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Economic Model-Based Calculation of Per Capita Income Level in Nigeria

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Abstract
A survey carried out revealed that socio-economic human development programme (SHDP) is a major item of United Nations development agenda. The objective of the nations` development plan had always aimed to ascertain and improve quality of living (QL) worldwide. Due to inaccuracy of available population and national income data, the existing method of calculating per capita income is inadequate and does not manifest true life situation. This paper is aimed to develop alternative method of calculating per capita income level, based on details of Nigerian workers` pay package. The Nigerian population figures were classified into three economic groups of varying capabilities. The adjustment error affecting accuracy of the calculation was subjected to H-test to facilitate relevance to true life affairs.
Keywords: human development elements; pay indices; 25:75 SHDP; QL parameters; formatted figure distribution

Introduction

There is growing need for rapid improvement on quality of life (QL) of people world wide. In carrying out effective implementation of development policy, accurate population and income data and effective demographic techniques are required. A United Nations Population Fund (UNPF) sponsored television programme had once revealed that "not the number but the people is required to achieve true socio-economic development". A true welfare package is required with emphasis on accurate data and information on social, economic, occupational attributes and geographical spread of people in nation states. If emphasis is on improvements of QL, then deliberate and progressive transformation would be required to stimulate large scale and continually optimal resource utilization (see Adamu 1989). Agreeing with the statement quoted, it is required to examine number of people and to seek for alternative approach of getting very close to the people.

State of Nigerian Population Figures

The objective of carrying out national head counting exercise has always been to ascertain number of people to care for. Agreeing with Aluko 1965 and Africa 1995, head counting exercise in Nigeria marked take-off of modern trends in 1953. The 1911-1953 population figures are given (see table 1).

Table 1: Nigerian population figures 1911-1953

Region	Population Figures (`000, 000)			
	1911	1921	1931	1953
Northern	8.12	10.56	11.44	16.84
	(50.6%)	(56.41%)	(57.03%)	(55.36%)
Eastern	4.50	5.11	4.55	7.22
Western	2.15	2.17	2.95	4.60
Mid-Western	1.21	0.78	0.99	1.49
Lagos	0.07	0.10	0.13	0.27
Total-South	7.93	8.62	8.62	13.58
	(49.40%)	(42.64%)	(42.64%)	(44.64%)
Total-Nigeria	16.05	18.72	20.06	30.42

Source: Aluko S. A 1965

Subsequent 1962 post independence census was cancelled and 1963 head count figures were rejected (see Ekanem 1972). 1973 figures were out rightly rejected and the result of successful 1991 census exercise was released five years later (1996). Summary of census figures reported in Africa 1995 is given (see table 2).

Table 2: Nigerian population figures 1962-1991

Region	Population Figures (`000, 000)				
	1962	1963	1973		1991
Northern	22.01	26.78	32.00	51.38	47.26
	(48.60%)	(53.50%)	(48.85%)	(64.42%)	(53.40%)
Eastern	12.33	12.39	18.00	13.75	18.92
Western	8.10	10.28	11.00	8.92	11.91
Mid-Western	2.40	2.53	3.00	3.24	4.73
Lagos	0.45	0.68	1.50	2.47	5.69
Total-South	23.28	25.88	33.50	28.38	41.25
	(51.40%)	(46.50%)	(51.15%)	(35.58%)	(46.60%)
Total-Nigeria	45.29	55.66	65.50	79.76	88.51

Source: NPC 1998

The unaccepted pre independence census exercises were carried out every ten or more years. The result of successful 1991 census exercise provided little information on marital status by tribes and no nuptial data on Fulani tribe. It was difficult to determine marital pattern, within the same ethnic group in the rural and urban areas, from the published figures. So far, the available figures are inadequate for implementing meaningful development plans.

Alternative per Capita Income Calculation

Noting that available database is poor, individuals, governments and international bodies strive to provisionally use various combinations of interrelating social, economical, infrastructural and productivity elements to calculate per capita income level. Consider a QL scheme with basic elements of income (I_1), food(F), health(H_1), housing(H_2), education(E), infrastructure(I_2) and insurance(I_3) (see table 3).

Table 3: Coded Nigerian income package

Code	QL item	Weight	Pay index
(1)	(2)	(3)	(4)
I_1	Basic income	7	0.2500
F	Food	6	0.2140
H_1	Health	5	0.1780
H_2	Housing	4	0.1429
E	Education	3	0.1071
I_2	Infrastructure	2	0.0714
I_3	Insurance	1	0.0357

Source: Nigerian workers` pay slip

Figures in column 4 of table 3 were calculated, considering basic salary to be 25% and other allowances together to be 75%. This offers Nigeria a local scheme of human development plan (HDP) with basic-allowance ratio 25:75. It is assumed that the income earned in the private sector is similarly decomposed.

In the current year k, a Nigerian whose net income is Ni and corresponding gross income is Gi is attracted with likelihood

$$Pl = Ni/Gi \quad \ldots 1$$

At the prevailing birth rate Br and corresponding mortality rate Mr, the worker belongs to a class level with population prospect

$$PPk = 1 + Mr/Br + Er \quad \ldots 2$$

Given H-tested attribute Er, mortal-immortal factor

$$Em = Pl*Er \quad \ldots 3$$

Consequently, projected level of worker's per capital income

$$Wl = Pl *PPk \quad \ldots 4$$

It is desirable that attribute

$$Er \rightarrow 0 \quad \ldots 5$$

Note that the meanings attached to the terminologies used are slightly different from what they were before [see Aiyelabegan and Abdul-kareem 2007, Abdullateef and Mashood 2004]. The following distribution, by age and economic capability, of nations` population figures is desirable (see table 4).

Table 4: Format population distribution

Year k	Age **Range**	Population **Prospect**	Member **Description**	Economic **Capability**
	00-18	P_1Pk	children, students, apprentices	incapableaw6
	19-24	P_2Pk^*	students, apprentices	partially capable
	25-60	P_3Pk^*	actively engaged	fully capable
	Over 60	P_4Pk	retired	incapable

Application of Results

A worker on CONTIS pay package 15/09 has his per capita level calculated as follows.

Ni= N278173.20, Gi= N380180.65, Pl= Ni/Gi

= 0.7317

Considering his family history,

Br= 5, Mr= 1, Er= 0.01, PP2012= 1 + Mr/Br + Er

= 1.21

Em= Pl*Er

= 0.007317

k= 2012, Wl= Pl *PP2012

= 0.885357

= 88.5357%

Thus the worker belongs to per capita income level 88.5357. Similar calculations are applicable to other category of workers in private and public sectors. The partial overlapping observed in P_2Pk and P_3Pk is off set by adjustment to be made, such that

$P_2Pk^* = P_2Pk (1 – Em)$; $P_3Pk^* = P_3Pk (1 + Em)$ …6

Provided regular updating of population figures and QL indices is adopted, the per capita calculation being suggested is worth trying.

Conclusion

With emphasis on "not number of people but the people," improvement on quality of life and livings of the people is implied. Thus, to achieve policy objective, various governments and institutions should extend provision of basic needs to the poor, disabled and old citizens. It is recommended that the stakeholders should ensure

-effectiveness of women empowerment and poverty alleviation/eradication programmes

-that effort is geared up on enforcing human settlement policy and meaningful geographical distribution of the people

-that proper management and effective administrative, financial and delivery systems prevail in rural and poor urban areas

-that funds allocated are judiciously disbursed

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