



Exploring Growth Effects of Industrial Unrest in Nigeria

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Abstract

This study empirically explores growth effects of industrial unrest in Nigeria using both aggregated and disaggregated approach. The estimated results for the aggregate economy reveal that strikes and lock-outs negatively affect the economy. On the education sector, the results show that on the average, increasing the days of strike by an additional day reduces output from the education sector. The estimated coefficients for the health sector also shows that man day lost due to industrial unrest negatively affect, albeit marginally, the growth of the sector. For the mining sector, the results reveal that none of the measure of industrial unrest is statistically significant. The estimates for the construction sector reveal that every additional strike or lock-out experienced reduces the sector's output. As further revealed by the results, increasing the number of workers on strike in the agricultural sector reduces the sector's output. Overall, industrial unrest reduced output by 8.3 per cent which dampened economic growth by 0.6 per cent. Since empirical evidence from this study reveal that strikes and lock-outs affects different sectors of the economy differently, government and relevant stakeholders should develop sector-specific approaches in addressing and managing the issues of industrial unrest in the economy.

Keywords: Economic growth, industrial unrest, workers on strike

JEL Classification: J51; O11

INTRODUCTION

In recent past, Nigeria has been bedeviled with series of anti-economic developmental challenges ranging from industrial unrest, youth militancy, regional and sectoral agitations. Among the aforementioned anti-economic development vices, industrial unrest form the basis of this study. Industrial unrest is used to connote the generality of unhealthy work relations between management of the organization and the various labour unions. Industrial unrest as exemplified by strikes, sit-ins, work-to-rule, boycott, lock-out, picketing to a large extent has a great bearing on the smooth development of any national economy. Whitaker & Ubeku (1984) posits that strikes, especially major ones, have a monumental effect on the public, particularly in essential industries. It has been argued by the Nigerian Institute of Advanced of Legal studies (2010) that if the incessant industrial unrest or strikes are not put under check or managed properly by the stakeholders in the industry, Nigeria quest for rapid economic development or her quest to be among the top 20 economies in the world by the year 2020 may not be realized (Christopher, Olusiji & Badejo, 2012; Adewumi, 2013).

According to Kabuoh, Semako, & Abiola (2014), one of the challenges of economic development in Nigeria is industrial dispute which has both costs and benefits to the government, labour and management. The causes of this trade dispute have generally been established as the inability of the concerned parties to settle their differences which consequently impact negatively on goal achievement. Figures by Federal Ministry of Employment, Labour and Productivity and Central Bank of Nigeria reveal the trade dispute and work stoppage figures to be as follows: 49 and 47 in 2000, 51 and 37 in 2001, 50 and 42 in 2002, 149 and 669 in 2003 and 152 and 308 in 2004 respectively. These data put Nigeria in the unique position of being the country with the highest number of strikes for the past five years, which carries serious implications for the economic growth of the country. Ndaba (2013) argues that industrial action played a huge role in economists re-evaluating their economic predictions, and forecasting lower economic growth for the country in the immediate future. Over the years, Nigeria as a nation has witnessed series of strikes with its attendant work-stoppages and man-day loss.

Although several studies such as Anyim, Ekwoaba, & Shonuga (2013). Chukwuemeka (2012) & Onwe (2014) have investigated industrial unrest using the descriptive approach. Yet others, Fajana & Shadare (2012) with theoretical approach and in simple percentages, examined the impact of strike and ethics on the work place and their impact on economic growth. Most of the studies did not examine the direct impact of industrial unrest on economic growth of Nigeria. Such efforts fail to provide empirical evidence needed to guide policies. This study, apart from providing a quantitative analysis of the effect of industrial unrest on the aggregate Nigerian economy, it also provides a dis-aggregated analysis by examining the effect of industrial unrest across different economic sectors in Nigeria. Such approach offers more information for policy formulation and provides deeper insight into the nature and type of industrial unrest in Nigeria and how exactly each affect different sectors and economic growth of the country. As enunciated by Brym, Baucer, & McIvor (2013), the productivity in any country whether developed or developing is a daily activity which is associated with labour output level and it is equally worrisome to the economic development of the nation considering the man-hour lost and the social economic consequences of industrial unrest. Abadie & Gardeazabal (2008) estimated the economic costs of conflict requires a counterfactual calculation, which makes it a very difficult task. For this reason, researchers have resorted to different estimation methods depending on the particular effect in the question. The method used in each case depends on the units being analyzed (firms, sectors, regions or countries), the outcome variable under study and data availability. Conflict manifests itself in several forms, from strikes, demonstrations and riots to guerrilla warfare, terrorism and civil war. In turn, these forms of conflict have economic, social, psychological and other types of costs. Estimating the economic cost of conflict amounts to calculating what a given economic magnitude, say GDP, would have been in the absence of conflict. Studies on industrial unrest have used both aggregated approach and disaggregated approach. Not with standing the importance of other types of costs, this study empirically estimated the impact of industrial unrest and its incidence on the economic growth of Nigeria adopting both aggregated and disaggregated approach.

Notable studies on the impact of industrial unrest on economic growth include Surujlal (2014) for South Africa where more than 60 per cent of the industrial action involved mineworkers and approximately 82 per cent were related to wages, bonuses and other forms of compensation. Other reasons associated with industrial action were the utilization of labour brokers, poor working conditions, lack of consultation with workers on decisions that affected their lives, and protests against the implementation of E-tolls in the Gauteng province. This affected jobs, the stability of the economy, investor confidence, and growth. The ripple effect of union strike on the economy was also determined by Coon (2000) using the United Auto Workers (UAW) strike at General Motors in United State of America. Adopting a graphical approach, it was found that apart from the adverse effect which the strike had on GM's financial status, the nation's total output, sales, price level, consumer spending, trade deficit and employment were also affected. Strikes also had large ripple effect in various industries that led to drastic reduction in sales, profits and employment. In their part, Abadie & Gardeazabal (2008) investigated the economic impact on the Basque economy and found that, after the outbreak of terrorism in the late 1960's, per capita GDP in the country declined by about 10 per cent relative to a synthetic control region without terrorism. In addition, the study uses the 1998–1999 truce as a natural experiment and that stocks of firms with a significant part of their business in the Basque Country showed a positive relative performance when truce became credible, and a negative relative performance at the end of the cease-fire.

The study by Abdulrahman & Mato (2014) primarily investigated labour-government relations in Nigeria and employed descriptive approach and frequency counts and mean statistics to determine the level of agreement and disagreement of government and labour. The results of the study revealed that trade union and collective bargaining can contribute meaningfully to the growth process of Nigeria if there is good industrial relations between trade unions and their employers or management and if collective bargaining policy is followed. In a similar vein, Nubuor (2017) investigated the causes and impact of labour unrest on some selected organizations in Accra, Ghana. Through series of field survey and with the application of descriptive approach which entailed interviews and discussions with employers and workers and key informants such as industrial relations and human resource practitioners, and analyses of primary and secondary data. Certain major findings were made by the study which includes the following. Firstly, that labour unrest leads to salary loss of workers, profit loss to employers, revenue loss to the state, productivity loss to employers, job loss to workers and shortage of goods and services affecting society. It also creates social problems. Few recommendations were made to reduce or totally avoid labour unrest which include education of both workers and employers on the law that regulates the employment relationship, and attitudinal change of the social partners in the management and resolution of industrial conflict. In a study on the economic impact of air traffic control strike in Europe, Price water house Coopers (2016) employed a computable general equilibrium (CGE) model for the European Union (EU) 28, based on 2010-2015 data. The results suggest that the overall impact of strikes reduced EU GDP which had cumulative negative impact on employment. The second largest impact is felt through the reduction in

productivity associated with longer flights and waiting times. The third largest impact is felt through lower airline sector revenues. This loss in revenue occurs when flights are cancelled so that some passengers choose to forego their journey and cancel their ticket.

Madueme & Aneke (2011) estimated the impact of Academic Staff Union of Nigerian Universities (ASUU) and Senior Staff Association of Nigerian Universities (SSANU) strikes on educational stability and man-hour loss in Nigeria Universities pre and post year 2000. Using t-test statistics and regression analysis, results revealed that strike activities have been a frequent occurrence in the Nigerian educational system and significant differences exist in the duration and impact of strike activities by SSANU and ASUU. Principal component analysis was also done to find out which of the causative strike factors were most pressing. It was found that the most pressing ones were conflict between labour unions in Universities, poor implementation of agreements by governments, patronage of university consultancy services by governments and reduction of the role of JAMB in undergraduate admission. Osakede & Ijimakinwa (2014) examined the effect of public sector health workers strike on service delivery in Nigeria and observes that minimizing the incidence and effects of health care workers strike will require ethical approach from all stakeholders and re-cognition that all parties have an equal moral obligation to serve the best interest of society and came to a conclusion that motivation for doctor and health care workers include the natural pressure to fulfill human needs and modern medical practice to managed healthcare and consumer right. The study was able to demonstrate that the right to strike is so important to the functioning of modern democratic societies that its suppression would be unjustified. The right to strike is now accepted as an indispensable component of collective bargaining and perhaps a fundamental human right. However, minimizing the impact of doctor and health care worker strikes will require improved organizational ethics and the recognition by both employees and employers, especially elected officials that they are equally morally obligated to serve the interest of society. Using a cross section of countries, Yiannis & Gupta (1986; 1993); Alesina, Perotti, & Spolaore (1995) concluded that political instability has a negative effect on investment and savings. Alesina et al. (1996) argued that political instability has a negative effect on economic growth.

A caveat of these findings is that part of the observed disagreement between workers and the ruling class, apart from reducing worker productivity, may also impact on economic performance since political instability is not only a cause but also an effect of fluctuations in economic variables.

METHOD

To estimate the impact of strike on economic growth in Nigeria, the study adopts the Cobb-Douglas production framework expressed in stochastic form as:

$$Y_i = \beta_1 X_{2_i}^{\beta_2} X_{3_i}^{\beta_3} e^{u_i} \dots\dots\dots(1)$$

where; Y = output, X_2 = labor input, X_3 = capital input, u = stochastic disturbance term, e = base of natural logarithm. From equation (1), it is obvious that the relationship between output and the two inputs is nonlinear. However, if we log-transform this model, we obtain:

$$\ln Y_t = \ln \beta_1 + \beta_2 \ln X_{2t} + \beta_3 \ln X_{3t} + u_t \dots\dots\dots(2)$$

Given that $\beta_0 = \ln(\beta_1)$, equation (2) can be rewritten as:

$$\ln Y_t = \beta_0 + \beta_2 \ln X_{2t} + \beta_{3t} \ln X_{3t} + u_t \dots\dots\dots(3)$$

Incorporating strike variables into the Cobb Douglas modified model, we specify a multivariable regression models as:

$$\log SO_{it} = \beta_0 + \beta_1 MDL_t + \beta_2 SLO_t + \beta_3 WIS_t + \beta_4 TD_t + \beta_5 DOS_t + \beta_6 MHL_t + \beta_7 X_t + \mu_t \dots\dots(4)$$

Where SO represents sectoral output in sector *i* at a given year, MDL is man-days lost (that is, total working days lost due to strike, multiplied by the number of workers involved in the strike), SLO means strikes and lock-outs; WIS is workers in strike, TD represents trade disputes, DOS is days of strike, MHL means man hour lost and X represents control variables (inflation and interest rate). The use of different measures of industrial unrest provide more information and offer deeper insight into the very nature of industrial unrest in Nigeria and how exactly each measure effects growth in the economy. In order to provide a disaggregated and comprehensive analysis of the effect industrial unrest on the Nigerian economy, unrest in the selected sectors which are education, health, manufacturing, agriculture, mining/quarrying, and construction. These sectors were selected because of their relative importance in the Nigerian economy. Data for this study are time series sourced primarily from the International Labour organization data bank, the Central Bank of Nigeria (CBN) Bulletin, the National Bureau of Statistics (NBS) and Federal ministry of Labour and productivity. Apart from the health and education sectors, data for every other sector are estimated on annual basis (1972-2015).

RESULTS AND DISCUSSION

Since time series are used in the study, firstly, we determine their stationarity or otherwise using the Augmented Dicky-Fuller (ADF) test and the results are presented in Table 1.

Table 1. Unit Root Test

Variable	Aggregate Economy				Order of Integration
	ADF Test Statistics (level)	ADF Test Statistics (1 st difference)	ADF Test Statistics (2 nd difference)	5% critical value	
RGDP	0.986	-5.396		-2.972	I(1)
MDL	-5.767			-2.969	I(0)
SLO	-3.630			-2.969	I(0)
WIS	-3.348			-2.969	I(0)
RINTR	-5.680			-2.969	I(0)
INF	-3.045			-2.969	I(0)
Education Sector					
Sector Output	2.461	-3.145		-2.924	I(1)
MHL	-2.926			-2.923	I(0)
DOS	-2.949			-2.923	I(0)
REINTR	-3.145			-2.923	I(0)
INF	-1.861	-4.507		-2.924	I(1)

Health Sector					
Sector Output	10.439			-2.950	I(0)
MDL	-1.459	-3.102		-2.952	I(1)
TD	-0.530	-1.710	-8.044	-2.955	I(2)
REINTR	-2.769	-3.774		-2.952	I(1)
INF	-4.668			-2.950	I(0)
Manufacturing Sector					
Sector Output	-0.859	-4.794		-2.978	I(1)
MDL	-5.025			-2.975	I(0)
SLO	-5.419			-2.975	I(0)
WIS	-3.863			-2.975	I(0)
REINTR	-5.010			-2.975	I(0)
INF	-3.042			-2.975	I(0)
Mining Sector					
Sector Output	-2.071	-4.526		-2.978	I(1)
MDL	-5.764			-2.980	I(0)
SLO	-4.270			-2.980	I(0)
WIS	-4.894			-2.986	I(0)
REINTR	-5.010			-2.975	I(0)
INF	-3.042			-2.975	I(0)
Construction Sector					
Sector Output	-1.340	-6.073		-2.978	I(1)
MDL	-5.854			-2.980	I(0)
SLO	-3.276			-2.975	I(0)
WIS	-4.285			-2.975	I(0)
REINTR	-5.010			-2.975	I(0)
INF	-3.042			-2.975	I(0)
Agricultural Sector					
Sector Output	1.408	-5.222		-2.978	I(1)
MDL	-5.710			-2.983	I(0)
SLO	-4.202			-2.975	I(0)
WIS	-2.954	-7.952		-2.992	I(1)
REINTR	-5.010			-2.975	I(0)
INF	-3.042			-2.975	I(0)

Source: Authors (2018)

As can be observed in Table 1, the results reveal that for the whole economy, all other variables have no unit root, except for real gross domestic product which is stationary only after first difference. In the education sector, man hour lost due to industrial unrest and inflation are stationary only after first difference, while other variables employed are stationary at level form. The results further revealed that at 5 per cent critical value, man day lost and real interest rate are stationary after first difference in the health sector, while health sector output and inflation rate are stationary at level. Trade disputes is however stationary after second difference; integrated at order two. For the manufacturing sector, all the variables of interest are stationary at level, except for manufacturing sector output which is stationary after first difference. Exactly the same scenario is observed in the mining and construction sectors, where at 5 per cent critical value, the variables of interest in both sectors are stationary at level, with only the sectorial outputs stationary after first difference. In the agricultural sector, the

sectorial output and the number of workers involved in strike are stationary only after difference (they have unit root), while other variables in the sector are stationary at level form at 5 per cent critical value.

The results reveal that a mixture of stationary and non-stationary series exists, and for this reason the conduct of cointegration test is imperative. The Johansen Cointegration test results is presented in the Table 2.

Table 2. Johansen Cointegration Test

Aggregate Economy				
Hypothesis	Trace	Maximum Eigenvalue		
<i>Ho</i>	<i>Trace Stat.</i>	<i>0.05 critical Value</i>	<i>Max-Eig. Stat.</i>	<i>0.05 critical Value</i>
R=0	129.8313	94.15	53.1886	39.37
R=1	76.6426	68.52	32.2261	33.46
R=2	44.4165	47.21	19.7268	27.07
R=3	24.6898	29.68	15.0457	20.97
R=4	9.6441	15.41	8.5098	14.07
R=5	1.1343	3.76	1.1343	3.76
Education Sector				
R=0	79.3380	68.52	26.5876	33.46
R=1	52.7504	47.21	24.6940	27.07
R=2	28.0564	29.68	15.6644	20.97
R=3	12.3920	15.41	11.8185	14.07
R=4	0.5735	3.76	0.5735	3.76
Health Sector				
R=0	71.0749	68.52	23.8774	33.46
R=1	47.1975	47.21	19.6465	27.07
R=2	27.5510	29.68	15.4186	20.97
R=3	12.1324	15.41	11.7823	14.07
R=4	0.3502	3.76	0.3502	3.76
Manufacturing Sector				
R=0	130.9026	94.15	52.0760	39.37
R=1	78.8265	68.52	32.0202	33.46
R=2	46.8064	47.21	27.1869	27.07
R=3	19.6195	29.68	13.1452	20.97
R=4	6.4743	15.41	5.5955	14.07
R=5	0.8788	3.76	0.8788	3.76
Mining Sector				
R=0	109.5479	94.15	41.0862	39.37
R=1	68.4616	68.52	29.8854	33.46
R=2	38.5763	47.21	21.6981	27.07
R=3	16.8781	29.68	11.6158	20.97
R=4	5.2623	15.41	4.9161	14.07
R=5	0.3462	3.76	0.3462	3.76
Construction Sector				
R=0	127.4748	94.15	58.3235	39.37
R=1	69.1513	68.52	27.3802	33.46
R=2	41.7711	47.21	18.0476	27.07
R=3	23.7236	29.68	13.2528	20.97
R=4	10.4708	15.41	8.5223	14.07

Aggregate Economy				
Hypothesis	Trace		Maximum Eigenvalue	
<i>Ho</i>	<i>Trace Stat.</i>	<i>0.05 critical Value</i>	<i>Max-Eig. Stat.</i>	<i>0.05 critical Value</i>
R=5	1.9485	3.76	1.9485	3.76
Agricultural Sector				
R=0	118.5758	94.15	37.5350	39.37
R=1	81.0409	68.52	28.9570	33.46
R=2	52.0838	47.21	25.0822	27.07
R=3	27.0016	29.68	15.2316	20.97
R=4	11.7700	15.41	8.4054	14.07
R=5	3.3646	3.76	3.3646	3.76

Source: Authors (2018)

For the aggregate economy, the first null hypothesis (R=0) is rejected since the trace statistics (127.4748) is greater than the 5% critical value (94.15). This means that we reject the null hypothesis that suggests that there is no cointegration among our variables. Following the same reasoning, we also reject the second null hypothesis (R=1), concluding that there is not just one cointegrating vector among our variables. However, we do not reject the third null hypothesis (R=2) since the trace statistics (41.7711) is not greater than the 5% critical value (47.21). Thus, we conclude that there are two cointegrating vectors among our variables. This means that they are cointegrated or a long run relationship exists among the variables. Having established that our variables are cointegrated across sectors, further analysis was carried out using OLS, without the apprehension of estimating spurious regression results. The results are presented in Table 3.

Table 3. Regression Results

Dependent Variable	Independent Variables	Estimated Parameters
Aggregated Result		
<i>Economic growth</i>	SLO	-0.483* (-1.80)
	WIS	0.0017** (2.53)
	MDL	-0.0779** (-2.01)
	RINTR	3.456 (1.47)
	INFL	0.0256* (1.82)
Observations (annual): 37		R-Squared: 0.6230
Disaggregated Result		
Education Sector		
<i>Educ. output</i>	MHL	0.5339*** (2.91)
	DOS	-4.4418*** (-2.99)
	RINTR	1.8542*** (3.08)
	INFL	1.3130 (1.20)
Observations (quarterly): 60		R-Squared: 0.6660
Health Sector		
<i>health output</i>	MDL	-0.0019** (-1.98)
	TD	0.1238*** (4.42)
	RINTR	-0.4661** (-2.26)
	INFL	-0.8041** (-2.13)
Observations (quarterly): 44		R-Squared: 0.6642

Dependent Variable	Independent Variables	Estimated Parameters
Manufacturing Sector		
<i>Manf. output</i>	MDL	0.0676** (2.46)
	WIS	-0.0059*** (-3.39)
	SLO	0.0205 (0.01)
	RINTR	0.8921 (0.73)
	INFL	2.591*** (2.55)
Observations (annually): 35		R-squared: 0.3795
Mining Sector		
<i>Mining output</i>	MDL	0.0022 (0.21)
	WIS	0.0049 (0.72)
	SLO	-0.2494 (-0.06)
	RINTR	1.0268 (1.46)
	INFL	0.9328 (0.89)
Observations (annually): 31		R-squared: 0.6451
Construction Sector		
<i>Constr. output</i>	MDL	0.0356 (1.53)
	WIS	0.0126 (1.53)
	SLO	-1.5297** (-2.06)
	RINTR	1.3869** (2.08)
	INFL	1. (1.70)
Observations (annually): 34		R-squared: 0.5467
Agricultural Sector		
	MDL	0.0085* (1.79)
	WIS	-0.0191** (-2.09)
	SLO	-5.6675 (-1.16)
	RINTR	2.7044 (1.44)
	INFL	3.0989** (1.99)
Observations (annually): 30		R-squared: 0.5654

Source: Authors (2018)

Note: Figures in parenthesis are t-statistics and *denotes 10% level of significance, while ** stands for 5% level of significance

The estimated results for the aggregate economy reveal that strikes and lock-outs negatively affected the Nigeria economy. Put more precisely, every additional strike and lock-out witnessed across sectors in Nigeria reduces economic growth by 0.483 per cent on the average, holding all other variables constant. The result suggests that overall, strikes and lock-outs are harmful to the Nigerian economy. Man day lost due to industrial unrest also has negative effect on the economy, though the observed effect is quite negligible (0.0017 per cent). On the education sector, the results show that on the average, increasing the days of strike by an additional day reduces output from the education sector by as much as 4.4 per cent, *ceteris paribus*. However, man hour lost had a positive effect on output from the sector because an increase in man hour lost by an extra hour increases the growth in the educational sector by 0.53 per cent on the average, holding other variables constant. The estimated coefficients for the health sector also shows that man day lost in the health sector due to industrial unrest negatively affect, albeit marginally, the growth of the sector. Specifically, every additional day lost as a result of industrial unrest in the health sector reduces

growth by 0.0019 per cent on the average. However, for every additional trade dispute witnessed in the sector, it grows by 0.124 per cent. As further shown in the result, the numbers of workers in the manufacturing sector that engage in strikes have negative effect on the growth of the sector. Put more precisely, on the average, increasing the number of workers engaged in strike in the manufacturing sector by one reduces the growth of the sector by 0.0059 per cent, holding other variables constant.

For the mining sector, the results reveal that none of the measure of industrial unrest is statistically significant. Implied here is that industrial unrest in the mining sector has no significant effect on the output produced in the sector. This outcome could be attributable to the peculiar nature of the mining sector which is the primary source of revenue for the Nigerian economy. Thus, industrial unrest in the sector even for a day or two will have an immediate and lagged negative effect on the economy. Taken together, the relative rare occurrence of strike and lock-outs in the mining sector and short duration of the strikes whenever they occur, could be the reason why industrial unrest in the mining sector does not significantly affect the output from the sector. The estimates for the construction sector reveal that every additional strike or lock-out experienced reduces the sector's output by 1.53 per cent on the average. As further revealed by the results, increasing the number of workers in strike in the agricultural sector reduces the sector's output by 0.0191 on the average. On the whole, while industrial unrest decreased output by 8.3 per cent, economic growth was damped by 0.6 per cent due to industrial unrest for the period covered by the study.

CONCLUSION

The estimated results for the aggregate economy reveal that strikes and lock-outs negatively affected the Nigeria economy. On the education sector, the results show that on the average, increasing the days of strike by an additional day reduces output from the education sector. The estimated coefficients for the health sector also shows that man day lost due to industrial unrest negatively affect, albeit marginally, the growth of the sector. For the mining sector, the results reveal that none of the measure of industrial unrest is statistically significant. The estimates for the construction sector reveal that every additional strike or lock-out experienced reduces the sector's output. As further revealed by the results, increasing the number of workers on strike in the agricultural sector reduces the sector's output. Thus, government and its agencies need to be proactive, and not reactionary in matters of industrial unrest in the country. One way of doing this is to set up special unit under the ministry of labour and employment to interface regularly with labour unions, hear their grievances, demands and/or request and revert to the government on regular basis. This, to a great extent, can help to nip in the bud strikes and lock-outs in the country. Since empirical evidence from this study reveal that strikes and lock-outs affects different sectors of the economy differently, government and relevant stakeholders should develop sector-specific approaches in addressing and managing the issues of industrial unrest in the economy.

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