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Determinants of Child Labour and Schooling in Rural Northeastern Nigeria

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Abstract

Child labour interferes with proper schooling and negatively affects the pace of economic growth by preventing full realization of positive externalities associated with human capital formation. The study examined the determinants of child labour and schooling in rural northeastern Nigeria. Primary data were collected from 969 children. Information was collected on child, parent/household and community characteristics. Data were analyzed using descriptive statistics, Foster-Greer-Thorbecke (FGT) poverty index and Multinomial Logit regression. Most (59.8%) of the children were Combining School with Work (CSW); boys (59.6%) were more involved in this activity than girls (45.6%). Girls (26.9%) were more involved in schooling only (SCH) than boys (17.8%). The regression results showed that a unit increase in the age of children reduced the probability of SCH (0.03) relative to Neither School Nor Work (NSNW) while it increased the probability of CSW and Working (WRK) (0.03 and 0.02) respectively. Being a boy increased the probability of CSW (0.13) and reduced that of SCH (0.09) relative to being in NSNW. Also, being a child of a non-poor household increases the probability of SCH (0.09) and reduces that of WRK (0.06) relative to NSNW. The determinants of child labour and schooling in northeastern Nigeria are age, sex, poverty status of households among others. In essence, it is recommended that households should be encouraged to allow all children aged 5-14 years to participate in schooling in order to acquire the required 9 years of basic education as specified by the International Labour Organization.

Keywords: *Child labour, Schooling, Poverty index, Rural Notheastern Nigeria*

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Introduction

The relationship between child labour and education is a compound equation that is neither simple nor predictable as there are many factors that influence whether or not a

child attends school, and the work they do is only one of them. Several factors have been attributed to affect child education in Nigeria especially the rate of drop out. Other factors are, poverty and economic issues; early

marriage and teenage pregnancy; inadequate school infrastructure; cultural and religious biases. Socio-economic status of the parent(s) largely affects the child's education because even when tuition is free, uniforms, books, sandals, and transport fare have to be provided. Schooling problems contribute to child labour, as a result of school inaccessibility or the lack of quality education which spurs parents to put their children in more profitable pursuits. The gender roles that a society assigns to its children will have a determining effect on their future, their access to food and education, labour force participation, status in relationships and their physical and psychological health (Obayelu and Okoruwa, 2007).

Child labour represents a serious threat to the development and rights of today's Nigerian children and those of tomorrow (UNICEF, 2005). The key consequence is its detrimental impact on education and its ties to intergenerational poverty. There exists high incidence of child labour within the country (Bass, 2004). Out of 42.1 million Nigerian children eligible for primary education, only 22.3 million are in school; for secondary schools, the situation is worse: out of 33.9 million eligible adolescents only 6.4 million are in school and the economic necessity drives much of this (Okafor, 2010). Millions more children attempt to combine school and work, often to pay school fees. This combination rarely succeeds. These children work in public places such as streets and markets, semi-public places (cottage industries, mechanic workshops), private households, agricultural plantations and quarries (UNICEF, 2005). Many are exposed to long hours of work in dangerous and unhealthy environments, carrying too much responsibility for their age. Working in these hazardous conditions with little food, small pay, no education and no medical care

establishes a cycle of child rights violations. Generally, working children have no time, money or energy to go to school.

Considering regional characteristics, over 89% of children in Southern regions of Nigeria attend school compared with 74% in Northern regions. This shows that more children in the North are educationally disadvantaged compared to those in the South. Also, children from Southeast region had the highest participation in school, 97% of total sampled children in that region, while children from Northeast region had a relatively low participation rate, which represents 63% of total sample in that region. Not only that children that engage in work are more in Northern region than in the South but more schooling children also participate in economic activities in the North. The explanation for this may be a reflection of regional poverty differentials, which compel children to engage in economic activities to augment the household income. More idle children (those that participate in neither school nor work) are also recorded in the Northern than in Southern Nigeria. The explanation of this is not clear, however, there is high incidence of children begging for alms in the north (Okpukpara *et al.*, 2006). Thus, there is relatively higher incidence of children participating in economic activities and lower participation of children in school in northeast than any other regions in Nigeria (Okpukpara *et al.*, 2006, Badmus, 2008). This calls for a need to look into the determinants of child labour and schooling among rural households in Northeastern Nigeria.

2 Literature review

Nwaru *et al.*, (2011) conducted a study to examine the determinants of child labour among rural and urban farm households in Abia State of Nigeria. Cross sectional data

generated from a random sample of 60 farm households comprising 30 urban and 30 rural farm households were analysed using the probit regression model. The results indicated that age of the child; education of the child, sex of the child, education of the household head and worth of contribution of the child to household finances were significant determinants of child labour participation for the rural households. The urban households have, age of the child, sex of household head, and worth of contribution of child, sex of child, age of household head and education of household head as significant determinants of child labour. In a similar sense, Moyi (2011) examined the causes and magnitude of child labour in Kenya while including household chores. This is important because majority of child labour takes place within the household. Results revealed that socioeconomic status and structure of the household have a strong effect on child labour. Higher child labour rates were observed among older children, rural dwellers, and those of lower household socioeconomic status. The years of education of the head of household and wealth of the household have an impact on child labour. Although poor children have a higher probability of working than wealthier children, poverty does not fully explain child labor in Kenya. Most significantly, the results suggest that the reduction of poverty will not eliminate child labour. Children of all socioeconomic levels in Kenya participate in work. The analysis also found that work and school are not mutually exclusive; about 45% of children combined work and school. Only about 5% reported working without attending school. For children who combine school with work, curriculum can be developed and school time scheduled to accommodate them. Grigoli and Sbrana (2011) analysed the determinants of school enrollment, attendance and working in Bolivia from 1999 to

2007. Using a trivariate Probit model, evidence is found of a significant increase in enrollment among indigenous children and children living in urban areas. When analyzing the determinants of the attendance behavior, poverty and indigenous turn out to be the most important characteristics. Nonetheless, the same variables show different patterns in the working estimation. In fact, if indigenous children are progressively quitting their jobs, extremely poor children cannot. Education policies aiming at spreading primary education to indigenous and extremely poor children seem to have produced positive effects. More specifically, inclusive policies toward the indigenous, school feeding, and conditional cash transfer programs allowed indigenous and poor children to attend school. Thus, it is evident that the attendance decision, corresponding to the learning phase, is led by a plain welfare improvement of the extremely poor families rather than an investment for the future.

Studies reviewed showed various determinants of child labour in Nigeria, Kenya and Bolivia; the present study differs from those reviewed in that it examined the determinants of child labour and schooling in Northeastern Nigeria using the Multinomial Logit regression. The Multinomial regression model has advantage over the probit models in that it allows the determination of choice probabilities for different categories of child exploitation. In addition, some income shock variables (ill-health of household head, occurrence of drought in the community) were considered in the study as factors that could determine child labour and schooling, which other studies did not look into.

3 Methodology

3.1 Definition of terms

A *Child* in this study is considered as person between the ages of 5-14 years as defined by the International Labour Organization. *Work* on the other hand is work on family farm or other farm as well as non-farm work that is detrimental to his / her schooling activities, physical, mental and/or moral wellbeing. *Schooling only* is when a child attends school and does minimal work in the household or farm, which does not negatively affect school attendance (in terms of time spent and working conditions experienced), while *Combining School with Work* occurs when a child goes to school and afterwards works in the family farm or is involved in household chores which negatively affect school attendance (in terms of time spent and working conditions experienced). *Working only* is a situation in which a child does not attend school but is mainly involved in work on family farm or household chores (in terms of time spent and working conditions experienced). *Neither schooling nor working* is a situation in which a child does not maximize the use of his time as he /she does not attend school nor participate fully in household chores and work on family farm (in terms of time spent and working conditions experienced).

3.2 Study area

The study was conducted in the rural areas of Bauchi and Gombe States in the Northeastern zone of Nigeria. The choice of this was due to the high incidence of child labour and low school enrollment (Okpukpara *et al*, 2006 and Badmus, 2008). It has been noted that children in the Northeastern region had a relatively low participation rate in schooling (63%) compared to those in the

Southeastern zone (97%). Also, more children are noted to participate in work only category in the North than in any other region in the country which may be a reflection of the regional poverty differentials that compel children to engage in economic activities to augment household income (Okpukpara *et al*, 2006).

3.3 Data collection

Primary data were collected with the aid of well-structured questionnaire. The data contained information from households on the attributes of children including their personal characteristics, activities they engage in and community characteristics. In addition, information on parent characteristics as well as other household socio-economic and demographic characteristics was also collected. Information was collected from both parents and the children. A multi-stage sampling procedure was employed in selecting three Local Government Areas per each of the two States sampled, nine villages per State and 25 households per village making up a total of 450 households from which data was collected for analysis. However, data used in the analysis was from 376 households containing 969 children due to incomplete responses.

3.4 Method of Analysis

Descriptive statistics, Foster, Greer and Thorbecke (1984) poverty measure and Multinomial Logit (MNL) regression model were used to describe and analyse the data collected. The FGT method subsumes the head count ratio and poverty gap or income short fall. In addition, it allows for the decomposition of poverty levels among the various categories of a population (FGT, 1984). It is generally given as:

$$P_{\alpha} = \frac{1}{n} \sum_{i=1}^q \left(\frac{Z - Y_i}{Z} \right)^{\alpha} \dots\dots\dots (1)$$

Where Z = poverty line
 Yi = Per capita expenditure of the household i (i=1, 2....q)
 q = Number of households below the poverty line
 n = Total number of sampled households
 α = Poverty aversion parameters of the FGT index (P α_i) α ≥ 0 and it can take 3 values of 0, 1 and 2.

Implication of the values of α is, when α=0 (Headcount ratio or incidence of poverty) representing proportion of households that is poor. The headcount ratio or incidence of poverty was used in this study to estimate poverty status of households.

Following Nkamleu (2009), the Multinomial Logit (MNL) model was used to examine the determinants of child labour and schooling among rural households in the study area. Instead of having two dichotomous alternatives (0, 1) as in the multivariate logit or probit models, the multinomial logit has S possible states or categories – that is s = 1, 2, 3 ...S. (Cramer, 1991).

Due to the fact that the multinomial logit model does not treat these categories in any continuous order, it is different from ordered or sequential logit / probit models (Amemiya, 1981). If there is a random sample of farmers, i= 1, 2, 3.....N. Given four choice categories, s=1, 2, 3, 4, the multinomial logit model assigns probabilities P_{is} to events characterized as “ith child sth category”. The vector of the characteristics of the child is denoted by z. To estimate this model there is need to normalize in one category, which is referred to as the “reference state”. The choice of base category

(or reference state) is the least desirable among the household decisions in policy circles (Grootaert and Patrinos, 1999). Based on this, the reference state chosen for this study is the “not working nor schooling” option which is the least desirable option. In a multinomial logit model, the coefficients are estimated according to each outcome category. The estimate coefficients indicate the independent log odds or chances of an independent variable being in the dependent variable category of interest, versus being in the base (or contrast) category of the dependent variable. If there is no relationship, the coefficient will be zero. Negative coefficients indicate a negative association or negative chances or odds of being in the dependent variable category of interest and positive coefficients indicate positive chances.

The study further predicted the marginal effect to be able to determine the change in probability of being in the dependent variable category of interest versus being elsewhere (Nkamleu, 2009). For an overview of the size of effects, the marginal effects were developed on the basis of the multinomial logit model of being in each of the four categories or outcomes (Nkamleu, 2009). These marginal effects can help evaluate these magnitudes and show the impact of a marginal change in the explanatory variable on the different estimated probabilities (Bonsang and Faye, 2005). The multinomial logit for choice across S states (s=1, 2, 3, 4) was then specified as:

$$P(Y = s) = \frac{e^{\beta_j z}}{1 + \sum_{j=2}^s e^{\beta_j z}} \dots\dots\dots (2)$$

The parameters β_j were estimated. An iterative maximum likelihood algorithm was used to estimate the empirical models in order

to obtain asymptotically efficient parameter estimates (Greene, 1992). The log-likelihood function for the multinomial logit model is

$$\ln L = \sum_i \sum_j d_{ij} \ln P_{ij} \dots\dots\dots (3)$$

Where P_{ij} is the probability of individual i in state j . $d_{ij} = 1$ if $y_i = j$, 0 otherwise, $j = 0, \dots, J$.

The first derivatives are:

$$\frac{\partial \ln L}{\partial \beta_j} = \sum_i (d_{ij} - P_{ij}) X_i \dots\dots\dots (4)$$

X_i Include child, household and community characteristics specified as follows:

Child characteristics

- X_1 = age of child in the household (in years)
- X_2 = sex of child (male=1, 0 otherwise)
- X_3 = relationship to household head (biological child of household head = 1, 0 otherwise)
- X_4 = birth order of child (firstborn =1, 0, otherwise)

Parents'/ Household characteristics

- X_5 = number of pre-school-aged children in the household
- X_6 = number of school-aged children in the household
- X_7 = age of household head (in years)
- X_8 = years of schooling of household head (in years)
- X_9 = Ownership of land-assets by household (farm-owning household=1, 0 otherwise)
- X_{10} = access of household to credit (yes=1, 0 otherwise)

X_{11} = poverty status of household (1= non-poor, 0, otherwise)

Income shock characteristics

- X_{12} = ill health of household head (yes=1, 0 otherwise)
- X_{13} = occurrence of drought in the past season (yes=1, 0 otherwise)

Community characteristics

X_{14} = distance to primary school in community (in kilometers)

The probabilities considered in the analysis are:

- P_1 = Probability of attending school only
- P_2 = Probability of combining school and work
- P_3 = Probability of working and not attending school
- P_4 = Probability of neither schooling nor working (Idle)

4. Results and discussion

4.1 Incidence of child labour

The results on Table 1 showed that 59.8% of the children were boys and 40.3% were girls. Considering their activity options, most (54%) of the children combined school with work (CSW); 21.5% are engaged in schooling only (SCH); 18.7% are in working only (WRK) category and 5.9% are neither schooling nor working (NSNW). This is contrary to Khanam (2008) in her study in Bangladesh which noted that, only 48 per cent of children attend school as their only activity; 23 percent of children combine schooling with work and 17% are engaged in work as their only activity. Neither work nor study

category includes 12 per cent of children. Comparing with the results of Khanam (2008), more children are in school only and neither work nor school category in Bangladesh than in rural Northeastern Nigeria. This implies that there is still the need for an increase in the number of children participating in SCH among the study group. More boys (59.6%) are engaged in CSW than girls (45.6%) also, more of them are WRK (19.2%) than girls (17.9%). On the other hand, there are more girls in SCH

(26.9%) than boys (17.8%); as also observed for NSNW (girls -9.5%, boys -3.5%). Contrary to the findings of this study, Okpukpara *et al*, (2006) observed that the enrolment of girls is lower than boys over all the age groups however, the difference is marginal. This result is also supported by the findings of Ndjanyou and Djienouassi (2010) that boys are many more bi-active (combining school with work) (29.4%) than girl (25.7%) while the latter are on the other hand idler (7.4%) than boys (3%).

Table 1: Incidence of child labour in rural northeastern Nigeria

Activity options/sex	Schooling	Schooling and working	Working	Not schooling nor working	All
Boys	17.79	59.59	19.17	3.45	59.75
Mean age	8.88 (2.73)	10.77 (2.56)	10.48 (2.61)	6.05 (1.36)	10.21 (2.77)
Girls	26.92	45.64	17.95	9.49	40.25
Mean age	8.86 (2.53)	9.75 (2.60)	10.39 (2.49)	7.6486 (2.8501)	9.43 (2.69)
All children	21.47	53.97	18.68	5.88	100.00
Mean age	8.87 (2.63)	10.42 (2.62)	10.44 (2.56)	7.09 (2.54)	9.90 (2.77)

Note standard deviation in ()

4.2 *Determinants of child labour and schooling*

The factors determining child labour and schooling in northeastern Nigeria were examined using the Multinomial Logit model specified. Table 2 reveals the results of the multinomial logit estimations. In terms of child characteristics, age, sex and birth order were child characteristics that determined child labour and schooling in the study area. Age of a child negatively determined the probability of a child being in SCH by 0.03 units. While, one year increase in the age of a child increased the probability of CSW and

WRK relative to being idle by 0.03 and 0.02 units respectively. Findings is corroborated by that of Ersado (2002) that child schooling is negatively associated with age. Khanam (2004) found that the probability of combining school with work increases with the age of the child. This finding implies that as children grow older they can be co-opted into labour activities of the household thereby reducing their participation in full time schooling resulting to combining school with work. In addition, Bonsang and Faye (2005) confirms the apriori expectation that age is expected to have a positive impact on the probability to work since older children are

more likely to help their family in work or to drop out of school following a failure.

Being a boy reduced the probability of a child participating in SCH by 0.09 units relative to girls. On the other hand, the marginal effect result showed that being a male child increased the probability of a child CSW by 0.13 units. The incidence of child labour attests to this result, as girls (26.9%) were more in the school only option than boys (17.8%). However, Ersado (2002) disagrees with this finding that child schooling was

negatively associated with the female gender. The result could be due to a bias observed towards girl-child schooling observed in the study area. Findings of Grootaert (1998) in Cote d'Ivoire as well as Canagarajah and Couloumbe (1997) in Ghana corroborated the result. Furthermore, incidence of child labour from this study showed that more boys (59.6%) were involved in CSW than girls (45.6%). So, boys were more likely to combine school with work than girls in Northeastern Nigeria.

Table 2: Factors determining child labour and schooling

Explanatory variable	Schooling(P ₁ /P ₄)		School and work (P ₂ /P ₄)		Working (P ₃ /P ₄)	
	Marginal effect	z-value	Marginal effect	z-value	Marginal effect	z-value
<i>Child characteristics</i>						
X ₁	-0.0332***	-6.18	0.0279***	4.19	0.0167***	3.30
X ₂	-0.0919***	-3.28	0.1287***	3.74	-0.0136	-0.51
X ₃	-0.0739	-0.69	0.2273	1.53	-0.0296	-0.23
X ₄	0.0976**	2.31	-0.0068	-0.14	-0.0884***	-3.04
<i>Household characteristics</i>						
X ₅	-0.0103	-1.40	0.009	0.11	0.0134**	2.36
X ₆	0.0086	0.93	-0.0134	-1.15	0.0026	0.30
X ₇	-0.0067***	-4.26	0.0076***	3.86	0.0011	-0.71
X ₈	0.0029	1.03	0.0102***	2.92	-0.0117***	-4.34
X ₉	-0.0283	-0.70	-0.0086	-0.17	0.0602	1.74
X ₁₀	0.0481	1.71	-0.0022	-0.76	-0.0409	-1.52
X ₁₁	0.0938***	3.36	-0.0223	-0.59	-0.0605**	-2.02
<i>Income shock characteristics</i>						
X ₁₂	-0.1342***	-3.03	0.0433	0.51	0.0853	1.10
X ₁₃	0.0683**	2.52	0.0553	1.50	-0.1268***	-4.18
<i>Community characteristics</i>						
X ₁₄	-0.0989***	-4.39	0.1338***	4.61	0.0277	-1.17
Observations	969					
Pseudo R ²	0.1646					
LR Chi ² (42)	364.72					
Log likelihood	-925.3877					

*** significant at 1%, ** significant at 5%; Source: Computation from Field Survey, 2011.

Explanatory variables: X₁-Age of child, X₂-Sex of child, X₃-Relationship to household, X₄-Birth order, X₅-Pre-school children, X₆-School-age children, X₇-Age of household head, X₈-Years of schooling of household head, X₉-Ownership of farmland, X₁₀-Credit access, X₁₁-Poverty status of household, X₁₂-Ill-health of household head, X₁₃-Occurrence of drought in the community, X₁₄-Distance to primary school. Base category (P₄)- Neither schooling nor working

Being a firstborn increased the probability of a child participating in SCH by 0.10 units and reduced that of WRK by 0.09 units. The result implies that earlier-born children may have more intra-household resources directed to them as a result of which they tend to have better education and earning at later stage (Emerson and Souza, 2002). Khanam and Rahman (2007) negates this result because being a first born child increases the probability of work as the prime activity, or at least a combination of school and work, rather than schooling only. Therefore, if parents have to send their children to work for subsistence reasons they were likely to choose their older children first. On the other hand, the household characteristics that determined child labour and schooling in the study area were found to be age of household head, years of schooling of household head, household's poverty status and number of preschool aged children in the household. A year increase in the age of a household head reduced the probability of a child SCH by 0.01 units while it increases the probability of CSW by 0.01 units. This is contrary to the findings of Grootaert (1998) who observed that the older the head of the household, the more likely it is that a child will be attending school and not working. However, the result obtained from the study could be due to the increased uncertainty of enjoying the returns from child schooling as the household head grows older (Senbet, 2010). Results also imply that older household heads may require the use of their children to augment their own labour (to fulfill their work portion), giving rise to the need for such children to be CSW.

The probability of a child CSW increased by 0.01 unit with a unit increase in the years of schooling of household head. This is consistent with the findings of Nkamleu and Kielland (2006) which observed

that household head's education had a positive effect on a combination of work and school, at 10% level of significance. On the contrary, one unit increase in the years of schooling of the household head reduced the probability of a child WRK by 0.01 units. This implies that the more educated a household head, the lower the likelihood of engaging his/her own children in WRK. Phoumin and Fukui (2006) also find inverse association between child work participation and head education. This finding reinforces the widely accepted notion that parental education is the most consistent determinant of child education and employment decisions. Also, poverty status of a household increased the probability of a child SCH. Being in a non-poor household, increased the probability of SCH by 0.09 units and reduced that of WRK by 0.06 units. This finding supports the common presumption that child labour emerges from the poorest households (Andvig, 2001; Andvig *et al*, 2001). It also implies that when households are not poor their children were more likely to attend school and the likelihood of getting involved in child labour is reduced. This implies that non-poor households have the wherewithal to allow their children work less. In addition, it corroborates the finding of Grootaert (1999) in Côte d'Ivoire, which shows that for poor households, in both urban and rural areas, there is a higher probability for selecting non-schooling options than richer households. Similarly a unit addition to the number of preschool aged children in the household increased the probability of a child being in WRK option by 0.01 units. The study corroborates findings of Cockburn (1999) which revealed that presence of infants (children aged 0-4 years in the household) significantly and strongly increases the likelihood of a child working (roughly 6.2% for each additional infant), probably due to

increased household demand for domestic work or in order to substitute for the mother's other activities.

The income shock characteristics that determine child labour and schooling in Northeastern Nigeria were ill health of household head and occurrence of drought in the community. Ill health of the household head reduced the probability of a child being in SCH by 0.13 units. This may imply that when the household head is ill, the child has to help fulfill the head's work portion or stay home to care for him/ her thus, the child's schooling is hindered. Also considering shocks one at a time, an unemployment or illness shock for the head of household reduces the probability of enrollment of the child by an average 1.7– 1.8 percentage points (Sadoulet *et al*, 2004). Occurrence of drought in the community also increased the probability of SCH by 0.07 units. Conversely, it reduced the probability of WRK by 0.13 units. Thus, the result negates that of Woldehanna (2010), which opines that drought affects growth of childwork positively and significantly in rural Ethiopia. However, this result can be due to the fact that in the advent of drought, work for the children is reduced thus freeing them to attend school.

Distance to primary school was the only factor that determined child labour and schooling in Northeastern Nigeria. Results revealed that a unit increase in the distance to primary school reduced the probability of a child SCH and increased it for CSW by 0.10 units and 0.13 units respectively. In their study, Iram *et al*, (2008) showed that the probability to enroll in private school was decreased as the distance from home to school

increased. Transport costs in the form of walking distance to school affect schooling adversely (Neilsen, 1998). This implies that the farther the primary school from the child's place of residence (village) the more likely the child will combine school with work. Blunch and Verner (2000) in Ghana found that distance to the nearest primary school is significantly correlated with child labour for rural children. Thus, this result implies that in the study area, with increasing distance to primary school, children will at least combine school with work.

5. Conclusions and recommendations

The empirical results emanating from the study showed that 54% of the children combine school with work while only 5.9% were neither schooling nor working. Determinants of child labour and schooling in rural Northeastern Nigeria were age, sex and birth order of the child. Others were the age and years of schooling of the household head, number of preschool aged children in the household, and households' poverty status. In addition, ill health of household head, occurrence of drought in the community and distance to primary school. Based on these specific findings, the following recommendations were made:

- that meet specific conditions; beneficiary households (poor households) must undertake certain activities or investments such as getting their children enrolled in school and allowing them to progress academically by staying in school.

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