes paid employment, self employment in the agricultural sector, self employment in the non-agricultural sector and unpaid family workers respectively. Age is the age cohort within which the worker falls with 0 for those whose age ranges from 15 and 24, 1 for 25 to 44 and 2 for 45 to 64. Educ signifies the educational status of the worker where 0 is those with no education and 1 for those who have attained basic education. 2 is for workers with secondary education whilst 3 stands for those with tertiary education.

Loc shows the location of the worker. 0 is for rural dwellers whilst1 is for their urban counterparts. Migsta is the worker's migration status where 0 and 1 stand for non migrants and migrants respectively. Marsta exhibits the marital status of the worker with 0 for those married and 1 for the unmarried. Indus is the industry of employment where 0 denotes those in the agricultural sector whereas 1 and 2 are for manufacturing and service sectors respectively. Selfhealth is the health status of the worker him/herself. 0 represent those who did not get sick in the period under consideration, whilst 1 and 2 are those who did not work due to illness and those who were sick but still worked. Spousehealth is for workers whose spouses got sick in the period under review. 0 stands for those whose spouses recorded no illness, 1 for those whose spouses stopped work because of sickness and 2 for those whose spouses were sick but still worked. INVMILLS is the inverse of the mills ratio calculated from the logit estimation.

## Source of Data

The data used for the analysis of this study is the fifth round of the Ghana Living Standard Survey (GLSS 5). This is a

 $<sup>^2</sup>$  The Olive belt is the territories in Europe that predominantly grow olive. It includes Greece, Portugal and Spain.

<sup>&</sup>lt;sup>3</sup>The "beer belt" is the territory covered by countries in Europe where beer is historically the most popular alcoholic beverage. It includes Belgium, Ireland, the United Kingdom, the Netherlands, Denmark, Germany, some parts of Austria, Luxembourg, Czech Republic, Slovakia, Poland, the northern and eastern cantons of Switzerland and the French regions of Alsace, Lorraine and Nord-Pas-de-Calais and the départment of Ardennes

secondary data which concentrates on the household as the main socio-economic unit. Eight thousand six hundred and eighty seven (8,687) households, which is a nationally representative sample, were covered in the survey. The sample contains 37,128 household members located in 580 enumeration areas.

The GLSS 5 provide a detailed insight on the living conditions of the households involved. The data engulfs demographic characteristics of the household members. These include the health profile, educational attainment, housing and the household income. The rest are consumption and expenditure, credit, assets and savings, prices and employment. Only the working population who earns wage will be considered in the analysis. These include individuals who are 15 years and above and are working.

## ANALYSIS AND DISCUSSION OF RESULTS

# Descriptive statistics for the separate samples for men and women

Tables 1 and 2 indicatethat the mean of the log of labour supply for males, which is 3.7656 hours per week, outstripped that of their female counterparts (3.6624). In the same vein, the maximum value of this variable for males (8.4684 hours/week) exceeds that of females (6.7464 hours/week) though both sexes have a minimum value of 0. Additionally, the average of the log of wage of males stood at 13.03 as against 11.93 for females. Again, whiles the maximum value of the log of wage for males and females were approximately at 20 and 17 respectively, both sexes had a minimum of 3.9120.

 Table 1 Descriptive Statistics of continuous independent variables (Males sample)

| Variable  | No. of obs. | Mean    | Std. dev. | Min. value | Max. value |
|---|-------------|---------|-----------|------------|------------|
| Log of labour<br>supply                           | 3,496       | 3.7656  | 0.5607    | 0          | 8.4684     |
| Log of wage                                       | 3,496       | 13.0339 | 1.5764    | 3.9120     | 19.9984    |
| Source: Constructed by Author from CLSS 5(2005/6) |             |         |           |            |            |

Source: Constructed by Author from GLSS 5(2005/6)

 Table 2Descriptive Statistics of continuous independent variables (Females sample)

| Variable  | No. of obs. | Mean    | Std. dev. | Min. value | Max. value |
|---|-------------|---------|-----------|------------|------------|
| Log of labour<br>supply                           | 2,045       | 3.6624  | 0.6155    | 0          | 6.7464     |
| Log of wage                                       | 2,045       | 11.9341 | 1.4858    | 3.9120     | 17.2167    |
| Source: Constructed by Author from GLSS 5(2005/6) |             |         |           |            |            |

Source: Constructed by Author from GLSS 5(2005/6)

# Estimated results of the labour supply of the separate samples for male and females

The consequence of morbidity, both own ill-health and that of spouse, on labour supply is highly pronounced for males than females. The estimates signposted that males who were ill but did not stop their economic activities experienced a reduction of 8.6% in their hours of work compared to their healthier colleagues. There is, however, no difference in the hours of work for men who do not work due to illness and those who are healthy as shown in the table below.

In the event of females, workers who are well are likely to supply 11.46% labour hours more than those did no economic activity because of sickness. In contrast, the hours of work between those who go to work though sick and those who are healthy are the same. These findings of own health for both males and females coincides with the conclusion of Madden and Walker (1999).

| <b>Table 3</b> OLS estimates of the log of labour supply | model |
|--|-------|
| for males and females                                    |       |

|                           | Males     | Females  |
|---------------------------|-----------|----------|
| Ln labour supply          | Coeff.    | Coeff.   |
| Own health status         |           |          |
| Stop work due to sickness | 0.0319    | -0.1146* |
| Sick but work             | -0.0857*  | 0.0300   |
| Spouse's health status    |           |          |
| Stop work due to sickness | 0.3258*** | -0.0122  |
| Sick but work             | -0.1979** | -0.0026  |
| No. of Obs                | 3496      | 2045     |
| F (24, 501)               | 67.79     | 8.55     |
| Prob> F                   | 0.0000    | 0.0000   |
| Inverse Mills ratio> T    | 0.996     | 0.006    |

Note: \*\*\*-significant at 1%, \*\*-significant at 5%, \*-significant at 10%. Source: Constructed by Authors from GLSS 5(2005/6)

 Table 4 OLS estimates of the log of wage model for males

 and females

|                           | Males     | Females |
|---------------------------|-----------|---------|
| Ln wage                   | Coeff.    | Coeff.  |
| Own health status         |           |         |
| Stop work due to sickness | -0.0608   | 0.1324  |
| Sick but work             | 0.2275    | 0.0157  |
| Spouse's health status    |           |         |
| Stop work due to sickness | 0.1407*** | -0.1644 |
| Sick but work             | -0.6479   | 0.0265  |
| No. of Obs                | 3496      | 2420    |
| F (24, 501)               | 48.49     | 50.77   |
| Prob> F                   | 0.0000    | 0.0000  |
| Inverse Mills ratio> T    | 0.842     | 0.438   |

Note: \*\*\* - significant at 1%, \*\* - significant at 5%, \* - significant at 10%. Source: Constructed by Authors from GLSS 5(2005/6)

Table 4 shows that morbidity, whether own or that of one's spouse, has no significant effect on wages for both males and females except males whose spouses could not work due to illness. Men whose wives do not work due to sickness experience 14.1% cut in their wage in relation to those whose spouses are well.

In the absence of all the independent variables discussed above, the estimates highlighted that males, on the average, supply more hours of work than females. The information is revealed in the values of the constant terms which indicates that holding all other variables constant, the labour supply of males outdo that of females by 0.75% a week.

## The Inverse Mills Ratio and Goodness of fit

The probabilities of the inverse mills ratios indicates that the equation of the labour supply of female suffer from selectivity biasness whilst the one for the males does not. This implies that the Heckman two-stage method is the best approach for the estimating the model for the females whiles an OLS can be used for the males.

In the case of the wage models for both males and females, the probabilities of the inverse mills ratios indicate that both estimations do not suffer from selectivity biasness, hence OLS method can be applied instead of a Heckman two-stage method.

| Regressand:               |            |               | Labour force j  | participation |               |                 |  |
|---------------------------|------------|---------------|-----------------|---------------|---------------|-----------------|--|
|                           | Males      |               |                 | Fen           | Females       |                 |  |
|                           | Coeff.     | Ln std. error | Marginal effect | Coeff.        | Ln std. error | Marginal effect |  |
| Married                   | 0.9183***  | (0.054)       | 0.3146          | 0.6430***     | (0.053)       | 0.2474          |  |
| $25 \le age \le 44$       | 1.3334***  | (0.051)       | 0.4126          | 1.2326***     | (0.049)       | 0.4475          |  |
| $45 \leq age \leq 64$     | 1.1762***  | (0.074)       | 0.3298          | 1.6231***     | (0.063)       | 0.4384          |  |
| Basic Education           | 0.4000***  | (0.048)       | 0.1419          | 0.1963***     | (0.043)       | 0.0770          |  |
| Secondary Educ.           | 0.1624**   | (0.069)       | 0.0575          | 0.1182        | (0.076)       | 0.0463          |  |
| Tertiary Educ.            | 0.0858     | (0.086)       | 0.3079          | 0.5684***     | (0.111)       | 0.2059          |  |
| Urban                     | -0.5048*** | (0.062)       | -0.1839         | -0.4541***    | (0.058)       | -0.1777         |  |
| Migrant                   | -0.2008*** | (0.045)       | -0.0725         | -0.0217       | (0.046)       | -0.0086         |  |
| Own health status         |            |               |                 |               |               |                 |  |
| Stop work due to sickness | 0.1136     | (0.069)       | 0.0406          | 0.1294        | (0.075)       | 0.0506          |  |
| Sick but work             | 0.2304***  | (0.084)       | 0.8001          | 0.3528***     | (0.082)       | 0.1343          |  |
| Spouse's health status    |            |               |                 |               |               |                 |  |
| Stop work due to sickness | -0.1235    | (0.398)       | -0.0461         | -0.2985***    | (0.120)       | -0.1186         |  |
| Sick but work             | -1.2117    | (0.954)       | -0.4488         | -0.2707       | (0.158)       | -0.1076         |  |
| Health insurance          |            |               |                 |               |               |                 |  |
| Government                | 0.4389     | (0.269)       | 0.1419          | -0.2691       | (0.264)       | -0.1070         |  |
| Employer                  | 0.0668     | (0.149)       | 0.0240          | -0.5204**     | (0.174)       | -0.0204         |  |
| Private                   | -0.0769    | (0.208)       | -0.0285         | -0.0275       | (0.179)       | -0.0109         |  |
| Constant                  | -0.4429*** | (0.058)       |                 | -0.5838***    | (0.058)       |                 |  |
| F                         | (16, 552)  | 112.62        |                 | (16, 547)     | 110.22        |                 |  |
| Prob> F                   |            | 0.0000        |                 |               | 0.0000        |                 |  |

 Table 5 Logit estimation of labour force participation rate for males and females

Note: \*\*\* - significant at 1%, \*\* - significant at 5%, \* - significant at 10%.

Source: Constructed by Authors from GLSS 5(2005/6)

It can also be concluded from the estimation result that, the overall model is highly significant and posses the goodness of fit. Thus, from the table above, the P-value for the likelihood ratio (LR) chi-square is 0.0000; implying that, the general determinants of the labour supply and wage rate are statistically significant.

## CONCLUSION

Evidence from the estimations revealed that the impact of spousal health is more prominent in determining hours of work than own ill-health. Also the effect is very pronounced for males compared to their female counterparts. The findings revealed that men whose spouses stop work due to illness tend to increase their labour supply as against those whose spouses experienced no illness. The result, however, differs to what is observed in the female model. Also, males who worked or whose spouses worked though sick, supplied less hours of work to the labour market. It must be noted that morbidity barely influence wage rate except for males whose spouses experience sickness. It is evident from the results that the latter group earns more wages than males whose spouses were no sick.

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