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The Effect of Maternal Labour Force Participation on Child Well-Being in Cameroon

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Abstract

This paper assessed the effect of maternal labour force participation on child well-being in Cameroon using data extracted from the 2018 Cameroon Demographic and Health Survey. The Instrumental Two- Stage- Least Squares (IV2SLS) technique, controlling for endogeneity was employed to analyse the effect of maternal labour force participation on child well-being in Cameroon. The results of the Instrumental Two- Stage- Least Squares (IV2SLS) revealed that maternal labour force participation had a positive and statistically significant effect on child well-being in Cameroon. Decomposing maternal labour force participation effect on child well-being, we realised that it was more of an issue of secondary education due to inadequate education and training. Based on the results, the paper recommends that development policies should continue to adhere to international conventions which promote the education of women and their emancipation so as to enhance their participation in the labour force in a bid to enhance child well-being.

Keywords: maternal labour force participation, child well-being, Cameroon

1. Introduction

Timely, accurate and comprehensive information on maternal labour force participation and child well-being is essential for monitoring the progress of government economy, which is critical for the development of evidence-based policy (Tambi & Etta, 2022). This explains why the drive towards maternal labour force participation and child well-being has become a fundamental subject of concern in many development programs around the world and especially that of Africa and Cameroon in particular. The objective is to ensure that all women are endowed with sufficient wealth and young children are provided opportunities to grow, learn, and develop to their fullest capacity and thrive. The practices have taken a life-cycle step-by-step approach to help countries on how to measure well-being and deliver services that help people live productive lives starting at pregnancy and the earliest years of life (Vassallo et al., 2010), although the debate on the measurement of child well-being is still on going.

Children constitute one of the most critical categories for any discussion around development, both due to their inherent relevance as a category and the external consequences in relation to others. The true measure of a country's strength is how well it attends to its children — their health and safety, their material security, their education and socialization, and their sense of being loved, valued, and included in the families and societies into which they were born (UNICEF, 2007). Children are generally considered to be vulnerable and relatively lacking in agency, implying aggravated well-being consequences for broader developmental concerns like inequality. According to Denboba et al. (2014), investing in young children is one of the smartest investments that countries can make since early childhood is a critical time for individual growth, a short and unique period because of the

unparalleled speed at which brain architecture develops. This is why monitoring, protecting and promoting well-being has long been emphasised in the United Nations Convention on the Rights of the Child (UNCRC, 1989) that was adopted by the General Assembly of the United Nations on the 20 November 1989 and the rights enshrined often classified into '3 P's' (Hammarberg, 1990) which include protection rights, provision rights and participation rights and, the Sustainable Development Goals (SDGs) which feature 44 child-related indicators spread across the 17 goals. These have been broadly clubbed into five dimensions of child rights, namely the rights to survive and thrive, to learn, to be protected from violence, to live in a safe and clean environment and to have an equal opportunity to succeed (UNICEF, 2018).

Women constitute a great spring of manpower to sustainable development and therefore a powerful but untapped economic resource (Idowu & Owoeye, 2019). However, in Cameroon women constitute only 39% of the labour force; their participation in wage employment in the modern sector has remained low, having access to less than 35% of wage employment (Fotso, 2017). Furthermore, Cameroon's economy depends greatly on the agricultural sector and the highest producers of this sector are the women. Also, the structural changes of economies from agriculture to industrial and services sector equally reduce the maternal labour force participation in case of developing nations and Cameroon in particular. However, these activities may increase in the later part of economic development due to increase in education and the dynamics of economic activities (Forgha & Mbella, 2016). Although women empowerment is one of the key Sustainable Development Goals (SDG) adopted by the government Cameroon, Cameroon has been very slow in moving this process forward in order to improve on child well-being.

Multiple frameworks that measure well-being exist. It is difficult to identify a well-accepted and shared common agreement in the field of child well-being (Jones & Summer, 2011). In this case, the well-being of children has been defined and measured in numerous ways in the past decades. In the 20th century, child well-being was primarily conceptualised in a material sense. Researchers measured child well-being based on the monetary poverty line and Gross National Product per capita (Saith & Wazir, 2010). Even though material resilience is a key dimension of child well-being, the early efforts largely neglected the fact that it took so much more for a child to realise their full capabilities than mere material well-being. In this regard, a useful definition views child well-being as a dynamic process, "wherein a person's physical, mental, social and material situation is more commonly positive than negative, and as an outcome of intrapersonal, interpersonal, societal and cultural processes (Minkkinnen, 2013)". The UNCRC has equally offered principles for an understanding of children's well-being which include: nondiscrimination (Art 2), best interest of the child (Art 3), life, survival and development (Art 6) and respect the views of the child (Art 12). One of the core ideas that recur in these definitions is that child well-being in these definitions needs to be multidimensional for it to have any relevance or use (Nankinga et al., 2019).

Despite the success made by the government on child health as an indicator of well-being: in vaccination campaigns against measles, and other childhood illnesses which reduces under- five mortality, child well-being and the growth rate of the country is still on the decline. However, it is noted that child well-being in most studies in Cameroon is captured either by health or nutritional outcomes (Fotso, 2017; Tambi 2017; CHE & Sundjo, 2018; Melie & Tambi, 2022). And have used already constructed indexes of weight- for- height Z-scores which measures body weight relative to height and is normally used as an indicator of current nutritional status (wasting), height- for- age Z-score which reflects cumulative linear growth (stunting) and weight-for-age Z-score which indicates body mass relative to age (underweight) as well as child mortality rate (Garti *et al.*, 2018; Tambi, 2017; Fambon & Baye, 2017). These are all conventional methods of measuring child anthropometric. This is limited in that child health and nutrition are merely dimensions of child well-being which focus on child survival and negative outcome of life.

This study is intended to fill this gap by examining the following objectives.

- Analyse the effects of maternal labour force participation on child well-being in Cameroon.
- Compare the degree of maternal labour force participation on child well-being in the primary, secondary and tertiary levels of education.

2. Literature Review

From an empirical perspective, a myriad of empirical field studies have been carried out in the field of maternal labour force participation and child well-being either in terms of health or nutritional outcomes across the world with foundations on the human capital theory (Becker, 1975).

Derviservic et al. (2021), used a unique household panel data from Semi-Arid tropics of India and household fixed effects model examined the relationship between maternal labour force participation and child well-being. They revealed a positive significant effect of workdays of women on dietary diversity (overall and home-produced) and home-production. They therefore arrived at the conclusion that that interventions boosting

female labour force participation in paid activities are nutrition enhancing for children in the household and work towards improving women's bargaining power within the household.

Rashad and Sharaf (2019), on their part investigated the impact of maternal employment on child nutritional status in Egypt. Their study used OLS methods and IV 2SLS methods and the results indicated that maternal employment increased the probability of having a stunted child by 18 percent and the probability of being wasted by 13 percent for children whose mothers are employed. Also, Mancino (2011) using American Time Use Survey supported the argument by showing that working full-time reduces the time allocated to food preparation by women. This result was consistent with that of Komatsu *et a*l., 2018). Berger *et al*. (2005) and Ukwuani and Suchindran (2003).

In a related study, Oddo and Ickes (2018), used 50 Demographic and Health Surveys samples from low and middle-income countries (LMICs) to investigate the association between maternal employment and infant and young child feeding (IYCF) practices using three indicators, namely; exclusive breast feeding (EBF), minimum deity diversity (MDD) and minimum meal frequency (MMF) among children aged below 6 months (for EBF) and those aged 6-23 months (for MDD and MMF). Their findings indicated, children of formally and informally employed women had higher chances of meeting the MDD and MMF compared to those of the non-employed women. The study recommends that given the expected increase in labour force participation by women in LMICs, intervention strategies and policy-level approaches that support breast feeding among formally employed mothers should be considered and identified.

The issue with all the studies relating maternal labour force participation and child well-being is that they focused either on child health, nutrition or child protection which are purely dimensions of well-being and examine only the negative outcomes of the child and comes out with possibilities for the child to survive. Notwithstanding, this study will fill the gap by examining child well-being which focuses on the positive outcomes of the child which will cause the child to thrive and be useful in the society. This is creating an index which constitute the dimensions and indicators of child well-being as shown in the most recent 2018 DHS data. The study will also decompose the effects of maternal labour force participation on child well-being to see whether the effect is a matter of primary, secondary or tertiary level of education for necessary policy implementation.

3. Methodology

This section is split into three subsections. The first examines the sample and data collection of the study, the second presents the estimation framework while the third subsection is based on the computation of child well-being.

3.1 Data Collection

In this paper, the 2018 Demographic Health Survey, carried out by the National Institute of Statistics (NIS) was used for the analyses. The target population of the survey consisted of women, men and the children from the ten regions of Cameroon. The sample was collected using representative clustering survey sampling techniques at the national level. The instruments used to collect the data were questionnaires and interviews. Those eligible for interview were all men and women age 15-49. The sample population consisted of a total of 9733 respondents. The data collected provided detailed information on individual and household characteristics like mother's age, mother's occupation, mother's, education, father's education, marital status, father's presence in the house, mother's education *father's education, child's age, sex of the child and household size. This study adopts a quantitative research design precisely a survey research.

3.2 Estimation Framework

The objective of this study is to analyse the effect of maternal labour force participation on child well-being in Cameroon. In this case maternal labour force participation is used as an independent variable and child well-being as a dependent variable. Modeling the effects of maternal labour force participation on child well-being, the study makes use of the labour supply theory of Joesch (1997) which proposes that a woman chooses to participate in the labour force if the value of her market wage is greater than her reservation wage, defined as the value of her time at home to take care of the well-being of the child. Maternal labour force participation is therefore an appropriate framework for measuring child well-being with an instrument for endogeneity being cluster mean of distance to health facility. In this wise, modeling econometrically the effect of maternal labour participation on child well-being in Cameroon, we apply the following equation of interest:

$$CWB = \beta + \emptyset MLFP + \partial\pi + \varepsilon \quad (1)$$

Where CWB is child well-being, which are our outcome variable of interest; MLFP stands for maternal labour force participation; π represent a vector of exogenous demographics of maternal, paternal, child and

environmental characteristics. In the econometric model, Ø signifies the actual effect of maternal labour force participation on child well-being. Equally, β, ∂ are parameters to be estimated, while ε is the error term respectively. Given that there can be some biases due to omitted variables, it will be possible that the covariance of maternal labour force participation and the error term (ε) is not equal to zero, hence making our result inconsistent. To redress this situation, we identify an instrument variable M. This instrument is a factor that affects maternal labour force participation without directly influencing child well-being. In other words, it is a variable that can partially determine maternal labour force participation but is uncorrelated with the error term. The maternal labour force participation generating function may take the following structural form:

$$MLFP = \beta_{CWB} + \emptyset_{CWB} M + \gamma_{CWB} \pi + \mu \tag{2}$$

The instrument M used in the study is cluster mean of distance to health facility. With this instrument, we can estimate a two-stage regression model with the first stage equation as indicated in equation 2 above. As indicated by Morrill (2011), the consistency of the estimate of Ø relies on the validity of the instrument which is the normalized cluster mean of distance to health facility (M). In so far, as M has not correlated with the error term (μ), it implies that the instrumental variable estimate of the parameter Ø is consistent. In this light, Morrill noted that this is in reality an untestable assumption.

In this regard, the model can be estimated by taking the predicted value of maternal labour force participation from equation 2 and substitute for maternal labour force participation in equation 1 in an IV 2SLS model. Based on the introduction of instrumental variables, Tambi (2014) explained that Mwabu (2009) mentioned three properties of an instrument that need to be noted: First, an instrument is relevant if its effect on a potentially endogenous explanatory variable is statistically significant. Second, an instrument is strong, if the size of its effect is 'large'. Last but not the least, the instrument used is exogenous if it is uncorrelated with the structural error term. When all these requirements are made, the instrumental variable concerned is said to be a valid instrument. Endogeneity can arise due to omitted variables, errors-in-variables and simultaneous causality (Bascle, 2008). Endogeneity and heterogeneity bias can compromise the validity of OLS estimators. The IV approach is intended to oxygenize the endogenous regressors using valid, relevant and strong instruments and the most commonly used IV estimation method is the single equation approach of two-stage least squares (2SLS) estimators (Jones, 2007). Considering the reduce form estimate, we remark that the 2SLS estimate of M can also be thought of as resulting from the division of the reduced form estimate $Ø_{CWB}$ below, by the first-stage coefficient derived above M_{CWE} (see Morrill, 2011). The reduced form equation is the regression of the child well-being on the instrument: This actually indicates whether the instrument is correlated with the outcome variable of interest.

$$CWB_i = \beta_{CWB} + \emptyset_{CWB} \mathrm{M}_i + \gamma_{CWB} \pi_i + \sigma \tag{3}$$

Evaluating the endogenous variable, Angrist (1999) reveals that 2SLS estimate is a reasonable estimation strategy with limited dependent variables and a dichotomous endogenous variable. Since the variables of interest are all continuous variables with a dichotomous endogenous variable, this makes the model of instrumental variable robust in terms of estimations.

3.3 Computation of Child Well-Being Index

"Child well-being is usually considered as a multi-dimensional concept incorporating mental/psychological, physical and social dimensions" (Pollard & Lee, 2003). The dimensions and indicators are identified by consensus, with justifications drawn from the child research literature and the United Nations Convention on the Rights of Children and each country is to identify and construct multiple indicators of the subject under investigation (Epo & Baye, 2011). In order to construct the child well-being index, the multiple correspondence analysis (MCA) method is used given that, child well-being is a multifaceted domain. The Multiple Correspondence Analysis approach have been popularized in the field of multidimensional poverty analysis and in current literature MCA is applied in the analysis of multidimensional welfare (Epo & Baye, 2011). It is worthy of note that in this case, the modalities used to construct the synthetic variable respect the fundamental requirements as outlined in Asselin and Tuan (2005). The modalities or indicators use have an ordinal ordering consistent with their contributions in the first factorial axis as stated in the existing literature (Asselin & Tuan, 2005; Moses, 1998).

Further, to construct an index is suitable to our context as have been demonstrated by the World Bank researchers since 1998 (Filmer & Pritchett, 1999). To avoid negative values on our constructed index, at times we shall normalize the index so that the values of the index are scale to a [0, 1] range. To do this, we use the normalization indicator through the application of the formula: Gen child index = (indicator-r(min))/(r(max)-

r(min)). The value of our child well-being index is normalised directly with the application this command in STATA 14.0. Regarding our synthetic variable — child well-being, we choose 10 indicators (variables) from three dimensions of child well-being, with each having two modalities and place them in an increasing ordinal order. It will therefore be constructed using ten different indicators /modalities such as, currently breastfeeding, gave child baby formula, covered by health insurance, large size at birth, received any treatment, ever had vaccination, child received assistance from the doctor, child lives with parent, have mosquito bed net for sleeping and disposal of youngest child's stools in latrine. These observations were reduced to one by the MCA method as seen in Table 1.

Table 1. Variables used in the construction of the Child well-being index

Variable	Modality		Nature
Currently breastfeeding	Yes	No	Dummy
Gave child baby formula	Yes	No	Dummy
Covered by health insurance	Yes	No	Dummy
Large child size at birth	Yes	No	Dummy
Received any treatment	Yes	No	Dummy
Ever had vaccination	Yes	No	Dummy
Child received assistance: Doctor	Yes	No	Dummy
Child lives with parent	Yes	No	Dummy
Have mosquito bed net for sleeping	Yes	No	Dummy
Disposal of youngest child's stools in latrine	Yes	No	Dummy
Observation: 9,733			

Source: Author, computed from 2018 DHS.

From these variables, our child well-being index will be computed using the MCA and it's the constructed index that we will be used in this study to analyse the effect of maternal labour participation on child well-being.

4. Presentation and Discussion of the Results

This section begins with descriptive statistics before the inferential analyses are presented and discussed.

4.1 Weighted Descriptive Statistics

Table 2 shows the weighed sample statistics for short listed variables to be used for our regression results. The weighted descriptive statistics indicates that a random sample of 9733 respondents were observed. From this sample, the output variable of interest which is child well-being indicates that about 59.5 percent of the children had improved well-being and 69.8 percent of the mothers were participating in the labour market. From table 2, we observe that about 40 percent of household live in urban centres while 59.9 percent in rural area with an average household size of about 10.47, and 151.7 when the household size is doubled. As concerns sex of the household, there are 30.2 percent male headed households with an average age of the mother of 28.78 ranging from 15 to 49 years. Still in this statistical table, about 59.9 percent of women are married and 74.2 percent of the fathers are present in the household. From the data, about 51.8 percent these mothers gave birth to babies with a large size while 53.4 percent of them had big problems in terms of distance to health facility.

Table 2.

Variable	Obs	Mean	Std. Dev.	Min	Max
A) Outcome Variable of Interest					
Child well-being index (Normalize index)	9,733	0.595	0.126	0	1
B) Potential Endogenous Determinant of Child well-being					
Mother's Participation in the Labour Market (1= Mother participated, 0 otherwise)	9,733	0.698	0.459	0	1
C) Endogenous Instrument					

Distance to Health Facility (1= Big problem, 0 Not a big problem)	9,733	0.543	0.275	0	1
D) Exogenous Demographics					
Mother's age	9,733	28.791	6.713	15	49
Mother's Education in years of schooling	9,733	5.394	4.536	0	17
Mother's Education in years of schooling^2	9,733	49.6710	60.627	0	289
Father's Education in years of schooling	9,733	4.676	4.960	0	17
Father's Education in years of schooling^2	9,733	46.462	67.783	0	289
Mother's education times father's education	9,733	36.363	56.425	0	289
Father's Presence in the House (1= present, 0 otherwise)	9,733	0.742	0.438	0	1
Marital Status (1=Married, 0=Otherwise)	9,733	0.599	0.490	0	1
Sex of Household head (1=Male,0 otherwise)	9,733	0.302	0.459	0	1
Sex of Child (1=Male,0 otherwise)	9,733	0.518	0.5000	0	1
Household Size	9,733	10.741	6.0255	1	40
Household Size^2	9,733	151.662	198.153	1	1600
Place of Residence (1=urban,0 otherwise)	9,733	0.401	0.490	0	1
Primary	9,733	0.148	0.355	0	1
Secondary	9,733	0.027	0.161	0	1
Higher	9,733	.0.043	0.204	0	1

Source: Computed by the researcher from 2011 Cameroon Demographic Health Survey (DHS)

From table 2, Mother's education was captured in terms of their number of years of schooling and table 2 reveals that the mean years of completed years of schooling for mothers was about 5.39 and 49.67 when doubled as compare to 4.68 for fathers and 46.46 when squared. Furthermore, the interaction of mother's education and father's education gave a mean of 36.36. The child's well-being is expected to increase with increase in educational attainment of the mother and the father.

For levels of education attained, the results reveal that 14.8% of the mothers ended at the primary levels of education while about 2.7% of them ended at the secondary levels of education and 4.3% of them ended at the higher level of education. The 2018 DHS data shows that in Cameroon more women attain primary education than the secondary and higher level of education. This shows that mothers who have completed secondary school and high school will likely improve on the well-being of their children since they will be to increase wealth accumulation from participation in the labour market and improve prenatal care of under five children. Thus, decomposing and examining the effects of maternal labour force participation on child well-being by levels of educational attainment is critical, especially when designing policies aimed at improvising child well-being.

4.2 Reduced—Form Estimate of the Effects of Maternal Labour Force Participation on Child Well-Being in Cameroon

This section presents the results of the Ordinary Least Square (OLS), and instrumental variables (IV) approach to explain child well-being function. All these methods try to explain in clear terms if maternal labour force participation affects the child well-being.

Table 2 presents estimates of the child well-being under different assumptions using maternal labour force participation as the main independent variable, while controlling for other correlates. As seen in table 3, column 1 reports that the linear regression (OLS) estimates of the structural parameters; column 2 presents the first stage results of the Instrumental Variable Two Stage Least Squares (2SLS), column 3 presents the second stage results of the 2SLS which controls for endogeneity and is the point of focus in this study.

Table 3. Parameter Estimates of the Maternal Labour Force Participation and Child Well-Being

Variable	**Estimation Methods**

	OLS Coef. (t-Stat.)	**2SLS 1st Stage Coef. (t-Stat.)**	**2SLS 2ndStage (Correcting for Endogeneity) (t-Stat.)**
	Child well-being index		
Mother's Participation in the Labour Market (1= Mother participated, 0 otherwise)	0.009*** (2.94)	n/a	0.592** (2.09)
\ Distance to Health Facility (1= Big problem, 0 otherwise	n/a	-0.061** (-2.18)	n/a
Mother's age	.0.001*** (4.52)	0.008*** (7.67)	-0.004 (-1.57)
Mother Occupation sector (1=working in agricultural sector, 0 otherwise)	-0.0063* (-1.74)	0.307*** (17.67)	-0.185** (-2.12)
Mother's Education in years of schooling	0.003*** (3.31)	0.018*** (4.19)	-0.007 (-1.30)
Mother's Education in years of schooling^2	-0.0004*** (-4.03)	-0.001*** (.-3.07)	0.000 (0.91)
Marital Status (1=Married, 0=Otherwise)	-0.011*** (-3.72)	0,143*** (8.74)	-0.104** (-2.27)
Father's Education in years of schooling	-0.001 (-1.45)	0.012*** (3.86)	-0.007** (-2.02)
Father's Present in the House (1= present, 0 otherwise)	-0.014*** (-3.87)	-0.001 (-0.04)	-0.014 (-1.32)
Mother's education times father's education	0.000 (0.62)	-0.002*** (-2.67)	0.001* (1.72)
Child's age in months	0.002*** (23.16)	0.002*** (4.61)	0.001 (1.37)
Sex of the child (1=male, 0 otherwise)	-0.002 (-0.61)	0.032** (2.46)	-0.019* (-1.66)
Household Size	-0.002** (-2.18)	-0.000 (-0.07)	-0.002 (-0.83)
Household Size^2	0.000 (1.50)	.0.000 (0.16)	0.000 (0.54)
Constant	0.516*** (60.79)	0.287*** (4.63)	0.407*** (6.93)
F –Stat[df;p-val]	54.47 [13,4604;0.0000]	14.76[1,4604;0.0000]	16.14[1,4604;0.0000]
Adjusted R –Squared	0.1309	n/a	n/a
Sanderson-Windmeijer multivariate F test of excluded instrument: F-Stat[df, p-val)	n/a	14[1,4604;0.0091]	n/a
Anderson- Rubin Wald χ^2 (p-value)/ F-Stat [df; p-val]	n/a	40.96[1, 4604; 0.0000]	40.96[13,4604; 0.0000]

Weak identification test: Cragg-Donald F-Stat [10% maximal IV relative bias]	n/a	5.76[16.38]	14.765[16.38]
Sargan statistic: (Over identification test of all instruments): Chi 2 [df; P-value]	n/a	n/a	0,000
Anderson –Rubin Wald χ^2 test for endogenous regressors: χ^2 (1) p-val	n/a	40.96 [0.0000]	39.519 [0.000)
Number of observations	**9,733**		

Source: Computed by the researcher from 2011 Cameroon Demographic Health Survey (DHS)

Notes: ***, ** and * indicate 1%, 5% and 10% levels of significance respectively. Robust t-statistics are in parentheses (.). Also, n/a means not applicable. N/B: Dependent Variable is child well-being index**.**

The results in column 1 from the Ordinary Least Square (OLS) model which is the starting point of the analyses, reveal that maternal labour force participation is positively and significantly associated to child well-being. That is, when a mother participates in the labour market child well-being increases by 0.9 percent controlling for other covariates. Critically, the coefficient in column 1 (0.9 percent) significant at 1 percent on maternal labour force participation is clearly not representative of the underlying population since it does not account for endogeneity of maternal labour force participation whereas the other columns give survey-based regression models that are representative of the underlying population. The results in column 2 of the first stage of 2SLS, reveal that mother's distance to health facility negatively and significantly affect child well-being. The result clearly shows that an increase in distance covered by mothers to health facilities is a big problem and reduces child well-being 6.1 percent and is statistically significant at 5 %. Mother's distance to health facility was however, used as the instrument for maternal labour force participation and the variable that is expected to directly affect maternal labour force participation but not child well-being.

Focusing on column 3 of table 3, the results of the 2nd Stage of the Instrumental Two Stage Ordinary Least Squares which accounts for endogeneity of maternal labour force participation, reveals that whenever a mother participates in the labour market, child well-being increases by 0.592 standard scores (59.2 percent) and significant at 5 percent level. The estimate of 59.2 percent means that the participation of mothers in the labour market strongly influences child well-being. This result shows that when mothers participate in labour force activities, the household will benefit from additional incomes and savings that will improve on the overall quality of the child in the domain of health, nutrition and child protection. This result has the expected sign and this is also in conformity with the human capital theory of Becker (1962) which stresses the significant of education and training as the key to the labour market. This result also implies that using the correct estimation procedure is critical for policy implications (Baye and Fambon, 2010). This result also confirms the results found by (Derviservic et al., 2021; Sangwan & Kumar,2021; Garti et al., 2018). Indeed, the authors found that maternal labour force participation and longer maternal daily work hours are associated with reduced prevalence of stunting in children which is an indicator of child well-being.

Checking the relevance and robustness of this result, we observed that in table 3, the weak identification test: Cragg-Donald F-Stat [10% maximal IV relative bais] is 14.77[16.38], implies the instrument is relevant although it is marginally weak, implies we reject the possibility that our instrument (mother; s distance to health facility) is weak. The instrument is relevant but however marginally weak since Cragg- Donald F- Statistics is slightly less than Stock Yogo statistics. Furthermore, looking at the instrument validity, the Sargan statistics (0.000, p-value= 0.0000), proves that the instrument is valid and so relevant since it is exactly identified. Again, the diagnostic tests of Anderson- Rubin Wald Chi^2 test for exogeneity of the potential endogenous variables [df: p-value] of 39.519 [0.000] shows that we reject exogeneity of maternal labour force participation in the child well-being production function.

Apart from the endogenous variable which is maternal labour force participation, other exogenous variable in the sample that positively and significantly correlating with child well-being include is mother's education times father's education. The estimate of mother's education times father's education (0.1 percent) significant at 10 percent in column 3 signifies that child well-being is better acquired when both mother and father are educated. This is because when both father and the mother are educated, they will acquire skills which will enable them to gain employment in the secondary and tertiary sectors, where much income will be raised to improve on the well-being of children. The education of both mother and father is an important determinant of maternal labour force participation and child well-being in Cameroon (Melie & Tambi, 2022; CHE & Sundjo, 2018; Ngeh, 2016). On the other hand, variables such as marital status, father's education in years of schooling and presence of male

sibling in the household are negatively associated with child well-being.

As observed from table 3, column 3 further reveals that the mother's age, mother's education in years of schooling, father's presence in the household and household size correlate negatively with child well-being but are statistically insignificant. Equally, the results of the study reveals that mother's education in years of schooling squared and child's age in months correlate positively with child well-being but are also statistically insignificant. This suggests that will have no significant on child well-being. The results are clearly summarized in table 3.

More generally, increase in maternal labour force participation increases child well-being. The key issue here is not that maternal labour force participation directly increases child well-being but that maternal labour force participation generates extra income through potential savings that could be redeployed to the child well-being through health, nutrition and child protection.

4.3 Estimates of Child Well-Being Function by Maternal Level of Education

Table 4, presents the results of the decomposition of maternal labour force participation effect on child well-being for levels of education in Cameroon, using the two-stage ordinary least squares (2SLS) method for policy implications. Decomposing maternal labour force participation effect on child well-being for level of education, we observed that maternal labour force participation effect on child well-being is a matter of secondary level of education. From table 4, we observed that maternal labour force participation is negatively and significantly associated with the production of child well-being. Considering the secondary level of education (-2.9 percent, significant at 10 percent level) while primary level of education (1.4 percent, significant at 10 percent) results and tertiary level of education (3.2 percent, significant at 5 percent), we also noticed that the magnitude of the influence of maternal labour force participation on child well-being production at the tertiary level of education, is in excess of that of their primary level of education counterparts. However, we notice that the magnitude of the secondary level of education is (-2.9 percent), and being the lowest shows that the relationship between maternal labour force participation and child well-being is a matter of secondary level of education. This result implies that in a given good state of maternal labour force participation, the females will improve on the well-being of children when they acquire tertiary level of education than primary and secondary level of education. The covariates in the primary, secondary and tertiary level of education positively impacting child well-being include mother's age, child's age and household size whereas marital status and father's present in the household negatively significantly affecting the child well-being.

4.4 Conclusion and Policy Recommendations

The focus of this study were to: analyse the effects of maternal labour force participation on child well-being and to explore the heterogeneous effects of child well-being by maternal level of education. Actually, studies revealed that little attention has been paid on child well-being in a multi-dimensional approach using DHS. The main objective of the study was to analyse the effects of maternal labour force participation on child well-being. From the 2018 DHS data, the dimensions and indicators of child well-being were identified by consensus, with justifications drawn from the child research literature and the United Nations Convention on the Rights of Children, and the child well-being was constructed using the multiple correspondence analysis (MCA) method given that, child well-being is a multifaceted domain. The result of the IV2SLS shows that maternal labour force participation is positively and significantly associated with child well-being. This implies that if a mother participates in the labour market especially at the higher level of education, the household may benefit from potential savings from additional income earned that will improve on the well-being of the child and the results are consistent with the human capital theory and the results found by Derviservic et al. (2021) and by Oddo and Ickes (2018).

We also observed that, the relationship between maternal labour force participation and child well-being is a matter of maternal level of education. Estimates of child well-being revealed that when a mother participates in the labour market at the secondary level of education, child well-being instead falls rather than increasing. We observed that understanding the impediments of maternal labour force on child well-being is critical. To better inform maternal labour force participation-based policy practices with child well-being, from life course perspective, this study hypothesis that maternal labour force participation has cumulative effect on child well-being. In terms of policy, maternal labour force participation should be included in the new version of successful child well-being so that, families raising up children with improved well-being should start early and last longer.

Policy suggestions also point to the need for child well-being to be captured in a multi-dimensional approach; need for enhancing government's effort in consolidating human capital investment effort and instigating employment efforts for women; as it enables income growth, ameliorate future living standards for children and reduce poverty. Decision makers in Cameroon could establish obligatory laws to oblige mothers and fathers to

be educated and to start the process of investing on children early so soon as they begin to earn incomes.

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