THE NIGERIAN GOVERNMENT EXPENDITURE ON HUMAN CAPITAL DEVELOPMENT: AN EFFICIENCY ANALYSIS

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ABSTRACT

This study investigates the Nigerian government Expenditure on Human Capital Development. The level of human capital development, which is a reflection of the level of health and education of a nation affect the level of economic activities in that nation. In view of the foregoing, this study seeks to evaluate how efficient government spending on human capital development in Nigeria has been with particular emphasis on the education component of human capital development. The unit root test was conducted to determine whether the variables are stationary or not using Phillip Peron test. The Phillip Peron test was used to efficiently account for the stochastic trends in the data series. In order to capture the efficiency of government expenditure on human capital development in Nigeria the data analysis was conducted using Data Envelopment Analysis involving Input Oriented Variable Return to Scale. The findings of the study reveal that there has been significant reduction in the efficiency of government expenditure since 1990 up till 2011 which has been on decreasing level. This result therefore could be evidenced from the poor quality and output experienced in the Nigerian education sector. It is therefore recommended that effort should be made to encourage, promote self-dedication, commitment and service delivery in order to improve on the quality of educational output in Nigeria in terms of quality of human capital and capacity building.
Key Words: Education, Efficiency, Expenditure, Government, Nigeria

1.Introduction

There is a general consensus amongst economic growth and development scholars that a nation's human capital development is a fundamental factor in determining its wealth and the quality of life of its citizens. Indeed, current approaches to economic development places high premium on purposeful development of the labour force of nations in order to accomplish broad economic growth and development—increase production, full employment, and reduction in poverty. Oluwatobi & Ogunrinola (2011) cited Adam Smith's 1776 treaties on the wealth of nations in defining human capital as the acquired and useful abilities of all inhabitants or members of a society. In the words of Ilegbinosa (2013), human capital is the inherited and acquired abilities of labour with education being the primary source of acquiring these abilities.

It follows therefore, that education and training are pivotal instruments in the development of the human capital stock of any Nation. From the standpoint of Development Economists, human capital consists of education, health, and other human abilities that can enhance productivity. Lawanson (2009) points out that health and education collectively enhance the productivity of individual members of society. According to Schultz (1961) as cited by Ijaiya and Ijaiya (2004) there are five ways human capital can be developed- through health care and facilities, on the job training, formally organized education at the elementary, secondary and higher levels, and study programmes for adults. The fifth, being the migration of individuals and families to adjust to changing job opportunities. In underscoring the vital role of education in human capital development, Jhinger, (2005) argues that in a narrow sense, expenditure on human capital development is an investment in education, but in a broad sense includes expenditure on health and social services in general.

1.1Statement of the Problem

Available record shows that the Nigerian education sector has consistently received less allocation than advocated by UNESCO. The standard funding requirement for education prescribed by this UN agency is that every country should allocate at least 26 percent of its annual budget to its education sector. On the average, Nigeria spends less than nine per cent of its annual budget on education. Even this paltry amount does not seem to be efficiently utilized in funding education in the country. The country's educational system is beset with a lot of problems like school closure occasioned by teachers and lecturers strike

As Nigeria strives to be in the league of the first twenty most developed economies of the world by 2020, it is crucial at this point that government's efforts at developing sufficient skilled manpower to meet the political, social, institutional, technological, and economic demands of vision 2020 be subjected to efficiency evaluation, particularly in the education sector. Most of the past studies on Nigeria's human capital development focused on its impact on economic growth and development. However, very few studies were conducted to assess the efficiency of government expenditure on human capital development.

1.1.1.Objective of the Study

In view of the foregoing, this study seeks to evaluate how efficient government spending on human capital development in Nigeria has been with particular emphasis on the education component of human capital development. The paper is presented in five parts: section one above introduces the subject matter of the paper and the objective of the paper. Some of the relevant literature pertaining to the paper's subject matter is reviewed in part two. Part three deals with the study's methods, while the data analysis of the paper is done in part four. In section five, the findings and recommendation of the paper is discussed.

2. Literature Review

In recent times, particularly in western countries, education is considered as an economic device that is as human capital. According to Fitzsimons (1999), human capital theory is the most influential economic theory of western education, setting the framework for government policies since the early 1960s. In Nigeria, the same understanding has become attached to education as a tool for improving workforce skills, enterprise, initiative, adaptability, and attitudes. It was Habison (1973) who noted that human beings are the active agents who accumulate capital, exploit natural resources, build social, economic and political organizations, as well as the drivers of national development.

According to Ilegbinosa (2013), the accumulation of human capital by countries is seen as an investment decision. He argues that while investment in human capital has been a major source of individual, communal and national economic growth in advanced countries, the same cannot be said as the experience in less developed countries, like Nigeria, where the human development index have remained low for several decades.

2.1 Nigeria's Human Capital Development Policy

Nigeria is relatively characterized by economic backwardness which manifest itself in low investment in human capital, low labour efficiency, factor immobility, limited specialization in occupation and in trade, a deficient supply of entrepreneurship, traditional and social institutions that minimize the incentives for economic change (Ilegbinosa, 2013). The slow growth in investment in human capital, according to Ilegbinosa has severe restrains on progress. However, since independence, the country has increased her effort aimed at increasing investment in human capital.

In Nigeria, as in other countries, the government plays a major role in the labour market and by extension the nation's human capital development. According to Ogunjiuba and Adeniyi (2005) the three tiers of government are involved in the regulation and control of Nigeria's educational system. Presently, education at the tertiary level is funded and run by the Federal government some states governments, private individuals and organizations. The National policy on education (NPE, 1988), as cited in Adetoso, Akesinro & Oladejo (2012), articulated the importance of higher education in Nigeria's national development to include:

- Contribute to national development through high level manpower training
- Develop and inculcate proper values for the survival of the individual and the society
- Promote and encourage scholarship and community service
- Forge and cement national unity
- Promote national and international understanding and interaction
- Development of individual intellectual capacity to understand and appreciate their local and external environments

Adetoso et al (2012) in reference to Lawanson (2009) noted that the aforementioned set goals are expected to be achieved by tertiary institutions through teaching, research and development, sustainable staff development programme, generation and dissemination of knowledge and variety of modes of programmes. They further noted that the National Economic Empowerment and Development Strategy (NEEDS) stipulated an increase in government's budgetary allocation to health and education from 8% to 10% between 2004 to 2007 as a strategic impetus to Nigeria's human capital development efforts at national development and poverty reduction. This provision in the NEEDS document is aimed at addressing the critical issue of improved education infrastructure enlarged institutional capacity to produce quality manpower and foster a more conducive school environment. (Adetoso et al, 2012).

Available record shows that the Nigerian education sector has consistently received less allocation than advocated by UNESCO. The standard funding requirement for education prescribed by this UN agency is that every country should allocate at least 26 percent of its annual budget to its education sector. On the average, Nigeria spends less than nine per cent of its annual budget on education when smaller African nations like Botswana spend 19.0%; Swaziland, 24.6%; Lesotho, 17.0%; South Africa, 25.8%; Cote d'Ivoire, 30.0%; Burkina Faso, 16.8%; Ghana, 31%; Kenya, 23.0%; Uganda, 27.0%; Tunisia, 17.0%; and Morocco, 17.7% (Kupoluyi, 2012) .

Education policy issues continue to be a question of critical concern in developing countries like Nigeria, particularly issues bordering on adequate funding. The relationship between education and development has been established, such that education is now globally accepted as a key development index and it is in appreciation of this significance that the Nigerian government like other national governments has developed extensive educational policies aimed at granting her citizens access to education (Odukoya, 2009).

2.1.1.The Nigeria Human Capital Development Index

The 2013 Human Development Report of the United Nations Development Programme shows that Nigeria's human development index increased, but her ranking continued to be at the low levels of human development. The report showed that, Nigeria was ranked 153 out of 186 countries that were ranked. Comparatively, Brazil, China, and India were respectively ranked amongst the high and medium human development indexed countries. The UNDP report also noted that by 2020, according to projections , the combined economic output of these three leading developing countries alone—Brazil, China and India— will surpass the aggregate production of Canada, France, Germany, Italy, the United Kingdom and the United States.

A key message contained in the UNDP's Human Development Reports, however is that economic growth alone does not automatically translate into human development progress. Pro-poor policies and significant investments in people's capabilities through a focus on education, nutrition, health and employment skills can expand access to decent work and provide for sustained progress. These three countries, which were ranked low in human development index alongside Nigeria a few years back are now emerging alongside the developed countries as breeding grounds for technical innovation and creative entrepreneurship and have built capabilities to efficiently manufacture complex products for developed countries' markets (UNDP, 2013). The human development index stride of these countries is traceable to efficient education reforms amongst other factors.

The efficiency of government's expenditure on human capital development may be evaluated on several fronts. Nwagwu (2007) noted that the low ebb of science and technology know-how in Nigeria as well as the absence of relative productive vibrancy in the economy are fall outs of the inability of the educational system at all levels to equip beneficiaries with requisite skills for meaningful engagement in the place of work. This development is due to improper implementation of the national education policy and funding crisis.

Moreover, a 2006 education analysis report indicated that Nigeria's literacy rate is 57 percent, while unqualified teachers in the educational system are 49 percent. The report also pointed out an acute shortage of infrastructure and facilities at all levels (Federal Ministry of Education, 2006; Igbuzor, 2006). It is evident that there are gaps in manpower supply in several priority sectors of the economy, which suggests that there is inefficiency in government's expenditure on human capital development.

Nigeria is the most populous country in Africa and the largest economy in the continent (based on the 2014 Rebased GDP) with a population of over 160 million and is endowed with diverse human and material resources. But her unemployment rates have been steadily increasing and younger Nigerians are encountering increasing difficulty in finding gainful employment. The official unemployment rate has steadily increased from 12% of the working age population in 2006 to 24% in 2011 (World Bank, 2013). This trend is believed to be on the increase according to the World Bank report. Adetoso et al (2012) considers this development as a colossal waste of resources and attributed it to government's undue emphasis on tertiary education to the neglect of primary and secondary education, which has led to imbalance and inefficient expenditure on education.

3. Methodology

3.1. MODEL SPECIFICATION

The model for this study would be drawn from the augmented Solow's growth model as modified by Mankiw, Romer and Weil (1992) which included human capital in their model.

$Y = AK^{\alpha}(hL)^{\beta}$; when expanded

$Y = f(A, K, hL)$ where;

Y = Output

K = Capital

H = human capital

L = Labour

In econometric form

$Y = AK^{\alpha}(hL)^{\beta}U$

U = Error term

The model is not linear so in order to transform it to a linear model we introduce log forms which would transform the model into;

$\text{Log } Y = \alpha_0 + \alpha \log K + \beta \log h(L) + V$

Where, $\log \alpha_0 = \log H$

$\qquad \beta = \log h L$

To make the model significant to our study, we modified the model to include other variables as human development index (HDI), government capital expenditure on education (GCEE) and government recurrent expenditure on education (GREE), government capital expenditure on information and communication technology (GCEICT). The three variables were included to capture government investment in human capital development.

Conducting a step-wise regression so that;

$$HDI = a_0 + a_1\ GREE + a_2\ GCEE + a_3\ LIR + a_4\ GCEICT + U_{i\,t}\text{----------------------- }1$$

Where,

HDI= Human Development Index

LIR= Literacy Rate

GREE= Government Recurrent Expenditure on Education

GCEE= Government Capital Expenditure on Education

GCEICT= Government Capital Expenditure on Information and Communication Technology

a_0, a_1, a_2, a_3, a_4 are parameters

b_0, b_1, b_2, b_3 are also parameters

U_{it} = Error term

For estimation purposes, we can re-specify equation 1 into a log-linear functional form.

$$LNHDI = a_0 + a_1\ LNREE + a_2\ LNCEE + a_3\ LIR + a_4\ LNCEICT + U_i$$

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$$lnHDI = a_0 + a_1\ lnGREE + a_2\ lnGCEE + a_3\ LIR + a_{4l}lnGCEICT + U_{it}$$

It is predicted that $a_0, a_1, a_2, a_3, a_4 > 0$

a_1 = Federal Government Recurrent Expenditure on Education

a_2 = Federal Government Capital Expenditure on Education

a_3 = Literacy Rate

a_4 = Federal Government Capital Expenditure on Information and Communication Technology

This means the parameters have a positive relationship with the human development index. A unit change in either of the independent variables will bring about a proportionate change in the human development index ceteris paribus.
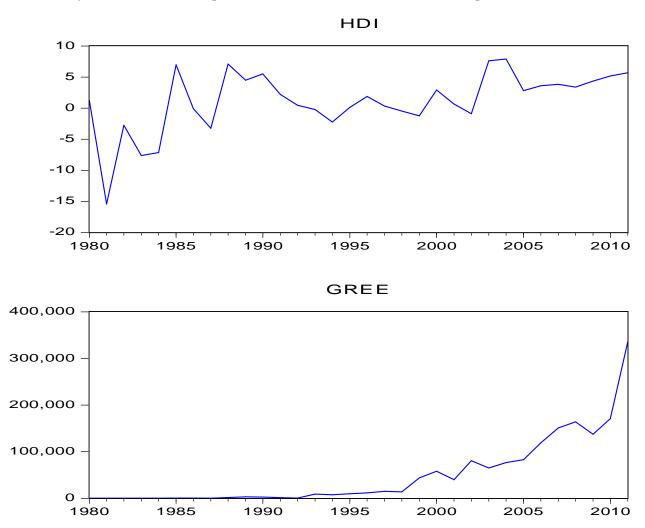
4. Data Analysis and Interpretation

This study is to evaluate the efficiency of the Nigerian government expenditure on human capital development. Under this section, an empirical analysis of the model presented is carried out; the results will be interpreted and explained. This part, therefore, consists of trend analysis, presentation and discussion of result.

Figure 1

Trend Analysis of Human Development Index and Government Recurrent Expenditure

 The Figure 1 presented above reveals the pattern of change over time in per capita and public expenditure on education used for the study. The trend and pattern in per capita income (HDI) expressed as GDP per capita growth indicates significant fluctuations between 1980 and 1990 while the government expenditure on education indicates no significant improvement within these periods as shown the horizontal thin curve of GREE between 1995 and 2000. Between 1990 and 1995 the human development index (HDI) proxy by GDP per capital growth shows a significant sharp decrease from 5.5 to-1.24 which latter increased to 2.99 in 2000 while government expenditure witnessed a slow upward movement as seen from the upward sloping of the graph of GREE in the graph above. Figure 1 as presented above reveals significant upward slope curve in government expenditure between 2005 and 2010.   There was significant increase in government expenditure on education which rose significantly from 8041.5m in 2005 to 90,027.9m in 2009 and later declined to 42,406.031m and finally to 13,103.12m in 2011. Also the GDP per capita growth increased significantly up to 7.6 and 7.8 between 2003 and 2004 and 2.82 in 2005 to 4.35 in 2009 and eventually reached 5.17 as at 2010 as shown in the upward slope movement of the graph of HDI above.

4.1 Unit Root Test

Table 1 Unit Root Result

Variable	PP Tests at levels	Remark	PP Tests at levels	Remark
HDI	-3.9151	Stationary	-12.9579	Stationary
LGREE	-0.3116	Non stationary	-12.4681	Stationary
LGCEE	-0.3339	Non stationary	-5.7483	Stationary
LLIR	-0.5536	Non Stationary	-3.9157	Stationary
LGCEICT	-1.2730	Non stationary	-8.2350	Stationary

NB: The Critical value for PP test at levels is at -3.6617 while the critical value for first difference is -3.6702

The unit root test was conducted to determine whether the variables are stationary or not using Phillip Peron test. The Phillip Peron test was used to efficiently account for the stochastic trends in the data series. The result of the unit root test shows that most of the series were not stationary at levels except for Human Development Index (HDI), hence the null hypothesis of no co integration was accepted for the variables at levels, and hence they were differenced at first difference to attain a stationary process.

4.1.1. . Co integration Test

Table 2 Co Integration Result

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.624258	73.34762	69.81889	0.0254
At most 1	0.506464	43.98202	47.85613	0.1104
At most 2	0.388246	22.79724	29.79707	0.2562
At most 3	0.202271	8.054478	15.49471	0.4596
At most 4	0.041605	1.274873	3.841466	0.2589

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.624258	29.36561	33.87687	0.1573
At most 1	0.506464	21.18477	27.58434	0.2652
At most 2	0.388246	14.74276	21.13162	0.3073
At most 3	0.202271	6.779605	14.26460	0.5155
At most 4	0.041605	1.274873	3.841466	0.2589

The evidence of the stationarity of two or more series of different levels of integration I (0) and one I (1)), is a necessary procedure is to conduct a linear combination of these series to determine whether these series are co integrated or not. Hence this study employs Johansen and Jusulis (1992) multivariate co integration procedure to verify if there is a long run relationship among the variables of the model as presented in table 2 above. The result of the Johansen co integration reveals one co integrated series at 1 percent significance level using trace test. Thus the null hypothesis of no co integration was rejected for the trace statistics.

4.1.1.1. Normalized Co integration relationship

Table 3. Co integrating
Equation(s):   Log likelihood   -71.37035

Normalized co integrating coefficients (standard error in parentheses)

HDI	LGREE	LGCEE	LLIR	LGREICT
1.000000	10.37657	6.090825	-132.3180	-5.712937
	(4.77780)	(4.78349)	(24.5602)	(3.64230)
T-Statistic	[2.18732]	[1.2733]	[-5.3875]	[-1.5684]

Table 3 indicates the normalized co integration indicates the co-integrating co-efficient in the normalized co-integration equation. It further reveals the statistically significant variables, the sign and magnitude of the co-efficient in the co integrating vectors. The result of the normalized co integration co-efficient of this study indicates that two normalized co integrating coefficients (LGREE and LLIR) are significant while two of the co integrating co efficient (LGCE and LGRECT) was not significant. The result of the normalized co integrating co efficient for government recurrent expenditure indicates significant positive effect on GDP per capita growth in the long run while government recurrent expenditure on communication services indicates a no significant negative relationship on GDP per capita growth in the long run. The literacy rate captured by education enrolment shows a significant negative relationship with GDP per capita in the long run

4.2 Efficiency of Government Expenditure

In order to capture the efficiency of government expenditure on human capital development in Nigeria the data analysis was conducted using data envelopment analysis involving input oriented variables return to scale. The result of the analysis is as shown in table 5 (see Appendix) below;

The result of the data shows that government expenditure on education was mainly efficient in 1980, 1981, 1983, and 1984 till 1988 except for 1986 as indicated by the co efficient for efficiency1. The co efficient for efficient parameter 1 implies significant result where expenditure on education was captured as being efficient. The result of efficiency in government expenditure reduced continuously from 1990 till as shown 2011 in table 5 in the appendix .This implies that there has been significant reduction in the efficiency of government expenditure since 1990 up till 2011 which has been on decreasing measure. This result therefore could be evidenced from the poor quality and output experienced in the Nigerian education sector. The result of the analysis also portrays the poor condition of the education sector in Nigeria and the need for more government attention to be given to the education sector through increase allocation and provision of more basic infrastructural to resuscitate the sector.

5. Recommendation

From the empirical result observed from the analysis of the normalized co-integration, it is observed that literacy rate as captured by education enrolment has inverse relationship with human capital development. This could be explained by the low efficiency result as obtained by the data development analysis. This shows that Government expenditure on education has a decreasing effect on education performance hence policies that relate to educational improvement should be revisited. The formulation of these policies should take proper consideration on improving on the budgetary allocation to the education sector. Also, more incentives should be provided to the teachers and trainers involved in human capital development in the education sector. This will help to encourage, promote self-dedication, commitment and service delivery. In addition improve on the quality of educational output in Nigeria in terms of quality of human capital and capacity building leading to improvement on the performance of the education sector of Nigeria as it relates to efficiency in government expenditure and effective learning process. Moreover, the government should make sure that funding to its education sector should be above the UNESCO minimum benchmark.

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Appendix

TABLE 4 ANNUAL DATA USED FOR ANALYSIS

YEAR	(PENROL)	GREE	GCE	GREICT	(percapI)HDI
1980	1.21E+07	155.81	10,163.4	27.30	1.28253804
1981	1.38E+07	165.43	6,567.0	32.42	-15.43476892
1982	1.43E+07	187.93	6,417.2	36.82	-2.765025754
1983	1.47E+07	162.15	4,885.7	31.77	-7.62849592
1984	1.44E+07	198.90	4,100.1	38.97	-7.156640205
1985	1.30E+07	258.60	5,464.7	50.67	6.973111882
1986	1.29E+07	262.71	8,526.8	51.48	-0.081091727
1987	1.27E+07	225.01	6,372.5	180.58	-3.234865494
1988	1.27E+07	1,458.80	8,340.1	227.20	7.093806836
1989	1.36E+07	3,011.80	15,034.1	295.20	4.493429398
1990	1.38E+07	2,402.80	24,048.6	287.80	5.513564574
1991	1.48E+07	1,256.30	28,340.9	238.60	2.205406373
1992	1.59E+07	291.30	39,763.3	552.39	0.4482307
1993	1.62E+07	8,882.38	54,501.8	2,027.01	-0.222554925
1994	1.57E+07	7,382.74	70,918.3	445.50	-2.248559676
1995	1.41E+07	9,746.40	121,138.3	1,080.90	0.112943714
1996	15510000	11,496.15	212,926.3	2,068.47	1.888692575
1997	17061000	14,853.54	269,651.7	1,579.11	0.338587328
1998	1.79E+07	13,589.49	309,015.6	1,921.49	-0.464682643
1999	1.92E+07	43,610.65	498,027.6	11,121.78	-1.244181943
2000	1.90E+07	57,956.64	239,450.9	3,034.68	2.92527517
2001	1.98E+07	39,882.60	438,696.5	33,933.40	0.645720699
2002	2.06E+07	80,530.88	321,378.1	29,387.12	-0.897438756
2003	2.14E+07	64,782.15	241,688.3	22,678.99	7.618782005
2004	2.21E+07	76,527.65	351,250.0	8,072.25	7.897958701
2005	2.29E+07	82,797.11	519,470.0	8,041.51	2.819034113
2006	2.15E+07	119,017.97	552,385.8	9,772.31	3.595288284
2007	2.00E+07	150,779.27	759,281.2	32,160.92	3.832950366
2008	2.01E+07	163,977.47	960,890.1	67,385.51	3.386858856
2009	2.07E+07	137,156.62	1,152,796.5	90,027.93	4.3526073
2010	22770000	170,770.56	883,870.0	42,406.03	5.171088946
2011	25047000	335,837.89	918,548.9	13,103.12	5.68819783

Table 5 Showing the Data Envelopment Analysis

DMU No.	DMU Name	Input-Oriented VRS Efficiency	Benchmarks							
1	1980	1.00000	1.000	1980.000						
2	1981	1.00000	1.000	1981.000						
3	1982	0.95830	0.316	1980.000	0.146	1983.000	0.530	1984.000	0.007	1987.000
4	1983	1.00000	1.000	1983.000						
5	1984	1.00000	1.000	1984.000						
6	1985	1.00000	1.000	1985.000						
7	1986	0.96570	0.571	1980.000	0.334	1985.000	0.095	1987.000		
8	1987	1.00000	1.000	1987.000						
9	1988	1.00000	1.000	1988.000						
10	1989	0.91408	0.447	1980.000	0.553	1988.000				
11	1990	0.90847	0.272	1980.000	0.728	1988.000				
12	1991	0.82401	0.841	1980.000	0.159	1988.000				
13	1992	0.76101	1.000	1980.000						
14	1993	0.74691	1.000	1980.000						
15	1994	0.77705	0.834	1980.000	0.166	1988.000				
16	1995	0.85816	1.000	1980.000						
17	1996	0.78418	0.896	1980.000	0.104	1988.000				
18	1997	0.70922	1.000	1980.000						
19	1998	0.67598	1.000	1980.000						
20	1999	0.63021	1.000	1980.000						
21	2000	0.64577	0.717	1980.000	0.283	1988.000				
22	2001	0.61111	1.000	1980.000						
23	2002	0.58738	1.000	1980.000						
24	2003	0.59669	0.063	1981.000	0.937	1988.000				
25	2004	0.57946	0.096	1981.000	0.904	1988.000				
26	2005	0.53531	0.736	1980.000	0.264	1988.000				
27	2006	0.57390	0.602	1980.000	0.398	1988.000				
28	2007	0.61817	0.561	1980.000	0.439	1988.000				
29	2008	0.61280	0.638	1980.000	0.362	1988.000				
30	2009	0.59985	0.472	1980.000	0.528	1988.000				
31	2010	0.54903	0.331	1980.000	0.669	1988.000				
32	2011	0.50125	0.242	1980.000	0.758	1988.000				