

The Impact of Federal Government Investment in Human Capital Development on Productivity and Economic Growth from 2006-2015

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Abstract

This research study examined the impact of government expenditure in education on productivity in Nigeria. The study specifically examined the impact of government expenditure in education on labour productivity in Nigeria; and evaluated the impact of government expenditure in education on economic growth in Nigeria from 2006 to 2015. Data on government expenditure in education, labour productivity, and economic growth (GDP) were retrieved from Total Economy Database™ and analysed using Eview statistical package. Simple linear regression was used in testing the hypotheses of the study. The study reveals that that Government expenditure on education does not have significant impact on labour productivity in Nigeria. This means that government expenditure on education does not contribute to labour productivity in the country for the period investigated. The result also revealed that there exist a positive but insignificant relationship between government expenditure on education and economic growth in Nigeria. Since the budgetary allocation to education sector for the period studied do not have impact on economic growth, the research recommends that federal government and other policy makers in the economic sector should make concerted effort to increase investment in education sector to boost productivity and economic growth in the country. Budget Allocation to Education should always meet the 26% recommendation by the United Nations Program on Development (UNDP).

Keywords: Education, Human Capital, Productivity and Economic Growth

1.1 INTRODUCTION

In recent years, the relationship between education and economic growth has engrossed the interest of several scholars and economists, including policy makers. Many are of the opinion that education is the most powerful engine for global growth (Bexheti and Mustafi, 2015). Hence, it is a good way of generating economic growth and development (Babatunde and Adefabi, 2005; Ohwofasa, Obeh and Atumah, 2012). As a key component of human capital formation, it is necessary for increasing the productive capacity of the individual and the

people through the creation of knowledge, ideas, and technological innovation (Larocque, 2008). Explaining the crucial role of education in promoting economic growth, Friedman (2002) posits that the gain from the education of a child accrues not only to the child or his parents but also to the other members of the society leading to what he calls a significant “neighborhood effect”.

It is no longer news that human resource is pivotal to the growth and economic development of a country. It is the human factor that blends intelligence, skills and expertise to give the organisation a unique character (Bontis, et al, 1999, cited in Odior, 2011). Likewise, it is human beings who for instant exploit natural resources, accumulate capital, build social, economic and political organisations that carry forward national development (Harbison, 1973). It is quite obvious that a country that fails to develop the skills and knowledge of its people will be unable to develop anything else (Omojimate, 2010). The contribution of education to labour productivity growth is estimated in different studies to be between 13% and 30% of the total increase (Odior, 2011).

Nigeria is blessed with abundance of human and natural resources, that is capable of building a prosperous economy. However, the country has failed in utilizing these blessings. Rather than invest heavily in the development of the human resource to extract the gold in its human resource, successive administrations have concentrated on extracting oil from the ground. It is on record that between 7.6% and 9.9% of Nigeria’s annual expenditure is devoted to education, Ghana’s spending has been 25% of its annual budget in the past decade (Akinyemi, 2011). The result is that despite the country's relative oil wealth, poverty is widespread (oil revenue is only about .50c per capita), and Nigeria's basic social indicators place it among the twenty poorest countries in the world (Babatunde and Adefabi, 2005). Attempts to change this scenario have failed largely due to low investment in education, and a large unskilled labor force.

The Federal Government expenditure on education has been below 10 percent of the overall expenditure, 70 percent of its expenditure goes to recurrent activities. The above expenditure figure is below UNESCO recommendation of 29 percent of national expenditure which should be devoted to education (Edam and Eturoma, 2014). This is in spite of the huge increase in the number of student intake at all levels of education- primary, secondary and tertiary. The actual expenditure level falls short of the budgetary allocation.

Despite the recommendation of UNESCO, the public expenditure on education remains inadequate for coping with a system that is growing at every rapid pace. Due to poor financing the quality of education offered is affected by poor attendance and inadequate preparation by teachers at all levels. The morale of teachers is low as a result of basic condition of services and low salaries. Therefore there is need to assess the impact of educational expenditure on the quality of education in Nigeria.

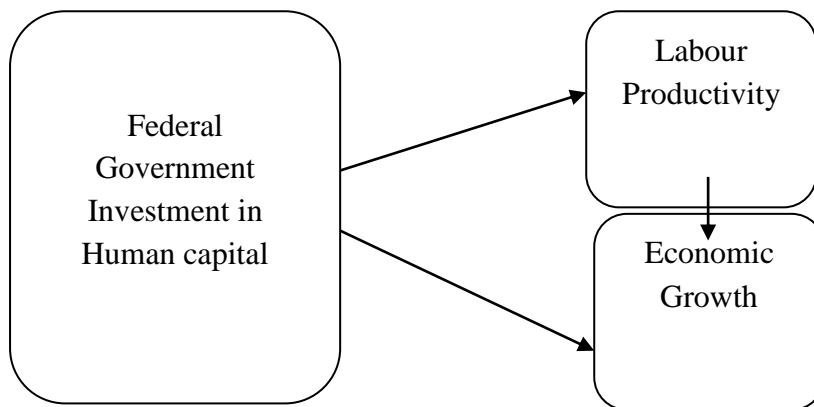
According to The Bureau of Statistics (2015), in Nigeria, the issue of productivity of labour among other factors continue to put a drag on overall economic growth. The bureau opined that coupled with high unemployment rate, the economy faces a considerable threat to realising its full growth potential due to productivity challenges. It is quite clear that no nation can progress more than the quality of its human resources. The quality of the human resource is determined by the level of investment in the education sector. It is not clear how investment in education sector in Nigeria is impacting on labour productivity and economic growth in the country, especially, before the recession of 2016.

The rest of the paper is structured as follows: The next section discusses literature review and hypotheses development: Investment in Human Capital and Labour Productivity, Investment in Human Capital and Economic Growth, Labour productivity and Economic Growth. This is followed by approach employed to collect and analyze the data. Thereafter the results are presented. The last section comprises of discussions of findings, conclusions and recommendations.

2.0 LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Conceptual Framework

The conceptual framework of this study is captured thus:



2.1 Investment in Human Capital and Labour Productivity

Studies have shown that for the past 40 years, output has increased to 3.5 percent a year and labour productivity (which is a major determinant of increase wages and standard of living) has improved to 2.4 percent a year (Odior, 2011). Scholars such as Dickens, Sawhill, and Tebbs, (2006) posits that as we move to a knowledge based economy, investment in human capital may rise in significance comparative to investment in other types of capital. They further explain that human capital theory stresses how education improves the productivity of workers by raising the level of cognitive stock of economically productive human capability which is a result of inherent abilities and investment in human beings. Thus, investment in formal education is a productive investment in human capital which is greater than investment in physical capital and is acknowledged as being fundamental in growing the productive capacity of people (Odeleye, 2012). Therefore, we postulate the following hypothesis:

H₁: There is a significant relationship between government expenditure in education and labour productivity in Nigeria

2.2 Investment in Human Capital and Economic Growth

A number of empirical studies have examined the relationship between investment in human capital and economic growth. Chude and Chude (2013) investigated the effects of public expenditure in education on economic growth in Nigeria over a period from 1977 to 2012, with particular focus on disaggregated and sectoral expenditures analysis. Government expenditures are very crucial instruments for economic growth at the disposal of policy makers in developing countries like Nigeria. The study used Ex-post facto research design and applied time series econometrics technique to examine the long and short run effects of public expenditure on economic growth in Nigeria. The results indicate that Total

Expenditure Education is highly and statistically significant and have positive relationship on economic growth in Nigeria in the long run.

Ejiogu, Ihugba and Nwosu (2013) examined the commitment of the federal government of Nigeria to education through her budgetary allocations and also assessed the causal relationship between the government expenditure on education and economic growth from 1981-2011 using time series data. The result reveals that Expenditure on education is positively related to the GDP (Gross Domestic Product).

Odeleye (2012) evaluated the impact of education on economic growth using primary and secondary annual data ranging from 1985 to 2007. The findings show that only recurrent expenditure has significant effects on economic growth as the academic qualifications of teachers also have significant impact on students' academic performance.

Odior (2011) analyses the dynamic (direct and indirect) effects of government policy on education and its relation to the cyclical economic growth in the long run. The basic objective is to simulate if government expenditure on education would help to improve economic performance in Nigeria in the long run. The paper used an integrated sequential dynamic computable general equilibrium (CGE) model to examine the potential impact of increase in government expenditure on education in Nigeria. The model is calibrated with a 2004 social accounting matrix (SAM) data of the Nigerian economy. The result shows that the re-allocation of government expenditure to education sector is significant in explaining economic growth in Nigeria.

Torruam, Chiawa and Abur (2014) investigated the impact of public expenditure on tertiary education and economic growth in Nigeria using time series data for the period 1990-2011. The econometric methodology employed was cointegration and error correction technique. The study concludes that public expenditure on tertiary education has positive impact on economic growth in Nigeria.

Bexheti and Mustafi (2015) also investigated the relationship between public spending on education after the process of decentralization and economic growth in Macedonia as low income state. They used Logarithmic Multiple Regression Model which shows negative effect on public spending on education and economic growth in the case of Macedonia.

Babatunde and Adefabi (2005) examine the long run relationship between education and economic growth in Nigeria between 1970 and 2003 through the application of Johansen Cointegration technique and Vector Error Correction Methodology. The Johansen Cointegration result establishes a long run relationship between education and economic growth. A well educated labour force appears to significantly influence economic growth both as a factor in the production function and through total factor productivity.

Edam and Eturoma (2014) studied the determinants of public expenditure on educational infrastructural facilities and economic growth in Nigeria. They found out that public expenditure on education has a significant impact on economic growth. But expenditure on education is different between regimes but not significant. Consequently: that expenditure in education during the civilian regime had the intercept of 22932.02, the military regime spent 22927.89 more than the civilian regime in Nigeria.

Omojimate (2010) studied education and economic Growth in Nigeria: A Granger Causality Analyse, where he examines the notion that formal education accelerates economic growth

using Nigerian data for the period 1980-2005. His findings were that there is cointegration between public expenditures on education, primary school enrolment and economic growth. He also found that public expenditures on education Granger cause economic growth but the reverse is not the case and that there is bi-directional causality between public recurrent expenditures on education and economic growth.

Ohwofasa, Obeh, & Atumah (2012) employed Johansen co-integration technique and error correction method to examine the impact of government expenditure on economic growth. The co-integration result shows that long run relationship exists between the variables. The econometric results further indicated that a one year lag of gross domestic product, current level of recurrent expenditure on education, two year lags of recurrent expenditure on education, current as well as two year lags of gross capital formation exhibit positive impact on economic growth in Nigeria. On the other hand, previous year capital expenditure on education and human capital development has negative and significant impact on economic growth within the period, 1986-2011. Therefore, we postulate the following hypothesis:

H₂: There is significant relationship between government expenditure in education and economic growth in Nigeria

2.3 Labour productivity and Economic Growth

Labour productivity plays an important role in factor accumulation and in the determination of economic growth. Research has shown that investment in education and other critical sectors such as agriculture and health help the poor to be more productive (Chemingui, 2005). This is because economic growth is mostly driven by labour productivity, and any investment intended to improve the productivity of labour and total factor productivity will improve the sustainability of economic growth in a given country (Odior, 2011). Studies by Klenow and Rodriguez-Clare (1997) and Easterly and Levine (2001), have indicated that cross-country differences in income levels and growth rates are mostly due to differences in productivity.

Therefore, we postulate that:

H₃: There is a significant relationship between labour productivity and economic growth in Nigeria

3.0 DATA ANALYSIS

The data for this research study was retrieved from the Total Economy Database 2006 to 2015, which is a secondary source. The data that were retrieved for analysis were figures for labour productivity in Nigeria, Nigeria economic growth, measured using Gross Domestic Product (GDP) and government expenditure on education. This data is the most reliable and up-to-date data on labour productivity, economic growth, and government expenditure worldwide.

The data that was collected was analysed using a statistical package called Eview. The pre-analysis test was done using Levin, Lin & Chu t Test. Engle-Granger co-integration test core integration was used to determine if there is co-integration for the model. And Simple Linear Regression Analysis was used in testing the impact of federal government expenditure in education on labour productivity and economic growth.

3.1 Model Specification

The models for this research study are stated as follows:

$$LBP_t = \alpha_0 + \alpha_1 GEE_t + \varepsilon_t \quad \dots (1)$$

$$GDP_t = \beta_0 + \beta_1 GEE_t + \mu_t \quad \dots (2)$$

$$GDP_t = \beta_0 + \beta_1 LBP_t + \mu_t \quad \dots (3)$$

Where:

LBP_t = Labor productivity at time t

GEE_t = Government expenditure on education at time t

GDP_t = Gross Domestic Product of Nigeria which measure economic growth at time t

t = the time period chosen for this study from 2006-2015.

β_0 and α_0 = the constant term from models 1 and 3

β_1 and α_1 = slopes of the independent variables. α_1 and β_1 are expected to be > 0

μ_t and ε_t = the error term. It captures other variable not mentioned in the models.

4.0 RESULTS

4.1 Pre-Analyses Test

Table 2: Summary of Levin, Lin & Chu t Test

Variables	Status of Data at level	Status of Data at First Difference
LBP, GEE and GDP	Levin, Lin & Chu t: 3.05884 P-value: 0.9989	Levin, Lin & Chu t: -2.03727 P-value: 0.0208

Source: Eview

Table 2 shows the unit root was tested using the Levin, Lin & Chu t method. The result of the unit root test shows that the P-value 0.0208 is lower than 0.05 level of significance. This indicated that the variables are stationary at first difference and co-integrating of the order of $I(1)$.

Table 3: Co-integration result

Date: 10/07/17 Time: 13:32

Series: LBP GEE GDP

Sample: 2006 2015

Included observations: 10

Null hypothesis: Series are not cointegrated

Cointegrating equation deterministics: C

Automatic lags specification based on Schwarz criterion (maxlag=1)

Dependent	tau-statistic	Prob.*	z-statistic	Prob.*
LBP	-2.533617	0.5259	-24.12083	0.0000
GEE	-2.884810	0.3956	-21.54426	0.0000
GDP	-6.659931	0.0091	-126.7124	0.0000

*MacKinnon (1996) p-values.

Warning: p-values may not be accurate for fewer than 20 observations.

Intermediate Results:

	LBP	GEE	GDP
Rho – 1	-1.048218	-1.018521	-2.691151
Rho S.E.	0.413724	0.353063	0.404081
Residual variance	2984.109	5.06E-06	7.98E+16
Long-run residual variance	24689.73	3.54E-05	2.76E+18
Number of lags	1	1	1
Number of observations	8	8	8
Number of stochastic trends**	3	3	3

**Number of stochastic trends in asymptotic distribution

Table 3 shows the results of Engle-Granger co-integration test. The p-value LBP, GEE and GDP are 0.0000 respectively. It shows that there is at least one co-integrating equation hence, indicating that there is co-integration for the model.

Table 4: Regression result for relationship between Government expenditure on education and Labour Productivity

Dependent Variable: LBP

Method: Least Squares

Date: 10/07/17 Time: 12:26

Sample: 2006 2015

Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GEE	0.002853	0.002190	1.302813	0.2289
C	15919.40	662.2267	24.03920	0.0000
R-squared	0.175030	Mean dependent var		16315.40
Adjusted R-squared	0.071909	S.D. dependent var		1931.255
S.E. of regression	1860.522	Akaike info criterion		18.07196
Sum squared resid	27692349	Schwarz criterion		18.13248
Log likelihood	-88.35979	Hannan-Quinn criter.		18.00557
F-statistic	1.697321	Durbin-Watson stat		0.441031
Prob(F-statistic)	0.228887			

Source: Researcher's computation with Eviews 8 Output

Table 4 shows the regression analysis between labour productivity and government expenditure on education.

The value of the intercept 15919.40 is the predicted value of LBP if the independent variables are equal to zero.

Government expenditure on education (GEE) has a coefficient value of $\beta_1 = 0.002853$, t-test = 1.3 and P-value of 0.2289. The value indicated that a positive and insignificant relationship exist between government expenditure on education and labour productivity in Nigeria. This means that the federal government expenditure in education in Nigeria as at the time of this

study has not adequately translated into higher productivity. This is because increase in government expenditure on education only led to a minute increase in the productivity level of labour in Nigeria by 0.2%.

The results of table 4 reveal that the p-value of the coefficient of Government expenditure on education (GEE) is 0.2289. Since the P-value is greater than 0.05 (i.e. $0.05 < 0.2289$). The rule is that if the p-value < 0.05 level of significance, reject the null hypothesis and accept the alternate hypothesis. On the other hand if the p-value is > 0.05 . Therefore, Government expenditure on education does not have significant impact on labour productivity in Nigeria.

Table 5: Regression result for relationship between Government expenditure on education and Economic growth

Dependent Variable: GDP

Method: Least Squares

Date: 10/07/17 Time: 12:24

Sample: 2006 2015

Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GEE	0.000126	0.000127	0.994959	0.3489
C	230.9927	38.39311	6.016513	0.0003
R-squared	0.110117	Mean dependent var		248.5260
Adjusted R-squared	-0.001119	S.D. dependent var		107.8050
S.E. of regression	107.8652	Akaike info criterion		12.37650
Sum squared resid	93079.28	Schwarz criterion		12.43702
Log likelihood	-59.88249	Hannan-Quinn criter.		12.31011
F-statistic	0.989944	Durbin-Watson stat		0.533715
Prob(F-statistic)	0.348894			

Table 5 shows the result regression analysis between economic and government expenditure on education. The coefficient of determination $r^2 = 0.110$ shows an 11% contribution of government expenditure and economic growth in Nigeria.

The value of the intercept 230.99 is the predicted value of GDP if all independent variable is equal to zero.

Government expenditure on education (GEE) has a coefficient value of $\beta_1 = 0.000126$, t-test = 0.994 and P-value of 0.3489. The value indicated that a positive and an insignificant relationship exist between government expenditure on education and GDP in Nigeria. This implies that expenditure in education has not sufficiently brought about a significant increase in economic growth as at the time of this study.

The result of table 5 reveals that the p-value of the coefficient of Government expenditure on education (GEE) is 0.3489. Since the P-value is greater than 0.05 (i.e. $0.05 < 0.3489$),

therefore, Government expenditure on education does not have significant impact on economic growth in Nigeria.

Table 6: Regression results for relationship between Labour productivity and economic growth in Nigeria

Dependent Variable: GDP

Method: Least Squares

Date: 10/07/17 Time: 22:59

Sample: 2006 2015

Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LBP	61.35784	47.09644	1.302813	0.2289
C	-862257.7	773227.0	-1.115142	0.2972
R-squared	0.175030	Mean dependent var	138820.0	
Adjusted R-squared	0.071909	S.D. dependent var	283239.3	
S.E. of regression	272865.7	Akaike info criterion	28.04820	
Sum squared resid	5.96E+11	Schwarz criterion	28.10872	
Log likelihood	-138.2410	Hannan-Quinn criter.	27.98182	
F-statistic	1.697321	Durbin-Watson stat	1.317505	
Prob(F-statistic)	0.228887			

Table 6 shows the result regression analysis between economic growth and labour productivity. The coefficient of determination $r^2 = 0.1750$ shows a 17.5% contribution of labour productivity to economic growth in Nigeria.

The value of the intercept -862257.7 is the predicted value of GDP if all independent variable is equal to zero.

Labour productivity (LBP) has a coefficient value of $\beta_1 = 61.35784$, t-test = 1.302813 and P-value of 0.2289. The value indicated that a positive and an insignificant relationship exist between labour productivity and GDP in Nigeria. This implies that labour productivity has not sufficiently brought about a significant increase in economic growth as at the time of this study.

The results of table 6 reveal that the p-value of the coefficient of labour productivity (LBP) is 0.2289. Since the P-value is greater than 0.05 (i.e. $0.05 < 0.2289$), it means that labour productivity does not have significant impact on economic growth in Nigeria.

5. DISCUSSION

From hypothesis one which seeks to establish the relationship between Government expenditure on education and labour productivity in Nigeria. The result of the regression analysis indicated that there exists a positive but insignificant relationship. Given that the null hypothesis is upheld, it implies that Government expenditure on education does not have significant impact on labour productivity in Nigeria. This finding is consistent with Dauda (2009) who carried out an empirical investigation on the relationship between investment in education and economic growth in Nigeria, using annual time series data from 1977 to 2007.

Who discovered an insignificant relationship between expenditure in education and labour force in the Nigerian economy. The findings have a strong implication on educational policy in Nigeria. The study seems to suggest that a concerted effort should be made by policy makers to encourage increase in educational investment in order to accelerate growth which would engender economic development.

In the case of hypothesis two which seeks to establish the relationship between Government expenditure on education and economic growth in Nigeria. The result of the regression analysis indicated that there exists a positive but insignificant relationship between government expenditure on education and labour productivity in Nigeria. Given that the null hypothesis is upheld, it implies that Government expenditure on education does not have significant impact on economic in Nigeria. This finding is consistent with the work of Nurudeen and Usman (2010) who investigated the disaggregated analysis on government expenditure and economic growth in Nigeria. Their analysis concluded that there was no significant relationship between expenditure on education and economic growth in Nigeria. However they suggested that government should increase expenditure in the educational sector since it would increase productivity and economic growth.

Hypothesis three sought to establish the relationship labour productivity on education and economic growth in Nigeria. The result of the regression analysis indicated that there exists a positive but insignificant relationship between labour productivity and economic growth in Nigeria. This finding agrees with Uma, Eboh Obidike, and Ogwuru (2013) who examined the role of industrial productivity in revamping and accelerating the Nigerian economy. They found out among others, industrial productivity did not statistically and significantly impact on the real gross domestic product.

6. CONCLUSIONS

Based on the results of this study, the research concludes that federal government expenditure on education does not have a significant impact on labour productivity in Nigeria for the period 2006 – 2015. That is, government expenditure on education does not influence labour productivity in the country. That is why there is so much inefficiency and ineffectiveness in the country.

The research also concludes that federal government expenditure on education does not have significant impact on economic growth in Nigeria during the period 2006 – 2015. In other words, government investments in education do not engendered economic growth in the country. This is in line with the earlier conclusions.

The research further concludes that there is insignificant relationship between labour productivity and economic growth in Nigeria for the period 2006 – 2015. That is, the productivity of labour during the period did not significantly influence economic growth.

RECOMMENDATIONS

Based on the conclusions of this research study, it was recommended that:

i) Federal government should ensure close monitoring of amounts allocated to the education sector to ensure that the amount expended were fully utilized as per the provisions of the budget to ensure the growth of the sector and labour productivity in the country.

ii) Since the budgetary allocation to education sector for the period studied do not have impact on economic growth, federal government and other policy makers should also make concerted effort to increase investment in education sector to boost economic growth in the

country. Budget Allocation to Education should always meet the 26% recommendation by the United Nations Program on Development (UNDP).

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APPENDICES

Table 1: Data Presentation

YEAR	LBP	GDP	GEE
2006	13,140	18,564.59	119.02
2007	13,881	20,657.32	150.78
2008	14,567	24,296.33	163.98
2009	15,474	24,794.24	137.12
2010	16,571	54,612.26	170.80
2011	17,271	62,980.40	335.80
2012	17,528	71,713.94	348.40
2013	17,954	80,092.56	390.42
2014	18,609	89,043.62	343.75
2015	18,159	941,444.96	325.19

SOURCE: Total Economy Database™ - Output, Labor and Labor Productivity, 2006-2015 (Adjusted version)

Null Hypothesis: Unit root (common unit root process)

Series: LBP, GEE, GDP

Date: 01/11/17 Time: 11:30

Sample: 2006 2015

Exogenous variables: None

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 0

Newey-West automatic bandwidth selection and Bartlett kernel

Total (balanced) observations: 27

Cross-sections included: 3

Method	Statistic	Prob.**
	3.0588	
Levin, Lin & Chu t*	4	0.9989

** Probabilities are computed assuming asymptotic normality

Null Hypothesis: Unit root (common unit root process)
Series: LBP, GEE, GDP
Date: 01/11/17 Time: 11:19
Sample: 2006 2015
Exogenous variables: None
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 24
Cross-sections included: 3

Method	Statistic	Prob.**
Levin, Lin & Chu t*	2.03727	0.0208

** Probabilities are computed assuming asymptotic normality