

The household factors determinants of child labour in Tanzania.

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Abstract: *This paper examined the house-hold factors which are determinants of child labour in small scale gold mining in Tanzania. Specifically, the study examined number of children, parental care and divorce of the respondents which influence child labour practices in small scale gold mining (SSGM) in Geita region. Furthermore, the study used the case of Nyang'hwale district which is one of the districts in Geita region where SSGM activities are rampant compared to the rest of the districts. The study used a cross-sectional survey researches design. The primary data were collected by using questionnaires from 209 individuals who were systematically and randomly sampled from Nyang'hwale district in Geita region. Moreover, the study applied a newly developed method of measuring the age risk of children working under 18 years known as Eta Value. The researcher analyzed the data using the Structural Equation Modeling Partial Least Square (SEM PLS) with a combination of analytic techniques - statistics and artificial intelligence software. The study found that the child labour determinants under household factors were number of children, parental care and divorce level of the respondents. Moreover, the researcher found that micro-sociology focuses on the individual's micro aspects which are household – number of children, parental care and divorce. The study concludes that the fundamental determinants of child labour practices in small scale gold mining in Tanzania are household factors. The study recommends prioritizing number of children, parental care and divorce analysis for solving individual problems so as to eradicate child labour practices in Geita.*

Keywords: Household factors, number of children, parental care, divorce, Child Labour.

1. Introduction

Children are among the vulnerable groups despite the laws that protect their development. Meanwhile, child labour is a social problem which affects the development of the child mentally and physiologically. Sociologists widely apply child labour to study the children's engagement in activities that eventually lead them into child labour in small scale gold mining. The household factors such as number of children, parental care and divorce have both direct and indirect (hidden) effects on child labour practices particularly in small scale gold mining. It is a common or traditional way of studies assessing the direct impact of household factors such as the number of children and parental care that directly influence the child to join into labour practices. The hidden effect of the individual is likely overlooked. Most of the studies are limited on the direct effect of the household factors. Therefore, this study aimed to examine the hidden or indirect effect of the child labour practices in Tanzania. Specifically, the study examined the indirect effects which are number of children, parental care and divorce. There are large differences in child labour especially in small scale gold mining across regions in Tanzania. The Geita and the Manyara regions stand out as having the highest level of child labour due to having small scale gold mining activities that make them to have 56.4 per cent and 53 per cent of child labourers respectively.

The study critically reviewed the empirical literature involving global, regional (Africa), and country (Tanzania) studies. This approach helped to get a broad knowledge of the understanding of the research problem from the global to the country level, from general to specific. Child labour is a problem not only in the small scale gold mining sector but is a global social problem which harm children rights and endanger the life of the children at large. The ILO and UNICEF (2020) report shows 160 million children, of whom 63 million girls and 97 million boys are in child labour or 1 in 10 children worldwide. History reveals that children's participation in child labour in developed countries, such as Europe, Britain and North American nations like the United States of America, has existed for years (Radfar et al., 2018).

2. Empirical studies

Household factors as determinants of child labour

Metta et al. (2023) made a study on ecological aspects shaping child labour in Tanzania's artisanal and small-scale gold mines. The study described factors promoting child labour in small-scale gold mines in rural Tanzania despite the country's adoption of laws and regulations intended to reduce it. The study used a phenomenological design in which qualitative data were collected using focus group discussions and in-depth interviews. The study found that child labour was common in the small-scale gold mines being the results of household factors backed by household abject poverty and households' inability to provide for their basic needs. Divorce and family disintegration, limited diversification of income-earning activities, failure of parents to prioritize education of their

children, Early socialization of children as future miners, peer pressure and parental influence, especially of mothers, promoted entry into mining or reinforced its continuation.

The study concluded that the factors inducing child labour in small-scale gold mines are so complex and multi-faceted in nature that efforts aimed to eliminate child labour require a multi-layered approach to address the root-causes of the problem at the micro-, meso-, exo- and macro-level systems. The weakness of this study is that it failed to determine the empirical structural relationship which exists between the observed causes of child labour in small-scale gold mining. Moreover, the study is silent in showing how micro-macro determinants of child labour are interconnected. Additionally, the study put more emphasis on household factors as the main determinants of child labour in small-scale gold mining while leaving aside the rest of the determinant factors like socio-economic, socio-cultural and personal based factors.

The study by Abebe and Fikre (2021) on factors for child labour in artisanal and small scale gold mining in rural Ethiopia developed frameworks which distinguished three factors for child labour to engage in mining practices which are individual, household, and community. The study used household surveys conducted in 2004, 2011, and 2016 by the central statistical agency from 35 827 children living in rural Ethiopia and the data were analyzed using the Logit model. The study found that at the household level, resources such as income, agricultural land, and literacy of the head were determinants of child labour in small-scale gold mining activities. The study recommended better income and literacy of the household head to be the sore solution to prohibit child labour in rural Ethiopia. The weakness of this study is that it concentrated on income and education of the head as a treatment for child labour. Basing on the household determinants for child labour, the study was weak as it failed to consider other factors at the household levels such as parental care, divorce and even the number of children at the household level. Thus, the researcher was interested in filling the gap because the literature on household-based factors for child labour left gaps, hence connecting the micro-macro factors for child labour.

Cummings (2016) studied child labour in the mining sector and household composition in Mexico. The study found that child labour in Mexico had not decreased despite the positive effects of some social programs as a result of high poverty at household levels. The study used the database of Child Labour Modules 2009, 2011 and 2013 to estimate the determinants of child labour for children between 5 and 17 years old in Mexico. The study concluded that at the household level, child labour resulted from the opportunity cost of schooling and other factors like family structure and parents' educational level. The study concluded that child labour was significantly correlated with household well-being and income, but it was also influenced by the perceived cost of schooling, which is correlated with parents' education and place of residence. The study recommended policies to increase school attendance and consider policies to increase school attendance and consider the specific needs of children living in the countryside and the risks of working children in the city. The weakness of this study is that it only focused on household levels such as poverty and the education level of the household head. It failed to consider other child labour determinant factors such as the number of children as associated with parental care capability.

O'Brien and Chachu (2020) made an evaluation of a project known as the Convening Stakeholders to Develop and Implement Strategies to Reduce Child Labor in Artisanal and Small-Scale Gold Mining or CARING Gold Mining Project. The evaluation was jointly managed by United States Department of Labor (USDOL) and International Labour Organization (ILO). The project's aimed at reducing child labor and improving working conditions in the artisanal and small-scale gold mining sector by aligning with the needs and priorities in Ghana and the Philippines. The overall purpose of the CARING Gold Mining final evaluation was to provide USDOL and ILO with an independent assessment of the project's performance and experience. The methodology include the triangulation of data collection, inclusion of parents' and children's voices using child-sensitive approaches that follow the ILO-IPEC guidelines on research with children on the worst forms of child labor and UNICEF. The evaluation team found that the project's four components (laws, policies, and action plans to address CL and WC in the ASGM sector; access of vulnerable ASGM households to social protection and livelihood services; mechanisms to monitor CL and WC in mining supply chains; and global networks to help reduce CL and improve WC in the ASGM sector.) and approach were well aligned with existing national priorities and needs in both Ghana and the Philippines.

The evaluation arrived at a conclusion that poor access of the vulnerable artisanal and small-scale gold mining households to social protection and livelihood services resulted into mushrooming of child labour practices. The conclusion can best be understood that household was the determinant factor for children to participate in the small scale gold mining, especially its failure to provide social protection and livelihood to the children. The project recommended developing a variety of effective models and lessons to be applied in small number of targeted artisanal and small-scale gold mining communities that have the potential to reduce child labour and improve working conditions in many more artisanal and small-scale gold mining communities in Ghana and Philippines.

In short, the two-year cost extension will allow time for the project to realize a greater return on its initial investment in reducing CL and improving WC in the ASGM sector. The weakness of this evaluation is that it only focused on household (the meso levels) as the determinant factor for children to be in artisanal and small-scale gold mining; hence, put more emphasis on the significant role of the government and stakeholders to provide social protection and livelihood to the children with a hope to stop child labour in the sector. However, the evaluation

did not consider the importance of other factors in forcing children to work in the artisanal and small-scale gold mining. Therefore, in order to fill the gap, this study considered not only household factors (Meso) but also the socio-economic factors (Macro), Socio-cultural factors (Macro) and personal –based factors (Micro).

Rozani (2022) studied child labour in mining in India and the DRC and Abdullahi (2023) in Tanzania (Mwanza); they indicated that there was a slight difference in social factors that illustrates that the needs of child labourers vary according to environment and context. The study emphasized differences emanating from either social or cultural aspects, failing to bring together the micro-macro aspects of socio-cultural determinants of child labour. Many studies have exposed alarms over the causes and mitigation initiatives against child labour including in small-scale gold mines (Michael, 2014; Bandara, Rajeev and Lavie, 2015; ILO, 2016; O'Driscoll, 2017; ILO, 2018; Waziri, 2019; and Andre *et al.*, 2019; ILO, 2020). The studies were one sided by focusing more on cultural factors than socio-cultural factors that determine child labour (Akarro and Mtweve, 2011; Manogerwa, 2015; Mashaka, 2018; Andre *et al.*, 2019). Moreover, they come up with different conclusions and different methodological approaches. Mashaka (2018) concluded that poverty was the main reason for the increase in child labour in the country. This study supports Waziri (2019), who examined the factors influencing the persistence of child labour and concluded that Tanzania still has a long way to go towards efforts to combat child labour. Even then, their studies focused on different cultural settings and locations hence a gap for conducting this study.

According to Merket (2019), IPIS conducted an artisanal and small-scale mining sector survey in four regions of northwest Tanzania, namely Geita, Shinyanga, Mara and Kigoma, mapping 447 mining and processing sites. The methodology for collecting the data involved a combination of semi-structured interviews and observations, in which surveyors collected quantitative and qualitative data on a wide range of indicators, spanning the site's context, organization of work, operational aspects of mining, processing and trade, and socio-economic and human rights impacts. The survey revealed that the predominant mineral in this part of Tanzania was gold, which represented 75% of surveyed sites and 98% of their mining and processing workforce. The other main minerals covered by the survey were diamonds in Shinyanga region and limestone and salt in Kigoma. It further found that there was an engagement of child labourers in the mining and processing which caused them to miss important educational opportunities.

In addition to that, the survey reported the reasons for children to be engaged in small-scale mining of which gold mining was part and parcel (representing 75% of the surveyed sites) included high rates of broken marriages leading to household (meso factors) poverty, unstable income patterns (macro factors), mobility of miners, peer influence, the lure of fast cash, and limited parental care (meso factor within household determinant factors). Even though the survey tried to unveil the macro and meso factors for children to participate in artisanal and small-scale mining such as gold, it failed to portray the empirical structural relationships of the variables. Moreover, the survey failed to exhaust the macro and micro determinant facts for persistent child labour in the small-scale mining industry. For example with the meso factor, the survey dealt with parental care and divorce while leaving other factors untouched. The survey overlooked the importance of other factors in attracting children to be involved in the artisanal and small-scale gold mining. Consequently, this study filled the gap by broadly considering not only household factors (Meso) but also the socio-economic factors (Macro), Socio-cultural factors (Macro) and personal –based factors (Micro) and their empirical structural relationships in influencing child labour practices.

According to the National Bureau of Statistics report (2016) on National Child Labour Survey conducted in 2014, the achievements are very minimal, from 2 million children in 2006 (ILFS, 2006) up to 4.2 million in 2014 (National Child Labour Survey, 2016). Moreover, the evidence presented by ILO (2020) still indicates that in Tanzania, 4.2 million children aged 5–17 years, about 29 per cent of this age group, are caught in child labour. The trend of child labour in Tanzania increased from 2 million children in 2006 (ILFS, 2006) up to 4.2 million in 2014, whereby males were 52.3% and females were 47.7% across all sectors of the economy (National Child Labour Survey, 2016 and ILO, 2020). The government has tried addressing child labour problem in Tanzania, including implementing the national legal and policy frameworks. The policies include; the Child Development Policy (2008), National Employment Policy (2008), the Employment and Labour Relation Act (2004), and the National Child Labour Act No. 21 (2009). The government has also established Tanzania's Employment and Labour Relations Act No. 6 of 2004, which prohibits employment of children less than 14 years of age. On top of that, in 2009, the government and partners updated and revised the existing legislative and policy framework and programme activities, gathering them into a National Action Plan (NAP) to eliminate child labour (Tanzania national child labour survey, 2014).

According to Johansson (2009) the causes of child labour in Babati town for all the children who were involved in the study were house-hold because children were in need of money for food and other basic needs. Johansson (2009) revealed that the underlying cause of child labour was from the children's own perspective. Children worked because of reasons derived from poverty which resulted from many other reasons such as children having family problems -deceased parents, poor caretakers and forced by household head to go for labour. The weakness of the scholar in this part is that she partially was able to explain the household factors of the child to involve I child labour. The study failed to consider other household factors that forced children to engage in child labour such as gender, age and education. Therefore, the study motivated the researcher to study more on the literature

on personal determinants of child labour so as to uncover other factors beneath children household factors, thus, fill the gap on personal determinants of child labour.

Therefore, the researcher was motivated to study more because the literature on household determinants of child labour still leaves gaps not to make it easy to grasp the real causes of child labour in small-scale gold mining.

3. Methodology

3.1 Selection of case study region and data collection

Data used in this study were obtained from 209 both children (105) and parents/ guardian (104) involved in small scale gold mining in Nyang'hwale district in Geita region. A cross sectional survey approach was used to collect quantitative information. For sampling, the simple random sampling method was used Tabachnick and Fidell (2007) suggest a sample size of $N > 104 + m$ for multivariate data analysis (where N is the sample size that is the number children and parents in small scale gold mining in unknown target population (Nyang'hwale district of Geita region) and m is the number of independent variables).

3.2 Population of the study

According to Kothari (2007), the term population means an entire group of individuals, events or objects that have common observable characteristics. It refers to all elements that meet certain criteria for inclusion in a given universe. The study used case study based approach and targeted population was children and parents /guardian who were engaged in small scale gold mining in Nyang'hwale district. The Tanzania population census (2022), show that Nyang'hwale district council has a total population of 225,803. Of the complete population estimates, the age groups 5-17 years which constitute the study group have 67,250 children out of which the sample was taken.

3.3 The study area

The study was conducted in Nyang'hwale district council in the Geita region in Tanzania. Administratively, Nyang'hwale district is one of the five districts in Geita region, including Bukombe, Chato, Geita, and Mbogwe. Its administrative centre is the village Kharumwa. It is bordered to the north by Sengerema district, to the east by Misungwi district and Shinyanga rural district, to the south by Kahama rural district, and to the west by Geita district. According to the 2022 Tanzania national census, the population of the Nyang'hwale District was 225,803 of which 112,495 are male and 112,308 female. (URT, 2022). The study took place in the wards of Nyijundu at the village of Kasubuya; Busolwa ward at Ifungadi village and hill; Kafita ward at Lushimba village and Mwingiro ward at Nyamikonze village where small scale gold mining takes place involving child labourers. The child labour statistics across regions in Tanzania (ILFS, 2018) report that the Geita region has the highest level of child labour with 56.4 per cent of all children in labour especially in small-scale gold mining whereby Nyang'hwale district, is the most affected by having many small-scale gold mining activities in the region.

3.4 General model specification

The study used the following general model specification to determine the general objective of the study. That is, to develop the structural household model of child labour determinants.

Household factor model

$$HHF = \alpha_0 + \alpha_1 NC + \alpha_2 PC + \alpha_3 DV + \varepsilon$$

Where,

α_0 , is the constant linear value at $\alpha_1 = 1$, NC is the number of children score, PC is the parental care score,

DV is the divorce or single parent score, ε is the error terms, and $\alpha_1, \dots, \alpha_n$, are the coefficient of the linear

model.

4. Results and Discussion

4.1 Demographic Characteristics of the Respondents

Demographic and socio-economic characteristics of the respondents include gender, age, education, marital status, family status and work status, presented in table 4.1 above. These characteristics provide the demographic descriptions of the respondents in the study. The research had 220 respondents' questionnaires

to fill out at the Nyang'hwale district council in Geita region. Out of 220 respondents, only 209, equal to 95%, filled out and returned the questionnaires. According to Mugenda and Mugenda (2003), a questionnaire return level of 50% is enough to analyze quantitative research. The same source also stipulates that a response rate of 70% and over is excellent.

Similarly, Hartman (1979), as used in Waziri (2019), argues that a 50% return rate is adequate, 60% is good, and 70% is perfect. Similarly, Saldivar (2012), as employed in Mussa (2020), an acceptable or desirable response rate of 50% is deemed adequate for data analysis. Also, 60% is suitable for data analysis, and 70% is regarded very well for data analysis. Therefore, based on acceptable rate theory, the respondents' rate, which was 95%, is excellent to enable the researcher to analyze the data.

4.2 Descriptive statistics

Table 4.2: The summary of the descriptive statistics for household variable

variable	Obs	Mean	Std. Dev.	Min	Max
CLI	209	0.6034	0.3765	0.0556	0.9815
HHF	209	0.3740	0.2378	0	0.78
NC	209	0.4952	0.3445	0	1
PC	209	0.2052	0.2172	0	1
DV	209	0.3349	0.5027	0	3

Source: Author (2022).

Table 4.2 shows the descriptive statistics of the variables of the data sampled in the study. The table indicates that the child labour age index (CLI) averages 0.6034, ranging from 0.0556 to 0.9815. It means that the problem of child labour in the Geita region is great. The index evidences that most children of less age are involved in small scale gold mining activities. It indicates a value of 0.6034, which equals the age of 7 years, which is extremely risky. In other words, the CLI indicate the risk level relative to the age of the child. Moreover, the table indicates that, the household factors score averages 0.3740 with a range from 0 to 0.78. This value indicates that the people who engage in child labour practices are less educated and male with less age. The score range evidences this from 0.13 (minimum) to 23.11 (maximum). The household factors imply that 62.6 percent of the respondents are influenced by household factors to join into child labour practices while only 37.4 percent are not pushed or pulled by their number of children, parental care or divorce factors to enter into child labour practices in small scale gold mining. Therefore household factors are significant factors in causing children to opt for child labour.

4.3 Data cleansing report

The study cleansed the data distribution by testing normality, validity and reliability, and Multicollinearity (input correlation). Different software was used to cleanse the data each with its specific advantage.

4.3.1 Normality test

Shapiro-Wilk did the normality test of the data with the aid of IBM SPSS statistics software. The data is normally distributed because the Shapiro-Wilk indicated the range of 0.002 to 0.021 significant levels. Hence, the researcher accepts the alternative hypothesis that the data are normally distributed because the Shapiro-Wilk significant value is less than the significant critical value of 0.05 (Peng and Finn, 2008).

4.3.2 Multicollinearity Test

The study tested the Multicollinearity problem of the data using neural designer software, which detects the input correlation of the model. The researcher found that the data have no Multicollinearity problem because the input correlations are significantly less (Table 4.3).

Table 4.3: The input correlation of the structural household child labour determinant model

	DV	NC	PC	HHF
DV	1	0.199175	0.152246	0.591378
NC		1	0.143558	0.699944
PC			1	0.594949
HHF				1

Source: Author (2023)

Table 4.3 show the input correlation of the household child labour determinant model which is measured by number of children (NC), parental care (PC) and divorce (DV). The table evidences that the data used have no Multicollinearity problem. The red color indicates the weak correlation of the inputs showing no Multicollinearity of the data. The discriminant validity values of the inner structural model of the constructs are less than the critical value of 0.8 hence are acceptable for the study.

4.3.3 Constructs reliability and validity test

The study tested the reliability of the construct household factor (SCF) by using Smart Partial Least Squares (PLS) software. Four methods measured the reliability: Cronbach's Alpha, rho_A, Composite reliability and Average Variance Extracted (AVE). Moreover, the validity was measured by discriminant validity. The results show that the construct is discriminant and reliable (Table 4.3 & 4.4)

Table 4.3 Constructs reliability test of the inner structural model

Constructs	Cronbach's'	rho_A	Composite Reliability	Average variance extracted AVE
HHF	0.730	0.675	0.834	0.564

Source: Author (2023)

Table 4.4 Constructs discriminant validity test of the inner structural model

	HHF
HHF	-0.560

Source: Author (2023)

Table 4.4 show the construct reliability test of the inner structural model. The study was interested in testing the composite reliability of the model. The results show that the constructs HHF has significant composite reliability because its values is greater than 0.5 (Wold, 1982 & Dijkstra, 2010). However, the construct HHF has 0.730 Cronbach, which is acceptable because it is greater than 0.6 for a small sample size (Wold, 1982). On the other hand, the study found that the construct is discriminate because its discriminant validity value is less than the critical value 0.8 (Dijkstra, 2010).

4.4 Model development

The model development involves the modelling of the basic structural outer model and inner structural model. The researcher aimed to get optimal inner structural model which was developed from the basic outer structural model.

4.4.1 Basic structural outer model

The basic structural outer model aimed to test the theoretical assumption of the researcher that household factors(HHF) influences child labour practices in small scale gold mining. The model was created using Structural Equation Modelling Partial Least Square (SEM PLS) with the aid of Stata software (Figure 4.1)

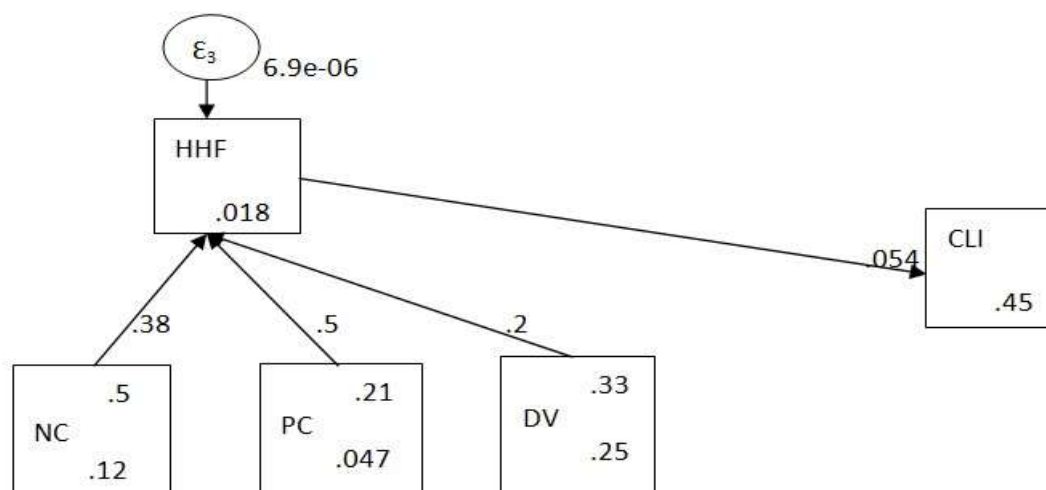


Figure 4.1 Basic SEM PLS algorithms for a household model of child labour
 Source: Author (2023)

Figure 4.1 show the household model of child labour determinants and indicate the direct and indirect impact of the constructs on child labour practices. Table 4.5 provides the path coefficients and their significant values (p-value).

Table 4.5: Path coefficients of the SEM PLS algorithm of the household model

	Coef.	OIM Std. Err.	Z	P> Z	[95%Conf. Interval]	
CLI						
HHF	-.2967255	0.0529609	-5.60	0.000	-.4005239	-.192921
NC	0.3815983	0.0154982	24.62	0.000	0.3512223	0.4119742
PC	0.4956943	0.0243669	20.34	0.000	0.447936	0.5434527
DV	0.195094	0.010625	18.36	0.000	0.1742694	0.2159186
-Cons	0.0179073	0.0099952	1.79	0.073	-.001683	0.0374976

Source: Author (2023)

Table 4.5 shows the sociocultural model's path coefficients. The path HHF to number of children (NC) has positive coefficients of 0.3330706 with a z-score of 508.81 and a p-value of 0.000. This path is significant because its p-value is less than the critical value of 0.05. Moreover, the path HHF to parental care (PC) has positive coefficients 0.3815983 with a z-score of 24.62 and a p-value of 0.000. This path is significant because its p-value is less than the critical value of 0.05. Additionally, the path HHF to parental care (PC) has a positive coefficient of 0.4956943 with a Z-score of 20.34 and a p-value of 0.000. This path is significant because its p-value is less than the critical value of 0.05. Apart from that, the path HHF to child labour index has negative coefficient of -.2967255 with a Z-score of -5.60 and p-value of 0.000. This path is significant because its p-value is less than the critical value of 0.05

4.4.2 New developed (optimal) structural model

The study developed a new or optimal model, which defines the empirical structural relationship between the constructs HHF and CLI (Figure 4.2).

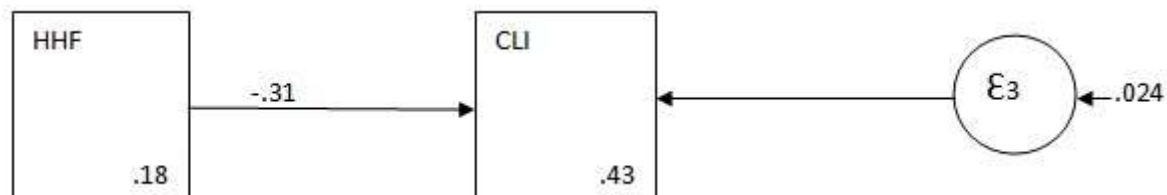


Figure 4.2 SEM PLS Optimal inner structural household factors model

Source: Author (2023)

Figure 4.2 shows the optimal inner structural household model of the child labour determinants and depicts child labour practices' direct impact/effects. On the other hand, Table 4.6 shows the path coefficients of the SEM PLS algorithm.

Table 4.6: The optimal SEM PLS path coefficients of the household model

	Coef.	OIM Std. Err.	Z	P> Z	[95%Conf. Interval]	
STRUCTURAL						
CLI						
HHF	-.306302	0.0527047	-5.81	0.000	-0.4096017	-0.2030033
-Cons	0.4285161	0.0328957	5.59	0.000	0.119452	0.2484006
Var(e.CLI)	-	0.0242573	0.0023729	-	0.0200252	0.029384
Var(e.HHF)	-	0.0487207	0.0048894	-	0.0400213	0.0593112

LR test of model vs. Saturated: Chi2 (0) = 0.00, Prob > Chi2 =

Source: Author (2023)

Table 4.6 shows the path coefficients of the household factors model. The path CLI to HHF has a negative coefficient value of -.306302, z-score 23.11 and p-value of 0.000. This path is significant at 95 per cent because its p-value 0.000 is less than the critical value of 0.05.

4.4.2.1 Examination of the indirect effect of the structural model

The study examined the indirect effects of the household model of the child labour determinants to test the level of linearity impact of the construct on the CLI. The indirect coefficients (impact) of each construct are indicated (Table 4.7)

Table 4.7 Indirect effect of the structural micro-macro model of child labour

	Coef.	OIM Std. Err.	Z	P> Z	[95%Conf. Interval]	
CLI						
HHF	-.0094599	0.0057087	-1.66	0.000	-.1583217	-.0788486
NC	-.1185851	0.202741	-5.85	0.000	-.2063295	-.1017536
PC	-.1540415	0.026678	-5.77	0.000	-.0813864	-.0398681
DV	-.0606272	0.0105916	-5.72	0.000	-.000011	-.0398681

Source: author (2023)

Table 4.7 shows the indirect effect of the SEM PLS paths. The paths CLI to HHF have the indirect effect of 0.0057087 in that there are indirect paths. This may also be interpreted that the path has both direct and indirect effects.

4.4.2.2 Evaluation of mediation effect

The study examined the mediation effect of the structural model. The researcher used the value account for (VAF) to evaluate whether the PLS paths are full or partial. The VAF is the ratio between the indirect effects to the total effects. It expresses the percentage of effect on the model output that is contributed or explained by the indirect path /relationship (Table 4.8).

Table 4.8: the value account for (VAF) of the structural micro-macro model

SEM PLS Paths	Indirect effect	Total effects	VAF	Mediation
CLI-HHF	-0.00095	-0.31076	0.03	No

Source: Field data (2023).

Table 4.8 shows the VAF values of the structural model. The table indicates the paths CLI to HHF have a full linear impact and that there are not indirect paths. The path CLI to HHF has VAF values of 0.03 significantly low, indicating mediation effect or indirect paths not required. The no mediation implies that the construct needs not another factor to be activated or motivated or pull/push to the child labour practices. In this case, the construct HHF needs not other factor for it to influence child labour practices.

4.4.2.3 Test of the goodness-of-fit of the structural model

To ensure the empirical applicability of the model, the researcher tested the model by the goodness-of-fit statistics of the SEM. The overall statistics tests are provided (Table 4.10).

Table 4.9: Test of the Goodness-of-fit of the structural model

Fit statistic	Value	Description
Likelihood ratio		
chi2_ms(0)	0.000	model vs. saturated
p > chi2	.	
chi2_bs(10)	472.080	baseline vs. saturated
p > chi2	0.000	
Population error		
RMSEA	0.000	Root mean squared error of approximation
90% CI, lower bound	0.000	
upper bound	0.000	
pclose	1.000	Probability RMSEA <= 0.05
Information criteria		
AIC	924.087	Akaike's information criterion
BIC	984.249	Bayesian information criterion
Baseline comparison		
CFI	1.000	Comparative fit index
TLI	1.000	Tucker-Lewis index
Size of residuals		
SRMR	0.000	Standardized root mean squared residual
CD	0.154	Coefficient of determination

Source: Author (2023)

Table 4.9 shows the goodness-of-fit test statistics. The likelihood ratio reports two tests. The first is a model chi-square test of the structural model, which indicates statistically significant at a 99 per cent level, as the p-value of 0.000 is less than a critical value of 0.01. The saturated model is the model that fits the covariance perfectly. It is accepted at the 1 per cent level that the model fits and the saturated model. The second test is a baseline versus saturated comparison. The baseline model includes the mean and variances of all observed variables plus the covariance of all observed exogenous variables. Therefore, it is accepted that the baseline model fits the saturated model. Under population error, the RMSEA value and the lower and upper bounds of its 90 per cent confidence interval reports. In this case, the researcher used the upper and lower bounds. As a rule of thumb, if the lower bound is below 0.05, it is accepted that the hypothesis is that the fit is close (Schumacker and Lomax, 2016). Therefore, it is accepted that the fit is close as the lower bound of this study is 0.000. On the other hand, if the upper bound is above 0.10, it is accepted that the hypothesis is that the fit is poor (Schumacker and Lomax, 2016); hence, we reject the hypothesis that fit is poor as the upper bound of this study is 0.000, which is less than 0.10. The Pclose is the probability that the RMSEA value is less than 0.05, interpreted as the probability that the predicted moments are close to those in the population (Schumacker and Lomax, 2016). The RMSEA value of this study is 0.000, indicating that the model fits closely. The Pclose is 100 per cent, which indicates the perfect model fits. In the baseline comparison, there are two indices, the comparative fit index (CFI) and the Tucker-Lewis Index (TLI), sometimes known as the non-normed fit index, both as a rule of thumb, values close to 1 indicate a good fit (Pituch and Stevens, 2016). In this study, the value of CFI is 1.000, and TLI is 1.000, equal to one. This study indicates the structural model is the best fit.

On the other hand, the size of residuals is reported as the standardized root mean squared residual (SRMR) and the coefficient of determination (CD). A perfect fit corresponds to an SRMR of 0, and a good fit corresponds to a small value at 0.08. And a value of CD close to 1 indicates a good fit (Pituch and Stevens, 2016). In this study, the structural model has an SRMR of 0.000 which confirms the better fits; the CD of about 0.154 is also a better determination fit of the model (Bundala, 2023).

4.5 Study hypotheses

The study used three alternative hypotheses to determine if there was a significant relationship between age, gender, education (all of them being embedded within sociocultural factors) and child labour practices. Table 4.10 provides a summary of the significant test statistics:

1. There is a significant relationship between number of children and child labour practices
2. There is a significant relationship between parental care and child labour practices
3. There is a significant relationship between divorce and child labour practices

Table 4.10: Summary of the significant test statistics

hypotheses statement	β – Values	z-score	p-value	Decision
There is a significant relationship between number of children and child labour practices	-0.306	-5.81	0.000	Accept at 95 per cent
There is a significant relationship between parental care and child labour practices	0.4891	26.52	0.000	Accept at 95 per cent conf.
There is a significant relationship between divorce and child labour practices	0.3815	24.62	0.000	Accept at 95 per cent conf.

Source: Field data (2023)

Table 4.10 shows the summary of significant test statistics: beta values (Coefficients), z-score and p-value of the structural model. The alternative hypotheses assume a significant relationship between number of children, parental care, divorce factors and child labour practices. The relationship between number of children factor and child labour practices has a negative beta coefficient of -0.306, z-score of -5.81 and p-value of 0.000. Therefore, the researcher accepts the alternative hypothesis at a 95 per cent of confidence level because its p-value is less than 0.05. Again, the relationship between parental care factor and child labour practices has a positive beta coefficient of 0.4891, z-score of 26.52 and p-value of 0.000. Therefore, the researcher accepts the alternative hypothesis at a 95 per cent of confidence level because its p-value is less than 0.05. Moreover, the relationship between education factor and child labour practices has a positive beta coefficient of 0.3815, z-score of 24.62 and p-value of 0.000. Therefore, the researcher accepts the alternative hypothesis at a 95 per cent of confidence level because its p-value is less than 0.05. This result means that household factors have a positive impact on child labour practices. The flow of child labour practices increases as much as the household factors are not improved. Therefore it is concluded that the number of children, parental care and divorce factors are push and pull determinants of child labour practices in small scale gold mining.

4. 8 Discussion of the findings

The study aimed to meet three specific objectives. It aimed to determine the household factor (HHF) which are number of children, parental care and divorce that influence child labour practices in small scale gold mining (SSGM) in the Nyang’hwale district council in Geita region- Tanzania. Hence, the researcher established the household factors model of child labour determinants. The study uniquely introduced this model due to existing theoretical gaps in the household perspective (Amzat and Abdullahi, 2021). The researcher used the structural equation modelling partial least squares (SEM PLS) and automatic linear modelling (ALM) analytic techniques to establish the structural model that empirically defined or determined the household determinants of the child labour in small scale gold mining. The model makes it possible to find the determinants or causes of a problem by analyzing the goodness-of- fit of the statistics and detecting the direct and indirect effects of the PLS paths, hence suggest appropriate means to deal with persistent child labour. From a theoretical perspective, household factors represent the micro-sociology and the interactionism theory (Amzat and Abdullahi, 2021). Therefore, it is learnt that in solving the sociological problem, the household factors need to be given consideration.

The study uniquely introduced this model due to existing theoretical gaps in the micro-macro perspective (Amzat and Abdullahi, 2021). The researcher used the SEM PLS and ALM analytic techniques to establish the structural model that empirically elucidated the micro-macro determinants of child labour in small-scale gold mining.

Moreover, household factors are also important determinant of child labour practices. This factor has an empirical importance score of 0.066, which implies that about 6.6 per cent of the determinant effect of the child labour practices are due to household factors. From the theoretical perspective which is the micro-macro perspective, it views the household as the micro-factors domain. The finding is supported by Metta et al, (2023) in the study on *Ecological aspects shaping child labour in Tanzania’s artisanal and small-scale gold mines*. The study exposed that child labour was common in the small-scale gold mines resulting from abject household poverty such that the children’s respective households’ inability to provide for their basic needs became the push factors. However, at its broadest, the study, groups the households as the meso-factors. The meso-factors are the factors which have both the characteristics of micro and macro factors. Introducing meso-factors aims to have a clear structural empirical micro-macro perspective most applicable in micro and macro sociology. The Meso fills the theoretical gap of the micro-macro perspective. Therefore, one of the contributions of this study is the extension of the micro-macro perspective into Micro-Meso-Macro perspective.

Markedly, this finding coincides with the study theory of micro-macro specifically the Interactionism theory which forms part of the micro-sociology (Amzat, 2021) and gets takes root from Marx Weber (1864-1920). The theory is rooted in the everyday life experience of the people in specific historical settings. It is a sociological framework for viewing human beings as living in a world of meaningful objects. These objects may include material things, actions, other people, relationships, and even symbols. They see symbols as an especially important part of human

communication. Members of Society share the social meanings of symbols (Schaefer, 2005). The theory is very much applicable to this study in that it is expected that from the social interactions of people in the Small-Scale Gold Mining at Nyang'hwale district council, children while observing the actions that take place around them and interpreting the socially constructed meaning are caused to enter into labour market in the mining.

Micro-sociology analyzes the essential social processes and patterns that produce interaction between persons (Blau, 1968 as cited in Amzat, 2021). The focus of micro-sociology is on social interaction and communication, and considers important concepts which are an attitude, perception, interpretation, exchange, significant symbols, and obligations. This study is in line with the micro-sociology particularly the interactionism theory as part of the micro-macro theory guiding this study, which analyzes the internal dynamic processes that eventually serve as justification for social relations and human behavior and human action. By implication, children are pulled in child labour practices in the mining as a result of household internal dynamic processes embedded within number of children available, parental care as well as divorce. All these factors determine the levels at which children are either influenced to engage in labour or not.

The study found that the household factor contributes negatively to the child labour practice being determined by the family stability or quality. This research measured the quality of the households by the number of children, parental care, and others. This was vivid in other studies (Abou, 2014; Cummings, 2016; Abebe and Fikre, 2021; Metta et al, 2023), which also observed that household factors (meso determinants) were responsible for children to opt to work in the sector. On top of that, the study found that unstable families encourage children to do mining work, increasing child labour practices. This finding is empirically open and valid. In general, most families in Tanzania are the most advanced in child care. Most children in many areas have minimal parental care, and this problem accelerated the problem of child labour. Children are less economically due to the poor parental care and poverty of parents, and hence, they think they are mature enough to fight for their economic gains. This finding highlights the weaknesses in parental care, such as no punishment, no need to know the child's whereabouts, no buying of uniform, and others.

The study furthermore examines the specific factors that influence the parent and the children. The researcher clearly distinguished between the parental and childhood determinants of child labour practice. The study found that personal factors are the only determinant factors of children's engagement in child labour. The study considers the maturity of the individual (age), education level and gender to play a part in the child labour. On the other hand, the findings indicated that being female, educated and mature (high age) reduces the number of child labour practices. These are determinants of the children's choice for child labour or otherwise. We interpret that the children only consider themselves capable and motivated to achieve economic survival as a result of the surrounding cultures. The study is on line with the study by Takyi (2014) which observed that in Ghana child labour in the mining industry depended on cultural contexts and should be defined contextually.

The findings on the household factors influencing child labour conducted by scholars and researchers have been conducted in all dimensions including at the world glance by Abebe and Fikre, (2021); Cummings (2016); in Africa by Abou, (2014); Maina, (2013) and in Tanzania by Manogerwa, (2015). The studies employed several methodologies including survey method Abebe and Fikre (2021). Studies came up with differing results all aiming at reducing or combating child labour. It was revealed that the existence of child labour was perpetuated by determinant factors like level of household income, level of the literacy of the head of family, ownership of the agricultural land, poverty of household, the household status and the community characteristics (Maina, 2013; Abou, 2014).

This study introduces a new way or method of measuring the child labour problem in a country. The key factor in identifying the child labour problem is the relative age: the legal age and the current age of the child. The legal age in Tanzania is 18 years, and most literature report that the issue of child labour is at 5-17 years (ILFS, 2007; Malila & Mnguu, 2015; Idang, 2015; Hilson, 2016; Jeannotte, 2017). Therefore, this study introduces the child labour age index, η . It is the proportion or ratio of the difference between the legal age and the child's age to the legal age. This index is straightforward and understandable. The values range from 0.722 (maximum) problem to 0.056 (minimum) problem. These values correspond to the minimum and maximum ages. The values of 0.722 correspond to ages of 5 years. That is, if the country has Eta values of 0.722 in averages indicates that the problem of child labour is at maximum. That is, the children are working starting from the age of 5 years.

On the other hand, the value 0.056 corresponds to the maximum age of 17. That is, a country with an Eta value of 0.056 indicates the child labour problem experienced by children of 17 years. The Eta value in Geita is about 0.61, meaning that most children who engage in SSGM are about seven (7) years old. It indicates that children have a high age risk. This scale is very useful and essential in sociological studies, particularly in detecting the legal-aged determinants such as marriage, retirement age, schooling etc. Eta values measure the age-relative risk of the individual or country, which is age abused or children rights.

5.0 Conclusion and recommendation

The study found that number of children, parental care and divorce factors are the most important and impact child labour practices. The age factors are the foremost important determinant of child labour. It was revealed that whenever age exists, children lack parental care particularly of the father who ought to be inclined to one wife's household leaving the rest helpless. The children of the helpless mother are forced by the circumstances to engage in child labour. Moreover, education and gender are the second the third important child labour determinants respectively. This study established the empirical-importance order of the child labour determinants. This order is a significant help in ranking the empirical relevance of the grand paradigms in sociological studies. The order signifies the relevance in solving social issues. The study shows that the age and education factors positively influence child labour practices. On the other hand, gender factors also do positively impacting child labour practices.

In addition, the study finds that there are two distinctive determinants of child labour practices, parental and childhood determinants. Childhood determinants directly determine or influence the children or motivate the children to child labour practices. This factor is the household factor particularly number of children, parental care and divorce.

The parental determinants are the household factors. These factors influence the parent or guardians in deterring child labour in small scale gold mining. These factors describe the two theories of sociology, functionalism and structural conflict, which describe macro sociology. Moreover, the study introduced a new level of social factors, the meso-factors, which take part in the micro and part of macro factors. Therefore, from these findings, the conclusion is that the household factors are fundamental childhood determinants of child labour in small scale gold mining and elsewhere.

From the conclusion above, the study recommends that the number of children, parental care and divorce (household) factors are positively impacting the child labour practice in the small scale gold mining. The study found that the number of children, parental care and divorce of the respondents are the most determinants of children's engagement in child labour practices. The study considers the maturity of the individual (age), education level and gender to play part on the child labour. On the other hand, the findings indicated that being female, educated and mature (high age) reduces the number of child labour practices. These are determinants of the children to opt for child labour or otherwise. It was interpreted that the children only consider themselves capable and motivated to achieve economic survival.

Moreover, the researcher recommends that the household factors such as gender, age and education are significant determinants of child labour practices. Male children between 7 and 13 years and less educated are more likely to engage in child labour practices. Therefore, the study recommends improving education, particularly for males, because males are the future head of the family and are more highly independent than females. This study found that most children engaging in these practices are males.

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