

Education, Studentship, and the Disposition to Civil Unrest among Youths in
Resource-Abundant Regions: Evidence from Nigeria's Delta

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Abstract

There has been concern over youth bulges in Africa and the implication for peace and security. This concern is heightened in the case of resource-dependent economies which already have high conflict-proneness. This article examines the factors that determine youths' willingness to participate in three different forms of civil unrest (peaceful protests, low-level violence and associated criminality, and armed struggle) in the oil-rich Delta region of Nigeria with a focus on the role of education and studentship, using survey data from 18 communities and over 1300 individuals. Higher formal educational attainments and studentship are found to reduce the odds of willingness to participate in more intensive forms of unrest. Further analyses decomposing educational attainment and civil unrest show that primary, secondary, and tertiary education individually reduces the likelihood of participation in violent protests and oil-related criminality. The beneficial effect of higher educational attainment appears to fall as we move from violent protests and associated criminality to armed struggle however, so that primary education has no constraining effect on the latter. Only secondary and tertiary educational attainments significantly reduce willingness to participate in armed struggle. Higher educational attainment is also found to increase the predicted probability of participation in peaceful protests, suggesting that education brings increased awareness which tends to lead to protests in environments where resource extraction creates grievances. But protests by individuals with higher education are likely to be non-violent, while participation in violent forms of unrest is likely to be by individuals with little or low formal education and who are also not engaged in any on-going formal or vocational training.

1. Introduction

For over a decade, Nigeria's Delta region¹ has been the site of renewed violence. These conflicts have been multi-facet ranging from rent-seeking contests between groups in communities and among communities, to conflicts between communities and oil companies, and demand for greater local control of oil resource and/or call for self-determination by the Ijaws, the majority ethnic group in the region and the fourth largest in Nigeria (see Oyefusi, 2007a, b). They have also, in many instances, been attended by acts of criminality such as hostage-taking, vandalization, and sometimes, blow-up of oil installations, as well as military confrontations between the Nigerian army and local militias. In a recent study, Oyefusi (2007b, 2008a) argues that oil has a corrupting influence on the disposition to civil peace among youths in the region, and that this influence increases in oil size. He also finds that higher educational attainment constrains willingness to participate in armed struggle. In another paper (Oyefusi, 2008c), he used historical records of conflict occurrences to show that on average, higher educational attainment among residents reduces the incidence of violent conflict in communities.

In this article, I posit that armed struggle being one of the various manifestations of state failure, is only a polar case of civil unrest. Indeed while oil-related civil war remains a possibility in Nigeria, a more probable outcome is prolonged low-intensity violence and criminality involving youths in the Niger Delta region (Ukeje, 2001; Ikelegbe 2005; Oyefusi, 2008b). I therefore examine willingness of youths to participate in various forms of civil unrest, and whether or not formal educational attainment and schooling (including on-going vocational training and apprenticeship) constrains disposition to participation. Three forms of unrest: armed struggle, peaceful protests, and violent protests and associated (oil-related) criminality are considered. The results show that primary, secondary and tertiary education individually increases the predicted probability of having a disposition to civil peace, and reduces the probability of willingness to participate in violent protest and oil-related criminality. However, only secondary and tertiary education significantly constrain disposition to armed struggle. The beneficial effect of educational attainment in constraining disposition to violent unrest falls as we move from low-intensity violence to armed struggle so that primary educational no longer act as a deterrent to participation in the latter. Also while higher educational attainment constrains participation in violence, it is found to increase the odds of participating in peaceful protests. This is

¹ The Niger Delta is officially made up of nine states spread accroos the southern part of the country. These are Abia, Akwa-Ibom, Bayelsa, Cross River, Delta, Edo, Imo, Ondo and Rivers. It has an estimated population of about 27million. Six of these states (excludes Abia and Imo and Ondo) constitute the South-South geopolitical zone of Nigeria and is inhabited by some minority ethnic groups. Some authors refer to them as the 'geographical Niger Delta' in contrast to the official Niger Delta.

attributed to the tendency for higher education to increased grievance in resource-abundant regions when local conditions warrant this.

The remaining part of the article is organized as follows. Section 2 examines some theoretical issues relating education to participation in civil unrest and presents a theoretical model to explain participation. Section 3 explains the empirical methods that are used to test the predictions of the model, section 4 presents and discusses results from regression analyses, while section 5 concludes.

2. Theoretical Issues and Model

Some Theoretical Considerations

There are reasons to expect a causal relationship between educational attainment, schooling, and civil unrest. Education is believed to produce non-pecuniary benefits both to the individual and community through its effects on intra-family productivity, child and family health care, crime reduction and social cohesion (Venniker, 2001; Lochner, 2004). Collier and Hoeffler (2002), Hegre (2003), Alesina and Perotti (1996), Hibbs (1973), and Huttungton (1968) argue that higher income and higher educational attainment reduces the risk of political violence by encouraging political participation and channeling conflicts through institutional pathways rather than through violence. Lochner and Moretti (2004) are also of the view that higher educational attainment may reduce the propensity to violence by increasing the returns to legitimate work thereby raising the opportunity cost of criminal behaviour, or by altering individuals' temperament or attitude to risk. Present engagement in a formal educational institution or vocational training or apprenticeship may also constrain the disposition to civil unrest by increasing expected future income, thereby creating hope.

A simple Model of Participation²

The willingness of an individual to participate in acts of civil unrest may be assumed to be dependent on some personal and community-level characteristics that define the expected benefits and the cost of participation. Let economic agents be endowed with a unit of labour, l , and stock of human capital, h . The latter is an increasing function of formal educational attainment (E) In other words,

$$\partial h / \partial E > 0 \tag{1}$$

² This model is based on Oyefusi (2007b)

Each agent can allocate his labour endowment either to productive activities (l_p) or to civil unrest (l_u) so that

$$l_p + l_u = 1 \quad (2)^3$$

The benefit derived from productive work is

$$U(l_p) = f(w_p) \quad (3)$$

where

$$w_p(h, g, a) \quad (4)$$

In words, benefit from productive work is a function of wages in the productive sector (w_p). This in turn depends on endowments of human capital (h), the economy's growth rate, g , which defines the opportunities in the economy and the labour market conditions, and the exogenously-determined productivity of agricultural lands (a)⁴. I assume that $U(l_p)$ increases in wages (and thus in human capital endowment), in the economy's growth rate, and in land productivity. In terms of notation,

$$\partial U(l_p)/\partial(w_p), \partial w_p/\partial h, \partial w_p/\partial g, \partial w_p/\partial a > 0 \quad (5)$$

The benefit derived from civil unrest is given by

$$U(l_u) = f(oil, \alpha\tau) \quad (6)$$

³ An individual may engage in productive work and intermittent acts of civil unrest. However, the focus here is endemic violence, i.e., when violence and rent-seeking contests become an "occupation" of a sort. This is not a remote possibility as results from Oyefusi (2007a) reveal that in Bayelsa state, for example, violence has become a way of life and about the only way communities are able to get the attention of multinational oil companies and the government to attend to some of their demands. Also the erstwhile governor of the state, Alayemesie, once lamented the fact that he had spent the greater part of his tenure settling oil-related disputes (Onilu, 2005). Violence is often used by communities and groups to force oil companies to the negotiation table where they would be expected to make long run commitments and offer immediate (temporary) concessions. Some are of the view that many of the youths in the Niger Delta prefer and are content with engagements in rent-seeking activities rather than take up regular and legal employment where the returns are small. In spite of this, the equation may be considered to hold strongly only in the case of armed struggle.

⁴ The inclusion of this parameter is informed by the fact that many individuals in resource-rich communities are likely to be engaged in the informal sector and in land-based activities. The parameter is assumed to be independent of the individual's levels of h and may be affected by the negative effects of resource extraction.

Oil availability (*oil*), especially when it is onshore and ‘obstructable’⁵, offers potential benefits from unrest in terms of the possibilities of getting money from extractive firms through ‘legitimate demands’ such as compensations, and from illegitimate activities such as extortions, kidnap ransoms, involvement in the sale of bunkered oil from vandalized pipeline etc. Such acts incur a cost (τ) however. This may take the form of government repression in the case of peaceful protests or more severe punishments to participants in violent protests and associated criminality (such as arson, looting, vandalization of oil installation and facilities, and kidnaps) and capital punishment to participants in armed rebellion. This punishment is borne only when caught, so that the cost (τ) is incurred with a probability α which increases in government’s presence (p_g), and in the endowment of social infrastructure in community (*inf*)⁶. Using notations,

$$\alpha(p_g, inf), \quad 0 < \alpha < 1 \quad (7)$$

and $\partial U(l_w)/\partial oil > 0, \partial U(l_w)/\partial \tau < 0; \partial \alpha/\partial(p_g) > 0, \partial \alpha/\partial(inf) > 0 \quad (8)$

so that $\partial U(l_w)/\partial(p_g) < 0, \partial U(l_w)/\partial(inf) < 0 \quad (9)$

Benefit from civil unrest is an increasing function of oil but decreases in punishment, in government presence, and in infrastructural endowment in communities. For low values of E (and hence h), g , and α , and sufficiently low values of p_g and *inf*, $U(l_w) > U(l_p)$, in which case agents will prefer to allocate the whole of l to civil disobedience rather than to productive work⁷. Also studentship (formal schooling, vocational training and apprenticeship) increases future levels of h and w and creates hope in the present period. Thus, other things being equal, it is expected to have the same effect on $U(l_w)$. In general, the model predicts, among others things, that individuals with higher formal education, higher earnings, and

⁵ According to Ross (2003), a resource is obstructable “when its transportation can be easily blocked by a small number of individuals with few weapons”, and is relatively unobstructable “when it can be blocked with many soldiers and heavy equipment”. Oil and natural gas are highly obstructable when they have to be transported long distance through above-ground pipelines and trucks. This is majorly the case in Nigeria’s Delta.

⁶ Government’s presence in terms of government establishment in community serves as a liaison centre and helps to facilitate flow of information between community and state capital. It also means that the government can easily get information on developments in the community, a factor which increases the risk associated with civil unrest. By the same token, a higher endowment of social infrastructure assists in the policing of community.

⁷ In reality, this decision will be affected by the individuals’ attitude to risk and subjective discount rate which are assumed away in this model.

those engaged in a form of human capital development will be less willing to participate in different forms of unrest.

3. Empirical Method

Data Sources

I employ the same dataset in Oyefusi (2007a)⁸. The dataset is based on a survey by the author carried out over the period of February to August 2005, and covers 18 communities in the Niger Delta and over 1, 300 individuals. The survey focused on three states in the region (Bayelsa, Delta and Rivers) which taken together accounts for the bulk of Nigeria's oil production and have in recent times been the epicenters of oil-related violence. Despite these common characteristics, there are some differences in ethnic compositions or patterns and local politics in the three states⁹. The survey involved preliminary study of selected communities, focused group discussions and personal interviews with chosen individuals and non-governmental organizations, and the administration of 1,500 structured questionnaires on selected males (youths) using systematic and cluster sampling techniques¹⁰.

Variables

The dependent variable used in this study is *civil unrest*. This is a multi-choice variable with four outcomes. The first is absence of willingness to participate in any form of oil-related unrest. This lack of willingness is labeled *civil peace* and coded 0. The second is willingness to participate in peaceful protests but not in violent protests and armed struggle. This outcome is labeled *peace protest* and coded 1. The third is willingness to participate in violent protests and/or associated (oil-related) criminality, but not in and armed struggle. This is labeled *violent protest* and coded 2. The final outcome is willingness to participate in armed struggle, labeled *armed struggle* with a code of 3. Aspects of the

⁸ Some part of this dataset and an appendix containing the questionnaire and related information can be found at <http://www.prio.no/jpr/datasets>.

⁹ For example, Bayelsa and Rivers states are dominated by the Ijwas while Delta state is more ethnically polarised with the Urobos having a larger representation than any other ethnic group. Consequently, until very recently, the latter has been characterized by recurrent violent clashes between its major ethnic groups (the Urobos, Istekiris and Ijaws) over land ownership, and hence, rights to royalties and oil rents. Rivers state, on the other hand, has experienced recurrent and large-scale violence since 1999, which are linked to the activities of rival cult groups alleged to be sponsored and employed by local politicians (*Human Rights Watch*, 2005). Together with Bayelsa, these states have also become notorious for kidnapping and other oil-related violence.

¹⁰ The sampling methodology is described in greater details in Oyefusi (2007a, 2008a).

questionnaire upon which the information used to generate these codes are based and the method employed, are described in the technical appendix.

I use nine explanatory variables taken directly from Oyefusi (2008a). These are *Education*, *Income*, *Schooling*, *Oil*, *Oil squared*, *Infrastructure*, *Government*, *Delta* and *Rivers*. The choice of these variables derives from the predictions of the theoretical model in the preceding section. *Education* is a discrete variable measuring respondent's level of formal education. It takes on a value of 3 if respondent completed tertiary education, 2 if respondent completed secondary but not tertiary education, 1 if respondent completed primary but not secondary education, and 0 if respondent has no formal education. *Income* represents respondent's average monthly income class, if employed. It takes a value of 1 if income is below N7, 000 (about US\$58), 2 if within the range of N7, 000 and N15, 000 (about US\$116)...and 7 if above N90, 000 (about US\$750). The *studentship* dummy indicates that respondent is currently a full-time student in a formal educational institution, or an apprentice in a vocational training. *Oil* measures oil endowment in respondent's community of residence. Its value, determined by the number of oil wells in the community, ranges from 0 to 31. *Oilsquared* is the square of *oil*. It is introduced in order to determine whether the effect of oil on the disposition to civil unrest among youth is monotonic. *Infrastructure* is a discrete variable that measures endowment of physical (social) infrastructure in respondent's community of residence. Its value, which ranges from 2 to 22, is derived by summing up available paved roads (measured in kilometers and scaled down by the minimum kilometer of tarred road in the communities covered), the number of functional public schools and hospitals, and other public projects such as town halls or recreational sites in community. *Government* denotes government's presence in the community, and is measured by the number of state or federal government establishments. Its value ranges from 0 to 2. The *Delta (Rivers)* dummy indicates respondent's community is geographically located in Delta (Rivers) state. A summary statistics of these variables is presented in Table 1.

Table 1 about here

Estimation Techniques

There are two ways to view the outcomes on the dependent variable. First they can be considered to be independent and unordered; in which case the values attach to each outcome will have no meaning

other than for identification purposes. If this assumption holds, a Multinomial Logit Model (MLM) can be used to estimate willingness to participate in each outcome. Alternatively, they can be considered to be ordered outcomes. It seems rational to assume that violence escalates from low to high levels (Sambanis, 2004; Reagan and Norton, 2005; O'Brien, 2002) in which case the codes attached to each outcome on the dependent variable will have ordinal meanings ($3 > 2 > 1 > 0$ in an ordinal sense). In other words, peaceful protest is assumed to be a less intensive act of unrest compared to violent protests and/or associated criminality, and the latter a milder act in comparison to armed rebellion. Again willingness to participate in armed struggle will imply willingness to participate in violent protests and/or associated criminality, but not vice versa. Similarly, willingness to participate in the latter implies willingness to participate in peaceful protests, but not vice versa (3 implies 2, and 2 implies 1). Given these assumptions, an Ordinal Regression Model (ORM) can be applied.

The general form of the multinomial model can be expressed in the equation

$$P_{ij} = \frac{e^{x_i \beta_j}}{\sum_{k=1}^j e^{x_i \beta_k}} \quad (10)$$

Where P_{ij} is the probability that individual i choose outcome j ; \mathbf{x}_i is a vector of individual and community-level characteristics (variables), j is the number of outcomes, and β_j measures the contribution of variable i to the occurrence of j . The multinomial model assumes that the various outcomes (the j 's) are various unordered alternatives. When the multinomial choice variables are inherently ordered however, the multinomial model will lead to a loss of efficiency in which case the ORM will be applicable (Greene, 2003:736; Long, 1997:149). The ORM takes account of the ordered nature of outcomes on the dependent variable. The probability of any observed outcome in this model is

$$\Pr (y_i = m \mid \mathbf{x}_i) = \mathbf{F} (\tau_m - \mathbf{x}_i \boldsymbol{\beta}) - \mathbf{F}(\tau_{m-1} - \mathbf{x}_i \boldsymbol{\beta}) \quad (11)$$

where $y_i = m$ is the outcome observed for individual i , for a given \mathbf{x}_i , \mathbf{F} is the cumulative distribution function assumed (in this case the logistic distribution), the τ_i are thresholds or cutpoints, and the extreme categories 1 and j are defined by open-ended intervals with $\tau_0 = -\infty$ and $\tau_j = \infty$. While the ORM is more efficient if the outcomes on the dependent variable are indeed ordered in nature, it does not yield as much information as the MLM. In particular the MLM enable us to consider the effects of the

explanatory variables on each outcome on the dependent variable. Consequently, the two modeling approaches are used in this article.

4. Estimation Results

Descriptive analysis of the data on *civil unrest* shows that 87% of respondents indicate willingness to participate in peaceful protest, almost 56% are willing to participate in both peaceful and violent protests and in oil-related criminality, while about 36% expressed a disposition to participation in all outcomes on civil unrest including armed struggle (Fig.1).

Fig. 1 about here

Table 2 presents results of the ordered and multinomial logit regressions on propensity to participate in the identified forms of unrest. The estimated thresholds (cutpoints) that separates between the various outcomes on dependent variable are statistically significant in the ordered logit regression (ORM). While educational attainment and income level statistically influence willingness to participation in more intensive forms of unrest in this model, studentship, though has the right sign, has no significant effect. The likelihood that an individual will be willing to participate falls in educational attainment and income level. In relation to community features, oil endowment in community increases willingness to participate in more intensive acts of unrest, while larger infrastructural endowment constrains willingness. The effect of oil is also monotonic in the sample¹¹. Oil corrupts and larger oil endowment leads to greater corruption of the disposition to civil peace. Though negatively related, government presence in community does not appear to have high statistical influence. Only one of the two variables representing state-level differences (Delta state) is shown to be statistically significant. These general results corroborate the theoretical postulations in the preceding section.

¹¹ Even though the results show that *oilsquared* is negatively related to *civil_unrest* and statistically significant, this beneficial effect on the disposition to civil peace is very minimal, and can only be realized when the size of endowment is very large, far beyond what obtains for communities in the sample.

Table 2 about here

Also in agreement with theoretical underpinnings, higher income level reduces the propensity to participate in each outcome on civil unrest relative to non-participation in the multinomial logit regression (MLM). The same effect is produced by studentship. However, while higher educational attainment constrains the disposition to participation in violent protests and armed struggle, it has no statistically significant effect on the willingness to participate in peaceful protests. Turning to community-level features, oil is not shown to have any influence on the disposition to participation in peaceful protests, but it increases the likelihood of willingness to participate in violent protests and in armed struggle. Thus oil not only increases the incidence of violent conflict as in Oyefusi (2008c), it also appears to create a disposition to violence among youths. Infrastructure has similar but opposite effects. Larger endowment of infrastructure constrains willingness to participate in violent protests and in armed struggle but has no discernible influence on disposition to peaceful protests. As in the ORM, government presence does not appear to be statistically significant in influencing the disposition to any of the outcomes on civil unrest. The state dummies do not significantly willingness to participate in violent protests and/or associated criminality also¹².

Further Analyses and Robustness Check

In order to test the robustness of these findings, I estimate the same models on a subset of oil-producing communities. While certain things may be true for all communities in the sample, it appears rational to assume that there are characteristics and phenomena that may be limited to only those in which oil exploration and production activities take place (Oyefusi, 2008b). In particular, the potency of studentship and educational attainment in constraining the disposition to violence may be doubtful in communities with oil. The results (Table 3) do not show significant differences. As in the overall sample, higher educational attainment reduces the likelihood of willingness to participate in more intensive forms of unrest among youths in the ORM (column1 of Table 3). In addition, studentship and government presence has beneficial effect in these communities, whereas the former was not

¹² State-level differences account for willingness to participate in peaceful protests however. Also Delta state appears to be significantly different than Bayelsa and Rivers states in terms of the disposition of youths to participating in armed struggle.

significant in the overall sample. The state-level differences also cease to be significant in influencing disposition to more intensive forms of unrest. In other words, state-level differences do not matter as far as youth's disposition to more intensive forms of unrest in oil-producing communities is concerned.

The effects of the explanatory variables in explaining willingness to participate in each outcome on civil unrest in the sample (columns 2, 3 &4) also parallel what obtained in the overall sample. Higher educational attainment and studentship individually constrains participation in low-level violence and oil-related criminality, as well as disposition to armed struggle. Also while the former does not have any significant influence on the likelihood of participation in peaceful protests, the latter significantly reduces it.

Table 3 about here

In line with research objective, I examine the effects of changes in educational attainment on the willingness to participate in each outcome on civil unrest using relative risk ratios (Table 4). Higher educational attainment (a one step increase in educational attainment, other things being equal), reduces the odds of being willing to participate in violent protests and associated criminality by 42%, the odds of willingness to participate in armed struggle by 44%, and has positive but negligible effect on the odds of willingness to participate in peaceful protests. In an analogous manner, studentship reduces the odds of participation in armed struggle by about 41% and the odds of having a disposition to low-level violence and criminality by about 65%. It also cuts the odds of participation on peaceful protests by half. These effects are more pronounced in oil-producing communities where a higher educational attainment (studentship) slashes the odds of participation in violence and oil-related criminality by almost 45% (75%) (Table 4). In general, studentship appears to have a more powerful constraining influence on the disposition to civil unrest in comparison to educational attainment.

Table 4 about here

Finally, I examine the effect of changes in educational attainment (other factors remaining the same) on the predicted probabilities of having a disposition to civil unrest in the overall sample (Figures 2).

Figure 2 about here

While increases in educational attainment raise the predicted probabilities of having a disposition to civil peace (i.e., non-participation in any of the outcomes on civil unrest) and of willingness to participate in peaceful protest, primary education appear to have the largest effect on the two, followed by secondary education. The predicted probability of participation in civil peace is higher by about 61% for an individual with formal primary education compared to another individual with similar characteristics but without primary education. Tertiary education has the least effect, increasing the predicted probability of having a disposition to civil peace by about 35%. Similarly, the predicted probability of participation in peaceful protest increases at a decreasing rate with higher educational attainment.

The opposite holds for participation in low-level violence and oil-related criminality as well as participation in armed struggle. The beneficial effect of education in constraining disposition to participation increases with educational attainment. For example, the predicted probability of having a disposition to participation in violent protests and associated criminality is reduced by about 43% for an individual with tertiary education compared to another with similar characteristics but not having such training. This effect is about 32% for primary and about 38% for secondary education. These figures are lower for participation in armed struggle, however, with primary education having almost no constraining effect. In other words, the beneficial effect of higher educational attainment appears to fall as we move from violent protests and associated criminality to armed struggle, so that primary education has no longer deters participation in the latter. Only secondary and tertiary educational attainments significantly reduce willingness to participate in armed struggle.

The effect of higher educational attainment in increasing the predicted probability of participation in peaceful protest in the sample may be surprising. A plausible explanation may be drawn from Oyefusi (2008a) however, who finds higher educational attainment to increase grievance level among individuals in the region. This result suggests therefore that higher educational attainment brings increased awareness which tends to lead to protests in environments where resource extraction creates grievances.

But protests by individuals with higher education are likely to be non-violent, while participation in violent forms of civil unrest is likely to be by individuals with little or low formal education.

5. Conclusion

This article examines the factors that determine youths' willingness to participate in three different forms of civil unrest in the oil-rich Delta region of Nigeria using survey data from 18 communities and over 1300 individuals and focusing on the role of education and studentship. Higher formal educational attainment and studentship (defined to include on-going vocational training and apprenticeship) are found to reduce the odds of willingness to participate in more intense form of civil unrest among youths. This effect is greater for studentship. Further analyses decomposing educational attainment and civil unrest show that primary, secondary, and tertiary education individually reduce the predicted probability of willingness to participate (or the odds of participation) in violent protests and oil-related criminality. In addition, secondary and tertiary education are found to significantly reduce the probability of having a disposition to armed struggle. In general, the beneficial effect of educational attainment in constraining disposition to civil unrest falls as we move from low-intensity violence to armed struggle so that primary educational no longer act as a constraint on the disposition to participating in the latter. While higher educational attainment constrains participation in violence, it is found to increase the odds of participating in peaceful protests. This is attributed to the increased knowledge and enlightenment it brings, which is capable of creating high grievance in resource-rich regions when local conditions warrant this.

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Table 1 Descriptive Statistics

Variable	Mean	Std. Dev.	Min.	Max.
Civil_Unrest	1.804	1.062	0	3
Education	1.516	0.747	0	3
Income	0.995	1.408	0	6
Studentship	0.345	0.476	0	1
Oil	9.666	10.338	0	31
Oilsquared	200.223	275.680	0	961
Infrastructure	8.305	5.049	2	22
Government	0.389	0.756	0	2
Delta	0.333	0.471	0	1
Rivers	0.333	0.471	0	1

Table 2 Ordered and Multinomial Regressions on Willingness to participate in *civil unrest*

Explanatory Variables	ORM	MLM		
		<i>Peace Protest</i>	<i>Violent Protest</i>	<i>Armed Struggle</i>
Education	-0.419 (0.072)***	0.027 (0.126)	-0.541 (0.092)***	-0.582 (0.097)***
income	-0.477 (0.034)***	-0.207 (0.046)***	-0.785 (0.055)***	-0.769 (0.052)***
Studentship	-0.133 (0.137)	-0.694 (0.145)***	-1.045 (0.167)***	-0.521 (0.222)**
oilsize	0.223 (0.037)***	0.010 (0.028)	0.092 (0.038)**	0.317 (0.053)***
Oilsquared	-0.008 (0.001)***	-0.001 (0.001)	-0.003 (0.002)*	-0.012 (0.002)***
infrastructure	-0.096 (0.017)***	-0.006 (0.015)	-0.037 (0.017)**	-0.139 (0.026)***
government	-0.141 (0.133)	0.139 (0.135)	0.096 (0.080)	-0.201 (0.241)
Delta	0.947 (0.217)***	-0.760 (0.215)***	0.129 (0.200)	0.854 (0.312)***
Rivers	0.141 (0.211)	-0.785 (0.199)***	0.127 (0.179)	-0.122 (0.396)
τ_1	-3.543 (0.226)***			
τ_2	-1.512 (0.193)***			
τ_3	-0.454 (0.197)***			
Observations	1347	1347	1347	1347
Pesudo Log-Likelihood	-1573.15	-1493.45	-1493.45	-1493.45
Pseudo R ²	0.1096	0.1547	0.1547	0.1547

Notes: The τ_s are the ancillary parameter estimates of the thresholds or cutpoints that separates between the various outcomes on *civil_unrest* in the ORM. Outcome *civil_unrest* = 0 is the comparison group in the MLM. Robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 3 Ordered and Multinomial Regressions on Willingness to participate in *civil unrest* in oil communities

Explanatory Variables	ORM	MLM		
		<i>Peace Protest</i>	<i>Violent Protest</i>	<i>Armed Struggle</i>
Education	-0.380 (0.077)***	-0.130 (0.173)	-0.571 (0.127)***	-0.637 (0.130)***
income	-0.545 (0.042)***	-0.161 (0.059)***	-0.835 (0.036)***	-0.849 (0.081)***
studentship	-0.469*** (0.159)	-1.005 (0.256)***	-1.330 (0.242)***	-1.096 (0.266)***
oilsize	0.174 (0.077)**	-0.043 (0.085)	0.548 (0.089)***	0.495 (0.113)***
Oilsquared	-0.008 (0.002)***	-0.001 (0.003)	-0.139 (0.002)***	-0.017 (0.003)***
infrastructure	-0.105 (0.027)***	-0.028 (0.021)	-0.117 (0.018)***	-0.261 (0.042)***
government	-0.141 (0.133)	0.059 (0.178)	0.813 (0.264)***	-0.967 (0.231)***
Delta	0.416 (0.303)	-0.644 (0.508)	-1.096 (0.360)***	-0.475 (0.654)
Rivers	-0.272 (0.311)	-1.007 (0.320)***	-0.680 (0.259)***	-1.388 (0.654)**
τ_1	-4.991 (0.451)***			
τ_2	-3.100 (0.456)***			
τ_3	-1.932 (0.434)***			
Observations	823	823	823	823
Pesudo Log-Likelihood	-893.33	-799.75	-799.75	-799.75
Pseudo R ²	0.158	0.246	0.246	0.246

Notes: The τ_s are the ancillary parameter estimates of the thresholds or cutpoints that separates between the various outcomes on *civil unrest* in the ORM. Outcome *civil unrest* = 0 is the comparison group in the MLM. Robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4 Education, Studentship and the Odds of Participation in *Civil Unrest*

	Relative Risk Ratios					
	Peaceful Protest		Violent Protest		Armed Struggle	
	<i>Overall Sample</i>	<i>Oil-Communities Sample</i>	<i>Overall Sample</i>	<i>Oil-Communities Sample</i>	<i>Overall Sample</i>	<i>Oil-Communities Sample</i>
<i>Education</i>	1.027	0.878	0.582	0.565	0.559	0.529
<i>Studentship</i>	0.500	0.366	0.352	0.265	0.593	0.334

Fig. 1 Willingness to Participate in each Outcome on Civil Unrest as a Proportion of sampled Youths

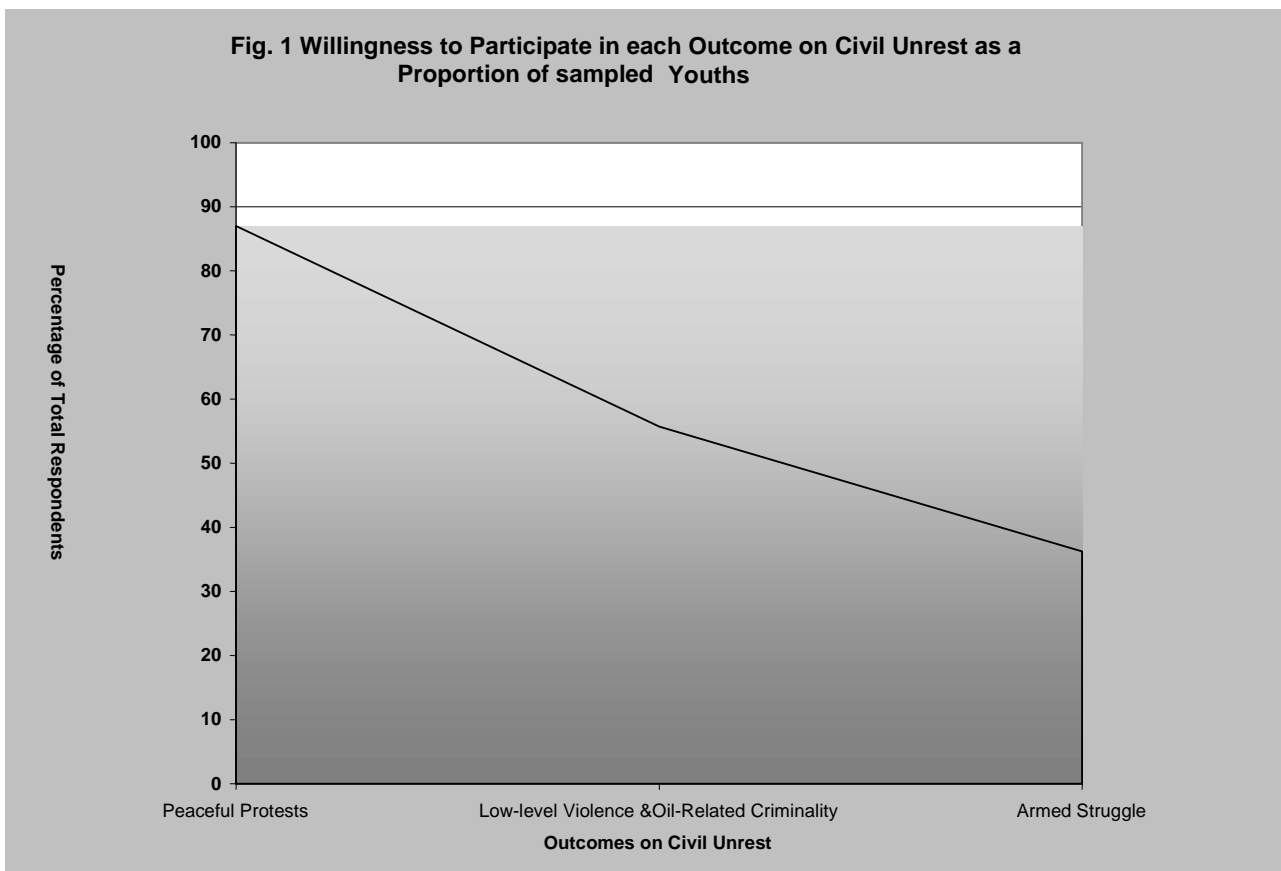
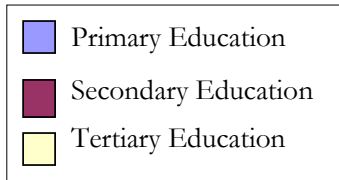
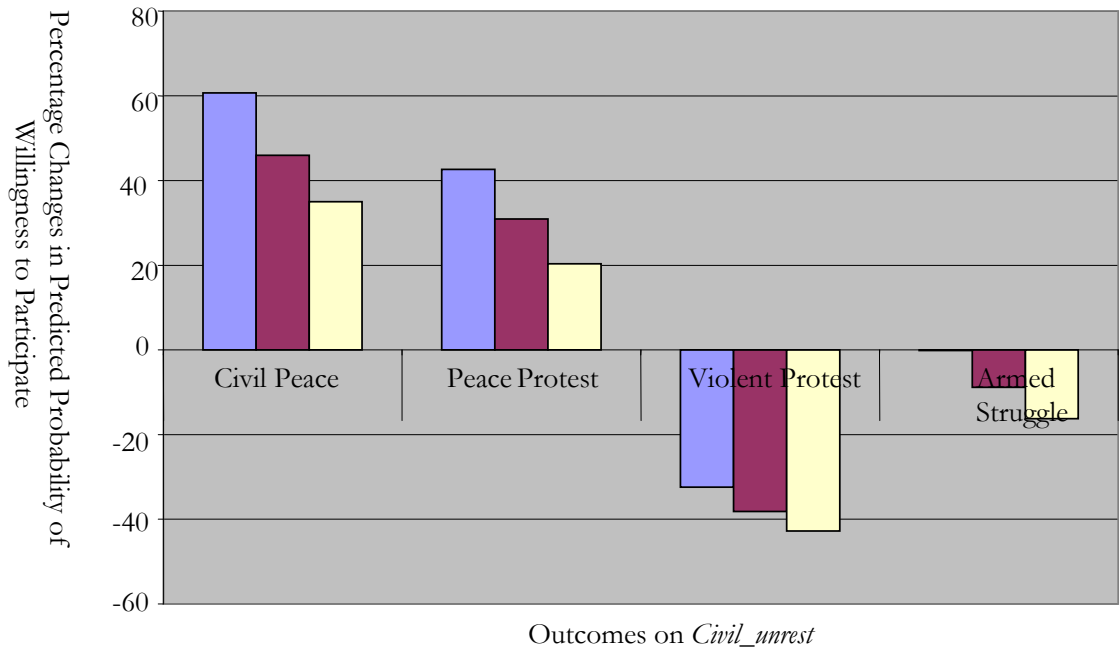


Fig. 2 Effect of Educational Attainment on Predicted Probability of Willingness to Participate in each Outcome on *Civil_unrest*



Appendix

The data on *civil unrest* was generated from responses to three questions. These are

- (i) *Assuming you come across a burst petroleum pipeline, what are you **most likely** to do?*
- (ii) *Will you be willing to participate in a protest to demand that the people of your community be allowed to own and manage the oil in their land? and*
- (iii) *Will you be willing to join a group that will be able to fight to ensure that your community and other communities in the Niger Delta own and manage the oil in their lands?*

The data codes for the variable were generated as follows: if respondent answer to (i) indicate a propensity to ‘tap’ from a busted pipeline, the response to (ii) is ignored and the response to (iii) is considered. If the response to (iii) is ‘No’, a value of 2 is attached to the dependent variable. If otherwise, the dependent variable takes a value of 3.

Contrarily, if the respondent in answer to (i) reveals no propensity to ‘tap’ from a busted pipeline, the response to (ii) is considered. If the response to (ii) is ‘Yes’ (rather than ‘Yes, if it is not violent’), and the response to (iii) is ‘No’, the dependent variable is attached a code of 2. On the other hand, if the response to (ii) is “Yes, if it is not violent”, the dependent variable takes on a value of 1 which indicates willingness to participate in peaceful protests and not violent protests and associated criminality or in armed struggle.

Finally, if the response to (iii) is ‘Yes’, the dependent variable is coded 3 irrespective of the answers given to (i) and (ii).

Note that by this coding method, 2 is the code for willingness to participate in violent protests **and/or** associated criminality.

To use the ORM, I made some behavioural assumptions. First, I assume that an individual who is willing to ‘tap’ some fuel from a busted petroleum pipeline would also be willing to burst the pipeline if he has the opportunity to do so (i.e., if he can do it without being observed). This appears logical since bursting a pipeline or ‘tapping’ fuel from a busted pipeline constitutes the same offence under the existing Nigerian law. Secondly, I assume that an individual who exhibit willingness to ‘tap’ fuel from a busted pipeline or burst a petroleum pipeline would also be willing to engage in a civil protest against the government or oil companies, whether such protest is peaceful or violent. By the same token, an individual who is willing to engage in an armed struggle for self-determination is assumed to be also willing to ‘tap’ fuel from a petroleum pipeline if it can be done successfully (even if it is done for the cause of financing a justice-seeking rebellion) and to take part in civil protests against the government and/or oil companies whether peaceful or violent. These assumptions yielded a kind of ordering as follows: If 3, then 2 and 1; if 2, then 1. It also provided a way of ascertaining the genuineness and consistency in the responses provided.