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Health and Women's Employment in Cameroon.

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### ABSTRACT

**Introduction:** Housewives report more chronic illnesses than employed women and housewives are more likely to rate their health situation as either poor or fair than employed women. Poor health can deter a woman from seeking or keeping a job and this appears to be a major reason why poor health is reported more frequently by housewives than employed women.

**Purpose:** This work investigated the influence health bears on women's employment in Cameroon.

**Methodology:** It utilized the expo-factor research design. Secondary data from the Demographic Health Survey (DHS) in Cameroon for 1991, 1998, 2004, 2011 and 2018 was also used in this work. The Instrumental Variable Probit Model and Control Function were used to analyze the data.

**Findings:** Health capture by BMI had a negative and statistical significant effect on women's employment. Other variables that positively and significantly influenced women employment were education, husband education, husband's occupation, marital status, region of origin and lifetime sex partners on the one hand. On the other hand, the woman's age, wealth levels, age at first birth, religion and year negatively and significantly affected the likelihood of her being employed. Factors that positively and significantly influenced women's health were education, husband's education, skipping meals and religion. In this vein, Muslims and Animists were significantly associated with lower BMI and better health compared to Catholics. On the other hand; age, husband's occupation, lifetime sex partners, women's employment, use of modern contraceptives, husband's age, age at first birth, respondent's occupation negatively and statistically significantly influenced women's health. It was concluded that as women's health worsens (BMI increase), the likelihood that they were employed reduced.

**Unique contribution to theory, practice and policy:** This study recommends compulsory health insurance for all workers especially female workers and the effective implementation of the much talk of universal health coverage in Cameroon.

**Key words:** *Health, BMI, women Employment and Cameroon*

## INTRODUCTION AND LITERATURE REVIEW

Women all over the world now allocate a substantial amount of time to activities that are not typically recorded as ‘economic activities’. The 20th century in particular saw a radical increase in the number of women participating in labor markets across early-industrialized countries (Esteban et al., 2018). In the majority of these countries and across all income levels, the participation of women in labour markets is today higher than three decades ago (Esteban et al., 2018). In the African society, women do the bulk of household chores, musculoskeletal disorders (MSDs) may be a reflection of the accumulation of difference in exposures at work and at home. Thus the difference between women and men in exposure, at work and at home, to risk factors for musculoskeletal disorders is one model that may explain the markedly higher prevalence of these disorders in women compared to men (Åsa et al., 1998). Females were twice as likely to report MSDs in several regions of the body especially the lower back and lower limbs compared to their male counter parts. Many studies indicate that women have a higher musculoskeletal morbidity than men (Åsa et al., 1998). The various aspects related to maternity also impose a substantial burden on women’s time. And this is of course a biological burden uniquely borne by women. Moreover, maternity is not only a burden in terms of time. It is also risky, and often imposes on women a substantial burden in terms of health and BMI. Improved maternal health alleviates the adverse effects of pregnancy and childbirth on women’s ability to work, and is hence a key driver of female labour force participation (Beguy, 2009). A Policy Brief on the impact of COVID-19 (2020) on women jobs participate in informal employment specified that access to benefits such as health insurance, paid sick and maternity leave, pensions and unemployment benefits need to reach beyond formal employment and be accessible to women in all spheres of work. This is because as women take on greater care demands at home due to COVID-19, their jobs will also be disproportionately affected by cuts and lay-offs. Such impacts risk rolling back the already fragile gains made in female labor force participation, limiting women’s ability to support themselves and their families, especially for female-headed households.

Health is one of the variables that have greatly influenced women’s employment over the years. Housewives report more chronic illnesses than employed women, and housewives are more likely than employed women to rate their health as poor or fair (Ingrid, 1980). Poor health can deter a woman from seeking or keeping a job, and this appears to be one important reason why poor health is reported more frequently by housewives than by employed women. The differences between housewives and employed women in self-reported health do not appear to be due to differences in marital status, race, or education but employment (Rena et al., 1989). Some findings have specified that women’s employment does not have a negative effect on their health, on the average. Indeed, employment appears to improve the health of unmarried women and married women who have positive attitudes toward employment (Judith and LaRosa, 1988). According to Judith and LaRosa (1988), employment does not appear to be a risk factor for coronary heart disease and may instead have a beneficial effect on health. To them, general, working women have better health than homemakers or unemployed women (Judith and LaRosa, 1988).

In the rank of the most obese countries Cameroon was the 135 with an average BMI of 11.4 in 2016. In 2019, 11.4% of Cameroonians were obese with an average BMI of 24.4% (UNSD Databases, 2020). The life expectancy rate for Cameroonian women stood at 53.1(2005), 55(2010) and 57(2019). This seems to be an improvement in women's health in Cameroon. The question however is if health is related to women's employment level. However, studies have insisted that health does not affect women's employment but it is rather women employment that affects health. Tsafack and Akono (2010) findings however attributed differences in women's labour force participation to differences in characteristics peculiar to women like health especially related to childbirth. To ascertain this result, it is necessary to reinvestigate the influence of health on women's employment in Cameroon using a bigger data set by pulling the DHS data for Cameroon for 1991, 1998, 2004, 2011 and 2018.

Health has been defined by different authors in different ways. According to Anna et al. (2017) the concept of health as a balance between a person and the environment, the unity of soul and body and the natural origin of disease, was the backbone of the perception of health in ancient Greece. The modern understanding of health became official when the World Health Organization (WHO), at the time of its establishment in 1948, included the definition of health in her Constitution. According to Evely et al. (2001) the word originally came from Old English and it meant the state and the condition of being sound or whole. Balog (1978) expanded three major views of health in recent times. (a) The traditional medical concept, (b) the World Health Organization concept, and (c) the ecological concept. The earliest notion of health as a disease-free state represents the traditional medical concept. In the late 1940's, the World Health Organization developed a more holistic concept of health as "a state of complete physical, mental and social well-being and not merely as the absence of disease or infirmity". Rather than restricting health to an absence of illness, health was conceptualized more in terms of the presence of absolute and positive qualities. This holistic and more utopian view of health encompasses and extends the traditional medical view by conceiving health as a positive state of well-being in which physical health is only one of the aspects involved. Along with that, social, psychological, physical, economic and political aspects were incorporated in the definition of health, and regarded as components of paramount importance for health and well-being. More ecological and relative notions of health emerged in the 1960s and 1970s. These ecological and relative definitions of health tended to be heavily based on an evaluation of the person's level of functioning and adaptation to the environment. Within the more function-oriented perspectives, health has been defined either in terms of an adequate functional capacity which allows the individuals to carry out their duties and responsibilities (Oberteuffer, 1960) cited Balog (1978), or in terms of a certain quality of life which enables individuals to live happily, successfully, fruitfully, and Creatively.

According to Fuad (ND) health is multidimensional and though the WHO definition envisages three specific dimensions. To Fuad (ND) there are many more dimensions: Physical dimension; mental dimension; Spiritual dimension; emotional and Vocational. Other Dimensions include Philosophical, Cultural, Socioeconomic, and environmental, educational, nutritional, curative and preventive Physical Quality of Life Index (PQLI). To Adam (2017) the word "health" refers to a state of complete emotional and physical wellbeing. To him factors for good health include genetics, the environment, relationships, and education. A healthy diet, exercise, screening for

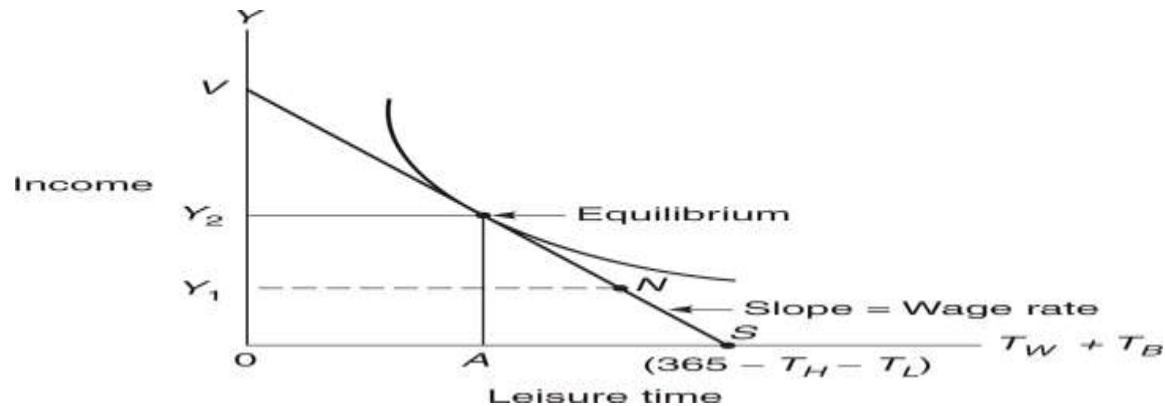
diseases, and coping strategies can all enhance a person's health. Studies have used a variety of variables to capture women's health, most of them like Tsafack and Zamo-Akono (2010) used self-asses health to capture women's health. However, considering the fact that self asses' health usually takes into consideration mostly the physical health, this study used a more comprehensive measure of woman's health which is the body mass index used in many studies (Norman and Clark, 1998; Nathan, 2017; Sorokowski et al., 2017 and Schultz, 2005). This measure is most suited as it cuts across the physical, social, mental and even the other dimensions of health specified by Faud(ND), WHO(1986) and Adam (2017). Whenever each of these dimensions is not going well in your life, it is reflected in the weight of the individual. Body mass index is calculated as weight over height squared. Women's employment in this study was defined by women working or not working.

This paper uses the health care demand theory to understand health and employment model. Grossman, (1972) used the theory of human capital to explain the demand for health and health care. According to this human capital theory, individuals invest in themselves through education, training, and health to increase their earnings. This means that good health, education, training will lead to high earnings through employment. This model states that the demand for health care is a derived demand from the demand for health. Health care is demanded as a means for consumers to achieve a larger stock of "health capital." The demand for health is unlike most other goods because individuals allocate resources in order to consume and produce health. That is investment in health is not only to stay healthy but because staying healthy makes individuals to be employed. Applying this theory to this work, means the demand for health, is a derived demand for employment. Grossman's model views each individual as both a producer and a consumer of health. This is to say that, the model acknowledges that health is both a consumption good that yields direct satisfaction and utility (i.e. it makes people feel better), and also an investment good, which yields satisfaction to consumers indirectly through increased employment and productivity, fewer sick days, and higher wages in other words. In the employment context, it thus implies that sickness affect the number of healthy days available to work and to earn income. Consumers do not merely purchase health passively from the market. Instead, they produce health, combining time devoted to health-improving efforts. Investment in health is costly as consumers must trade off time and resources devoted to health to employment. In Grossman's model, the optimal level of investment in health occurs where the marginal cost of health capital is equal to the marginal benefit. In the case of this study, it therefore implies that, people will only care for their health if the benefit(employment) exceeds the cost (health) of doing so. The marginal benefit of health capital is the rate of return from this capital in both market and non-market sectors. That is, the benefit from taking care of your health will be the benefit gotten from employment.

According to this model, the cost of any health intervention will be both in terms of the time and employment forgone. A Model for Time Spent Producing Health alone can be seen below.

- $I = I(M, T_H)$ , where  $I$  is investment in health,  $M$  is market inputs in health treatment and  $T_H$  is time used in treatment. The total time available to the individual model can be represented as:  $T = T_H$  (improving health) +  $T_B$  (producing other goods) +  $T_L$  [lost to health] +  $T_W$  (working). This model gives time four main functions. Suppose now the time spent in the hospital is "health-improvement time"  $T_H$  and call  $T_B$  the leisure time. Assume  $T_H$  and  $T_L$  are fixed, time available

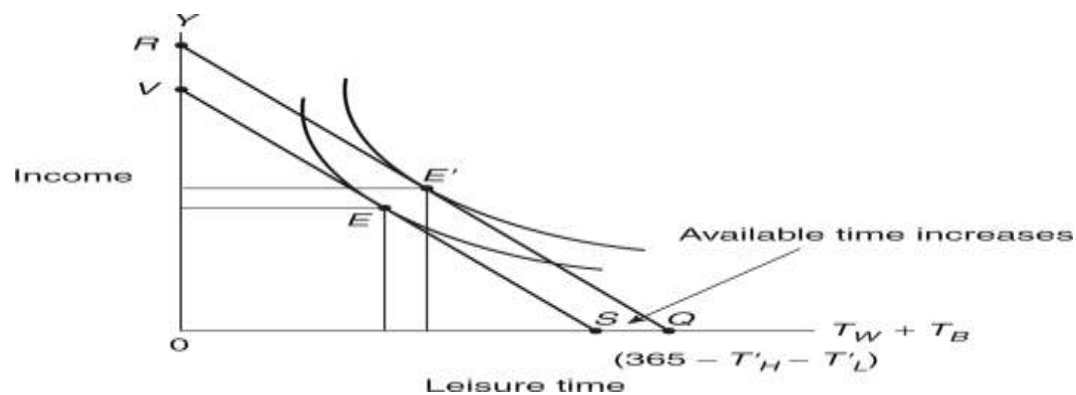
for work or leisure =  $365 - T_H - T_L = T_B + T_W$ . That is total time minus time lost to improving health plus time lost to health gives us the time available for an individual to work and produce other goods. This thus means that when sick, the time taken to improve health thus reduces the total time available for work, and vice versa. This can be illustrated in the Labour-Leisure Model below. Given labour-leisure preferences represented with indifference curves, utility is maximized at income of  $Y_2$  and leisure time A.



**Figure 1: Labour leisure model.**

Source: The Demand for health and healthcare - Grossman Model cited by Frew (2012)

Over time investments in health reduces time lost to health,  $T_L$ , thereby increase leisure time  $365 - T_H - T_L$ . This can be invested in work. The labour-leisure trade-off line shifts to the right allowing for a choice with more income and more leisure time at E as seen on the figure 2 below.



**Figure 2: Shift in labour leisure tradeoff line.**

Source: The Demand for health and healthcare - Grossman Model by Frew (2012).

Laporte (2014) criticized this model for its simplistic deterministic nature. On a personal basis, this model can be criticized on the bases of its assumptions that time spent creating health investment is usually time which would have been used in working. However, in Africa where many, including even healthy women willing to work have no jobs this model might not hold.

This model is thus best adapted for the case of the developed world where they work for long hours than in the developing world with high rate of civil servants or even private workers where there is a lot of laxity at job sites where people even have leisure during working time. Despite the criticisms on this model, it still remains one of the best and widely used model in health economics when it comes to explaining the effect of health intervention on the labour markets, thus it best explains the objectives of this piece of work.

A number of studies have investigated the effect of health on women employment while many more studies have established that employment equally affects health. This reveals the bi-causal relationship between employment and health. These studies date right from the work of Ingrid(1980) who reported that housewives report more chronic illnesses than employed women, and housewives are more likely than employed women to rate their health as poor or fair. Poor health can deter a woman from seeking or keeping a job, and this appears to be one important reason why poor health is reported more frequently by housewives than by employed women. Rena et al. (1989) also worked on employment and Women's Health: Effects of Paid Employment on Women's Mental and Physical Health. Their article reviewed empirical evidence concerning the effects of paid employment on women's mental and physical health, with special attention to variations in the effects of employment depending on the characteristics of women and their jobs. They concluded that women's employment does not have a negative effect on their health, on the average. Indeed, employment appeared to improve the health of women who have positive attitudes toward employment.

Wagener et al. (1997) in addition, investigated women, work and health. Their results found out that work affected negatively women's health. Cai (2006) used a simultaneous equation model to explore the relationship between health and labour force status, allowing for the endogeneity of health. The results stated that health had a positive and significant effect on labour force participation for both males and females. Tsafack and Zamo-Tsafack and Zamo-Akono (2010) reported the empirical relationship between fertility and health on female labour market outcomes. They concluded that there is strong evidence that health and disability status is a significant determinant of employment, but the reverse depends on the labour market sector and on the health indicator used. Lee and Jocelyn (2017) findings revealed: Improvements in reproductive health do lead to improvements in women's economic empowerment. Expanding contraceptive use improves women's agency, education, and labor force participation. Higher maternal age at first birth (reducing adolescent childbearing) increases the likelihood of school completion and participation in the formal labor market. To them, longer birth intervals increase labor market participation, as does having fewer children.

Looking at the set of literature reviewed on the effect of health on female employment, the observation made is that very few studies have dwelt on this topic with the most recent of them dating back as far as 2010. More so, results from review are unrelated. Some studies specify negative effect; some specify positive effect. Some however insist that, there is no relationship between health and women employment but female employment and health. Thus, this study seeks to reestablish the effect of health on female employment. Unlike the reviewed studies that used data from one data set, for more comprehensive and reliable results, this work pulled data for the five existing DHS data set.

## METHODOLOGY

To investigate the effect of health on women’s employment, whose respond variables (women’s employment) is nominal in nature, the IV probit and control function model is used. These models are most suitable for models with the problem of endogeneity and categorical dependent variables. Women’s employment is used as a dependent variable while health is the independent variable in the regression. Using the ecological framework of Bronfenbrenner (1986) and Feinstein and Sabates (2004), the model of women’s employment is specified as:

$$WEM = \tau_1 Z + \Phi_1 H + \varepsilon_1 \dots\dots\dots 1$$

Where WEM is women’s employment, defined as an outcome variable and surrogated by the variables: woman is employed or not employed). Z is a vector of household exogenous characteristics: women’s characteristics (age, age squared, marital status, place of residence); father’s characteristics (age, education, occupation). H stands for health, defined as an endogenous explanatory variable and captured in by body mass index (BMI). In the model  $\tau_1$  represents vector of the parameters of the exogenous variables,  $\Phi_1$  symbolizes vector of the parameters of the endogenous variable and  $\varepsilon_1$  signifies the error term. The probit estimate may be biased either upward or downward based on the effects that health has on women’s employment and on the correlation between variables excluded or omitted from the model and health. The used of either ordinary least square (OLS) estimation approach or probit approach without controlling for endogeneity biased result to inconsistent estimate. Thus, to control for endogeneity biased the study adopts the two stage least squares estimation approach. This permits us to specify another model (first stage equation) as follows:

$$H = \delta_1 Z + \lambda_1 WEM + \mu_1 \dots\dots\dots 2$$

Where H is health defined as the outcome variable; Z is the vector of exogenous variables and WEM is women’s employment, defined as an endogenous explanatory variable in the health function. In equation 2,  $\delta_1$  as well as  $\lambda_1$  are parameters to be estimated whereas  $\mu_1$  is the error term. Notably the 2SLS model should capture the effects of health for on women’s employment. As such, the 2SLS estimates of  $\Phi_1$  can be interpreted as estimating the average marginal effect of a unit improvement (increase) in health form others whose health is affected by women’s employment. It is expected that women not working should have worse health, because health is positively affected by working. Working variable is use as an instrument to overcome this endogeneity problem between health and women’s employment which cannot be adequately controlled for by observable characteristics. Assuming that women’s employment is a valid instrument, the study uses the iv probit model (probit model controlling for endogeneity) which better respects the binary nature of women’s employment as represented by the following two equations:

$$WEM^* = \tau_2 Z + \Phi_2 H + \varepsilon_2 \dots\dots\dots 3$$

$$H = \delta_2 Z + \lambda_2 WEM + \mu_2 \dots\dots\dots 4$$

Where, WEM for actual women’s employment and WEM\* denotes desired women’s employment, note that WEM=1 if and only if WEM\* > 0 and zero otherwise, and the error



terms  $\varepsilon_2$  and  $\mu_2$  follow a bivariate normal distribution with non-zero correlation. The marginal effect of a variable  $Z^K$  is calculated as the average of the marginal effect of everyone in the sample as follows:

$$H(Z^K) = \frac{1}{N} \sum \frac{\delta P(WEM = z, WEM, \hat{\tau}, \hat{\phi}, \hat{\delta})}{\delta z^K} \dots\dots\dots 5$$

Where  $Z$  is a vector of characteristics with  $Z^k$  the  $K$ 'th element in that vector, thus the marginal effect of health on women's employment is:

$$H(Z) = \frac{1}{N} \sum [P(WEM = 1 | H = 1) - P(WEM = 1 | H = 0)] \dots\dots\dots 6$$

This model can be summaries as

$$Y_1 = \beta y_2 + z_1 N_1 + \mu_1 \dots\dots\dots 7$$

Here, the  $y_1$  represents women's employment,  $y_2$  health and  $z^1$  the instrumental variable of health captured by BMI of child.

Step one regresses the dependent variable (women's employment) against the instrument variable for health (BMI of Child) to get a residual.

$$WE = \alpha_0 + \alpha_1 HE \text{ (BMI of child)} + \alpha_2 ED + \alpha_3 AG + \alpha_4 HUSAG + \alpha_5 AFB + \alpha_6 LTSP + \alpha_7 HUSOCC + \mu \dots\dots\dots 8$$

**Step two**

In step two, this residual is therefore used as the independent variable (health) and ran against women employment to solve the endogeneity problem present in this equation

$$WE = \alpha_0 + \alpha_1 HE \text{ (residual)} + \alpha_2 ED + \alpha_3 AG + \alpha_4 HUSAG + \alpha_5 AFB + \alpha_6 LTSP + \alpha_7 HUSOCC + \mu \dots\dots\dots 9$$

The variables specified in our model are defined on table 1 below.

**Table 1: Measurement and description of the Variables of health and female employment**

Variable	Meaning	Description	Expected sign
WE	women's employment	Working=1 Not working 0	
HE	Health	Captured by women's BMI from 8754 to 1245	+
ED	Education	0= no education 1= primary education 2=secondary education 3= Tertiary education	
AG	Age	Age in years	+
HUSAG	Husband's Age	Age In Years	-
AFB	Age at first birth	Age in years	
LTSP	Total lifetime sex partner	Numbers of partners	-
HUSOC	Husband's occupation	Husband's occupation= 0 Donot work 1 professional/technical/managerial 2 Clerical 3 Sales 4 agriculture-self employment 5 agriculture employee 6 household and domestic 7 Service 8 skilled manual 9 unskilled manual	
$\mu$	Error term		

Source: Computed by author

## RESULTS

To understand the nature and behaviour of the variables used in this work, it is necessary to present a summary statistics for the variables used in our analysis as seen on appendix 1. The table shows the number of observations on which the analysis was being done, the mean, the standard deviation and the minimum and maximum values of the variables of data pulled from the Cameroon DHS of 1990, 1998, 2004, 2011 and 2018. The number of observations for this study varies for the different variables due to missing data or no response on some questions for some individuals. For example, on women's employment, only 48,931 women responded to that question. Results for women's employment show that the minimum figure is 0 standing for not working while the maximum figure is 1 which stands for working. This tells us that the women's

employment variable is a dummy, thus no reasonable implication can be drawn from the mean and standard deviation. However, by intuition, the mean of 0.575 implies about 57.5% of women in the data set were employed while about 42.5% of these women were not employed. This is to say the number of women working in Cameroon between 1990 and 2018 is slightly more than the number of women who are not working. The number of women who indicated their BMI was 22,310. The minimum BMI is 12.45 while the Maximum is 9999. In the data set 9999, this, however represented no response and not the BMI of the women. This thus makes it difficult to draw implications from the mean BMI of individuals in the data set which is 25.81 with a standard deviation of 12.46. However, during the regression analysis, the 9999 was suppressed so as not to alter the results.

Table 2 presents the IV probit regression result on Column 1 and the control function result; a two-step regression which uses an instrumental variable in the first step to get a residual used as the endogenous variable in the second step to solve the problem of endogeneity (health effects women’s employment and women’s employment in turn affects health) detected in this model on column 2. Both tools valid for analyzing models with dummy dependent variables, missing variables and endogeneity problem were used in this work to compliment the short comings of each other. That is only results for variables which were not significant for both models are rejected.

**Table 2: IV Probit and Control Function results of the effect of Health on Women’s employment**

Variables		IV Probit	Control
Dependent variable(women’s employment)		Regression	Function
<b>HEALTH(BMI)</b>		-.0521123*** (.0187614)	-.0415756** (.0195327)
<b>Education</b>	Primary	.6326649*** (.0761453)	.6056079*** (.0782479 )
	Secondary	.639897*** (.0932341)	.6016363*** (.0957703)
	Tertiary	.7012249*** .161332	.6470444*** (.1670775)
	Base group (No education)		
<b>Age</b>		.0532361*** (.0054064)	.0515779*** (.0055024)
<b>Husbands age</b>		-.0032628 (.0032159)	-.0033553 (.0032503)
<b>Age first birth</b>		-.0208266*** (.0068255)	-.0212316*** (.0068841)
<b>Life time sex partner</b>		.0184047** (.009344)	.0175873** (.0088957)
<b>Husbands occupation</b>	Professional/technical/managerial	.3383517* (.1935098)	.3244337 (.2099164)
	Clerical	.0003698 (.2221739)	-.0145812 (.2397267 )
	Sales	.275916	.2574472

	(.1775146)	(.1933596)
Agriculture-self employment	.7574466***	.753029***
	(.1714549)	(.1871328)
Agriculture employee	.4368765	.4551438
	(.0234565)	(.4490102)
household and domestic	.5235472	.5422142
	(.3673806)	(.3683585)
Service	.272688	.2570407
	(.18229)	(.1982156)
skilled manual	.3185675*	.2966512
	(.1771124)	(.1928247)
Unskilled manual	.2844571	.2669539
	(.2133001)	(.2293359)
<b>Constant</b>	-4811273	-.64098
	(.374351)	(.3912263)
<b>Number of observations</b>	3,325	3,325
<b>Chi square</b>	= 0.0000	0.0368

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: Computed by authors using Stata 16

The result shows that, health had a negative (-.0415756) and statistically significant effect on women's employment. Implying that as women's BMI increases (or health worsens), the less likely are they to be employed. Increase in BMI by 100% reduced the chances that a woman was employed by 4.1%. This result was statistically significant at 1% level of significance. Women with high BMI have lower chances of being employed mostly due to employers' bias on recruiting fat women and their constant absenteeism from work due to health problems (like diabetes, hypertension, cardiovascular diseases and cancer which literature has connected with higher BMI). This result is in line with the findings of Cai (2006) who revealed that being healthy had a positive and significant effect on labour force participation for both males and females. Tsafack and Zamo-Akono (2010), also reported strong evidence that health and disability status is a significant determinant of employment. Greve (2013) also showed a negative effect of health on employment for women. Grossman (1972), also specified the negative effect of health on employment. This result is justified by the fact that when a woman is sick, she uses the time she would have been working in the hospital. Not being physically fit can negatively influence even her chances of getting a job talk less of keeping it. This is because she keeps asking for permission to go to the hospital all the time, the employer at some point in time will look for all possible means to terminate her contract.

More so, since health in this work was measured using BMI, it can actually justify why women with high BMI are less employed. Most employers, especially in the service sector prefer slim ladies. They assume slim women are more flexible, beautiful and can physically attract customers and increase their sales. This is seen in most banks, insurance companies, services in

hotels, restaurants, air hostesses and many other sectors prefer slim women. There are little or no professions where the employers will prefer fat women over slim women. Fat women on the other hand are considered to be lazy, inflexible and less attractive to the customers. As a personal experience, I advertised a job opportunity for a cleaner in my office. I received an application and invited the lady for an interview. Immediately I saw her I told myself this woman cannot do this job, just because she was very fat. She could have been a good worker, however just her weight gave me a negative impression on her abilities. Even when the women are self-employed, some customers have problems buying from fat and sluggish people as they assume they will take much time to serve, thus increase in their waiting time. Indeed, the negative relationship between women's health and their employment level is justified by the time they spend in the hospital and the impression of the employers and the customers about them.

In addition, Women at all levels of education were more likely to be employed when compared to no education level. Women at the tertiary education level (.6470444) were more likely to be employed compared to those in primary (.6056079) and secondary (.6016363). Women's age positively and statistically significantly (.0515779) influenced women's employment. The age of the husband negatively (-.0033553) but insignificantly influenced the women's employment. Contrary to expectations the coefficient of age at first birth negatively (-.0212316) and statistically significantly influence women's employment. That is to say, as the age at first birth increased, the less likely was the woman to be employed. This result is justified by the fact that in Cameroon, most of the women that raise the women's employment figures are those in the agricultural sector who had a small age at first birth and are employed. If Cameroonian women had mostly white collar jobs as in most developed countries, this results would have been positive and in line with the apriori expectation. However, the result is in line with the Cameroonian specific situation where most women who give birth early are those employed in the agricultural and unskilled sector that make up more than 80% of women's employment in Cameroon. As the number of a woman's lifetime sex partners increased (.0175873), the likelihood of her being employed statistically and significantly increased. Women with husbands in the agricultural-self-employment are more likely to be employed compare to women with husbands from other occupations.

## CONCLUSION

This work set out to ascertain the influence of health on women's employment in Cameroon. It utilized the expo-factor research design and pulled data from 1991, 1998, 2004, 2011 and 2018 Cameroon DHS data set. The Instrumental Variable Probit Model and Control Function were used to analyze the data. The results revealed that health captured by BMI had a negative and statistical significant effect on women's employment. Other variables that positively and significantly influenced women's employment were education, husband education, husband's occupation, marital status, region of origin and lifetime sex partners. Going further, the woman's age, wealth levels, age at first birth, religion and year negatively and significantly affected her likelihood of being employed. Thus, we conclude that as women's health worsened (increase BMI), the likelihood that they were employed reduced.

## RECOMMENDATIONS

This work recommends that women should take care of their health especially in terms of their BMI so as to gain favorable positions in the labour market which will go a long way to bridge employment gender labour gap in Cameroon. It also recommends compulsory health insurance for all workers especially female workers. In addition, this work recommends the effective implementation of the much talk of universal health coverage in Cameroon. This can be effectively applied by implementing a progressive tax system that takes from the rich and used to provide free health services to the poor. For example, the Government can do a regular FCFA 2000 curtail from the salaries of all those working and use it to provide health care services for the poor as in the case with CRTV tax. This could be by providing free consultation, test and treatment for diseases with high QALYs (Quality Adjusted Life Years lost) like diabetes, hypertension, cancer and heart problems that hinder women's employment and lead to catastrophic payments.

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## Appendix 1: Summary Statistics

Variable	Observation	Mean	Standard deviation	Minimum	Maximum
<b>Women employment</b>	48,931	.5754021	.4942869	0	1
<b>Fertility</b>	50,131	2.790988	2.855486	0	18
<b>Bmi health</b>	22,310	2581.68	1246.83	1245	9999
<b>Education</b>					
No education	50,131	.2056412	.4041734	0	1
Primary	50,131	.346193	.4757604	0	1
Secondary	50,131	.4058567	.491062	0	1
Tertiary	50,131	.0423092	.2012955	0	1
<b>Wealth</b>					
Poorer	40,759	.2383768	.4260959	0	1
Poorest	40,759	.1886209	.391212	0	1
Middle	40,759	.1708089	.3763465	0	1
Richer	40,759	.1644054	.3706476	0	1
Richest	40,759	.1756177	.3804992	0	1
<b>Age</b>	35,604	28.77109	10.58905	15	64
<b>Husband education</b>					
No education	31,245	.1592255	.3658921	0	1
Primary	31,245	.2570331	.4370048	0	1
Secondary	31,245	.2776444	.4478442	0	1
Tertiary	31,245	.306097	.4608779	0	1
<b>Religion</b>					
Catholics	43,419	.3678344	.4822215	0	1
Protestant	43,419	.3333794	.4714262	0	1
other Christians	43,419	.129851	.3361433	0	1
Muslim	43,419	.0877496	.2829337	0	1
Animist	43,419	.0136346	.1159698	0	1
None	43,419	.0675511	.2509768	0	1
<b>Husband occupation</b>					
Donot work	33,763	.1420786	.3491359	0	1
professional/technical/managerial	33,763	.2570331	.2174491	0	1
Clerical	33,763	.0427687	.2023382	0	1
Sales	33,763	.1044635	.3058654	0	1
agriculture-self employment	33,763	.3323757	.4710718	0	1
agriculture employee	33,763	.0411693	.1986846	0	1
household and domestic	33,763	.0082635	.0905287	0	1
Service	33,763	.0580221	.2337887	0	1
skilled manual	33,763	.138791	.3457334	0	1
unskilled manual	33,763	.082309	.274839	0	1
<b>Marital status</b>					
never married	35,604	.2983373	.4575347	0	1
currently in union	35,604	.6487192	.4773772	0	1
formally in union	35,604	.0529435	.2239238	0	1
<b>Age at first cohabitation</b>	33,945	17.07804	5.506687	0	57
<b>Age at first sex</b>	36,588	14.73109	6.141504	0	49
<b>Age at first birth</b>	34,907	21.50878	7.309356	10	49
<b>Life time sex partners</b>	36,047	3.573057	3.589169	1	90





<b>Contraceptive use</b>		41,539	.7126797	.4525177	0	1
<b>Skip meal</b>		14,677	.4814335	.4996722	0	1
<b>Residence</b>	Urban	50,131	.5141729	.4998041	0	1
	Rural	50,131	.4858271	.4998041	0	1

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: Computed by authors using Stata 16