

A CHANGE-IN-BASE PERIOD INDEX FOR ASSESSING PRIMARY SCHOOL ENROLMENT IN ADAMAWA STATE

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Abstract

The Universal Basic education (UBE) Programme and the seven point agenda, if carefully implemented will bring succor to the primary and junior secondary schools in Nigerians. This paper examined primary school enrolment in Adamawa State, in order to assess the progress of the UBE. It was discovered that the classical simple index methods did not bring out variations in enrolment clearly. Hence an index was constructed with a change in the base period year after year. This method was used to assessed primary school enrolment in Adamawa State, the method reveals that enrolment did not actually increase as shown by the classical simple index number method; rather enrolment fluctuates year after year.

Introduction

Index number refers to a statistical techniques used for the measure of change in the level of production, level of business activities, price of commodities that are exchanged for money in a given geographical area over a period of time (Obasohan and Abd-Elfatai, 2005). This technique has been widely used by statisticians and non-statisticians. The comparison can be across regions or time period.

Index numbers are divided into two major types; the un-weighted and the weighted indexes. The un-weighted index includes;

(1) simple index number, otherwise known as relatives (price relatives, value relatives, etc.)

$$\text{i.e. } \frac{p_t}{p_o} \times 100 \quad (1)$$

where, p_t - price or value at time t, p_o = price (value) at the base period (2) simple aggregate index –the total of commodity prices (value) in the given year as a percentage of total prices (value) in the base year.

$$\text{i.e. } \frac{\sum p_t}{\sum p_o} \times 100 \quad (2)$$

(3) simple average of relatives index- here the averaging procedure may be the arithmetic mean, geometric mean, harmonic mean, median etc. using the arithmetic mean, for example, we would have;

$$\frac{\sum p_t/p_o}{N} \times 100 \quad (3)$$

(Spiegel, 2005)

The weighted indexes includes; the Laspeyre's and Paasche's methods. The Laspeyre's uses quantity at the base year as weight, while the Paasche uses the quantities of the current period as weight. Other methods are the Fisher's ideal index and the Marshall-Edgeworth Index. All these methods use a static base period. It has been advised that, the base year should not be chosen too far from the period under consideration, (Obasohan and Abd-Elfatai, 2005), but that is vague. Others suggested that the base period should be within a period of economic stability, (Abdulkadir, 2009) which also is difficult to ascertain. According to Marriot (1990), the important features in the construction of index number are its coverage, base period, weighting system and method of averaging observations. The base period is the consideration here.

Method

This paper proposes an index which the base period will not be static but dynamic. The proposed method is similar to the Chain base indices (Gupta and Gupta, 2005), other base period methods describe by Gupta and Gupta (2005) are base shifting, splicing, and deflating. The proposed method is based on the understanding that for some situations, the change may not be affected by

circumstances too far from the period under consideration. The method developed is based on the thought that index number can be used to measure progress of government policies, where budgetary allocations are expended year after year, and certain developmental projects are progressive and cumulative, hence choosing a static reference point may not allow for a proper assessment of the situation. More so, Markov states that, “the conditional probability distribution for a state at any future instant, given the present state is unaffected by any additional knowledge of the past history of the system (Marriot, 1990).

The proposed index simply replacing p_0 in the classical methods by p_{t-1} , for instance, the simple index (price or value relatives) can be written as;

$$\frac{p_t}{p_{t-1}} \times 100 \tag{4}$$

The proposed method (4) was used side by side with the classical simple index (1) to assess the primary school enrolment in Adamawa State under the UBE. The data was collected from the Statistics and Research Unit of the Adamawa State Universal Basic Education Board (ADSUBEB).

Data Analysis

Table 1 was analyzed using the simple index (the relatives) with 2002 as the reference point (base period). In Table 2 the base period was shifted to 2004. The proposed Change-in-base-period method was used in Table 3. Comparison was made thereafter.

Table 1: Simple index using year 2002 as the base year

L.G.A's	2003/02	2004/02	2005/02	2006/02	2007/02	2008/02
Demsa	101.8311	115.5776	122.2025	113.6558	112.7964	108.8836
Fufore	101.5564	122.8815	143.8338	137.3433	127.6643	126.8212
Ganye	101.2013	115.5791	128.5688	124.203	130.3356	136.8608
Girei	103.9843	120.685	122.3386	65.32283	120.7244	116.7402
Gombi	104.2188	107.932	106.8291	95.3429	103.0245	102.9715
Guyuk	101.2572	105.2391	110.8074	98.17592	100.4343	113.4269
Hong	101.2327	101.7111	117.0546	112.2102	123.0928	127.989
Jada	106.1746	117.0736	121.1807	126.3074	129.3713	142.5671
Lamurde	89.56008	94.22528	118.4532	116.273	110.3037	118.6673
Madagali	100.4369	108.8526	110.501	107.9142	101.1717	104.2054
Maiha	102.9044	116.4116	170.5809	120.1905	169.3082	101.7645
M/belwa	104.8746	114.7634	121.3719	107.3737	115.1859	114.7953
Michika	101.1393	110.9044	114.9888	90.57196	101.3059	93.79989
Mubi North	106.3786	112.528	118.1183	98.2614	111.8068	101.4255
Mubi South	102.8215	106.0786	228.314	212.0087	172.3295	205.9994
Numan	93.7311	95.63382	110.6729	91.66457	100.7371	86.01941
Shelleng	100.5499	103.5146	108.3222	93.43885	153.7747	106.093
Song	105.6632	109.4316	99.2061	109.024	124.0182	119.4983
Toungo	108.3333	124.9071	241.8292	132.7762	161.3278	161.3045
Yola North	99.9868	100.5674	90.44163	87.1514	99.24782	88.54579
Yola South	100.1659	102.3177	101.1566	94.99709	104.8953	109.5979
TOTAL	101.7032	103.2195	116.0603	108.2296	117.8652	114.8692

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Table2: Simple index base on 2004 as the year

L.G.A's	2004/05	2006/04	2007/04	2008/04
Demsa	105.732	98.33719	97.5936	94.20821
Fufore	117.0508	111.7688	103.8922	103.2061
Ganye	111.2387	107.4615	112.7674	118.4131
Girei	101.3701	54.1267	100.0326	96.73126
Gombi	98.97818	88.33608	95.45313	95.40404
Guyuk	105.2911	93.28844	95.4344	107.7802
Hong	115.0854	110.3225	121.0221	125.8358
Jada	103.5081	107.8872	110.5042	121.7756
Lamurde	125.7127	123.399	117.0638	125.94
Madagali	101.5143	99.13793	92.94381	95.73071
Maiha	146.5325	103.2461	145.4393	87.41784
M/belwa	105.7583	93.56093	100.3681	100.0278
Michika	103.6827	81.66667	91.34521	84.57722
Mubi North	104.968	87.32177	99.35913	90.13364
Mubi South	215.231	199.86	162.4545	194.1951
Numan	115.7257	95.84953	105.3363	89.94664
Shelleng	104.6443	90.26631	148.5536	102.4908
Song	90.65583	99.62759	113.3295	109.1991
Toungo	193.6071	106.2999	129.1581	129.1396
Yola North	89.93133	86.65967	98.68784	88.04619
Yola South	98.86523	92.84525	102.5193	107.1153
TOTAL	112.4403	104.8539	114.1889	111.2864

Table 3: Indexes using on the Change-in-Base period index number

L.G.A's	2003/02	2004/03	2005/04	2006/05	2007/06	2008/07
Demsa	101.8311	113.4993	105.732	93.00608	99.24383	96.53113
Fufore	101.5564	120.9983	117.0508	95.48751	92.9527	99.33963
Ganye	101.2013	114.2072	111.2387	96.60438	104.9375	105.0065
Girei	103.9843	116.0609	101.3701	53.39512	184.812	96.69971
Gombi	104.2188	103.5628	98.97818	89.24804	108.0568	99.94858
Guyuk	101.2572	103.9325	105.2911	88.60054	102.3003	112.9364
Hong	101.2327	100.4726	115.0854	95.86141	109.6985	103.9776
Jada	106.1746	110.2652	103.5081	104.2307	102.4257	110.1999
Lamurde	89.56008	105.209	125.7127	98.15951	94.86607	107.5824
Dadagali	100.4369	108.3791	101.5143	97.65906	93.75201	102.9985
Maiha	102.9044	113.1259	146.5325	70.45954	140.8666	60.10606
M/belwa	104.8746	109.4292	105.7583	88.46672	107.2757	99.66089
Michika	101.1393	109.6552	103.6827	78.76592	111.8513	92.59075
Mubi North	106.3786	105.7807	104.968	83.18898	113.7851	90.715
Mubi South	102.8215	103.1677	215.231	92.85838	81.28415	119.5381
Numan	93.7311	102.03	115.7257	82.82478	109.8976	85.38996
Shelleng	100.5499	102.9486	104.6443	86.26012	164.5726	68.99251
Song	105.6632	103.5664	90.65583	109.8965	113.7531	96.35541
Toungo	108.3333	115.2989	193.6071	54.90497	121.5035	99.98561
Yola North	99.9868	100.5807	89.93133	96.36204	113.8798	89.21686
Yola South	100.1659	102.1482	98.86523	93.91092	110.4195	104.4831
TOTAL	101.7032	101.4909	112.4403	93.2529	108.9029	97.45818

Discussion

A close look at Table 1 to 3 will shows an apparent difference between the two methods. For instance, while Table 1 shows that there was increase in enrolment with respect to 2002 for Demsa local government area, that is; 1.80% increase, 5.58% increase, 2.20% increase, 3.66% increase, 2.70% increase and 8.88% increase for 2003-2008 respectively. Table 2 shows that there have being decrease in enrolment since the introduction of UBE in the State (5.73% increase, 1.66% decrease, 2.41% decrease, and 5.79% increase for 2005- 2008 respectively with respect to 2004). Table 3 indicates that an increase in enrolment of 1.83% for 2003 over 2002, 13.50% for 2004 over 2003 and 5.73% for 2005 over 2004, a decrease in enrolment of 6.99% for 2006 less that of 2005, 0.76% decrease in enrolment for 2007 less that of 2006 and a decrease of 3.79% for 2007 less that of 2008.

From the forgoing, it can easily be seen that enrolment have being on the decrease year after year.

Finding

It can be deduce from data analysis that the Change-in-base-period methods reveal the truth state of enrolment in Adamawa State Public primary schools more clearly. This is evident, by checking the overall total indexes, while the Table 1 and 2 seems to give an evidence of increase in enrolment, Table 3 clearly shows that enrolment have being fluctuating. Secondly, that enrolment rate in Adamawa State has being on the decrease since the inception of UBE. Table 3 shows that the overall enrolment in the State increase by 1.7% in 2003 over that of 2002 and by 1.49% in 2004 over that of 2003 these are before the UBE era. In 2005 the enrolment rate increases by 12.44% over that of 2004 and decrease the following year by 6.75%. Its increases by 8.90% in 2007 and decreases again by 2.55% the following year.

Conclusion

In this paper a change in base period index method is constructed. This method was used to assess the UBE in Adamawa State. The method was compared with the Simple Index Methods and found that the proposed method reveals enrolment is on the decrease, whereas the Simple Index shows that enrolment is on the increase.

Recommendation

Instead of holding firmly to the static base period index methods, the proposed method can be use to assess the variation of government policies and programmes, particularly in Africa where we have instability in government and government policies. This method can be extended to other Index methods. This paper reveals that we are far from achieving the objectives of UBE programme and the 7 point agenda in the area of primary school enrolment in Adamawa State. Finally, similar work should be carry out all over the country to ascertain the success of UBE and the 7 point agenda.

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