SURMOUNTING THE CHALLENGE OF NUMBERS, SCIENCE AND TECHNOLOGY IN EDUCATIONAL POLICY DEVELOPMENT

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Abstract

Numbers basically reflect the cause and the effect of a counting endeavor that is a central object of physics or natural philosophy. Hence, the development of an educational policy follows physics as it continues to address the challenge of numbers, science and technology caused by the existence of a network of switched economies. In this paper, a counter for obtaining switched economies network tally (SENT) is developed as a means of surmounting the challenge of numbers, science and technology in educational policy development. The method employed is based on the fact that changes anticipated in an economy can be seen from the exemplary windows offered by the operational components of a switched-mode economy, the reflexive reform of educational strategy by the levels of total public financing of policy instruments, the symmetrical flows between the critic and society, and the transitive development of the Internet. In addition, the analytic shadow of reasoning offered by the application of the definition paradigm provides a SENT for the trio of subsidies, standards and cost recovery dynamics in educational policy development. The paper concludes that SENT will go a long way to enable societies to describe, predict and prescribe multiple revolutions encountered in the development of any policy meant to constructively interact with science and technology.

Keywords: Numbers, policy, development, education, modeling

1.0 Introduction

Paradoxically, the most potentially useful instrument society possesses for recreating its basic institutions is itself an institution -- one that is at present as rigid and out of date as any of the rest. This institution is the educational institution and a metaphor for the gaps in knowledge in several Nigerian programs that are in different states of distress because educational institutions are not meeting up with international and inter-temporal standards in terms of mounting risks associated with the lack of pragmatic assessment of a network of switched economies employed. Consider, in this context, the issues raised in 1969 by a Health, Education and Welfare United States (US) study group on the causes of educational tensions (Knight et al., 1971). This group was one of several designed by Secretary Robert Finch soon after he was appointed to delve deeply into the needs of American education in the coming decade. Its members spent about three months interviewing students, teachers, school administrators, local government officials, law enforcement officers, psychologists, and sociologists. They concluded that the issues underlying much of student protest in 1969 fall into four categories, each of which relates intimately to the others. They are (Fig. 1):

- Dehumanization of society based on the gradual erosion of the fabric of society through a loss of human

resources as a result of many factors like human trafficking and death caused by diseases and other factors.

- Inequitable distribution of wealth, power and prestige due to the poor receptiveness of facilities and/or investments installed within the society.
- Social and cultural exclusion attributable to the poor marketing performance of various products generated by the society for the overall purpose of national integration and cohesion.

Educational irrelevance is therefore enthroned by the difficulty in collating innovation(s) meant to bring about innovations in issues plaguing the society.
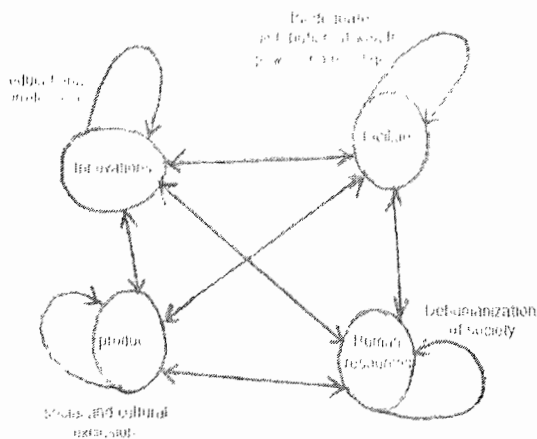

Fig. 1: Switched economies network issues.

Educational policy development should therefore be driven by the need to sustain international and inter-temporal standards despite new challenges. This drive is at variance with consistently poor funding (from mainly government sources), dilapidating structures and loss of key personnel to social unrest and conflict. The empowerment of the nation is therefore predicated on its finding a wake-up strength from the educational sector as spelt out in her policy on free primary education, subsidized secondary and higher education and massive development of infrastructure and teaching personnel. This is also further articulated in government

documents under the following objectives and purposes of education (Ojo et al., 1997):

- training for understanding the world around us;
- acquisition of appropriate skills for a successful and rewarding life for individual benefits and contribution towards national endeavours;
- inculcation of worth-while values and attitudes, i.e. character and moral training;
- self-actualization and fulfillment; and
- fostering national unity and integration.

There is, therefore, a need to understand the complementary and/or conflicting role of funding sources, subsidies and cost recovery dynamics addressing the challenges facing education in Nigeria. This paper presents a model for educational policy development with a view to addressing the direct implications of policy instruments addressing the challenge of numbers, and science and technology.

2.0 Challenges of Switched-Mode Economies

There are strong reasons to therefore consider that growth and location of human activity is faced by the threat of marginalization due to institutional problems manifesting as the trio of corruption, mismanagement and poverty. For instance, Egypt faced the threat of famine by invoking a strategy as follows:

> *Let Pharaoh do this, and let him appoint officers over the land .... And let them gather all the food .. .. under the hand of Pharaoh ... ... And that food shall be for store to the land against the seven years of famine ... .. and sold unto the Egyptians and all the countries. ... ...*
> - *Genesis 41: 28 – 57, Holy Bible (King James Version).*

In a similar vein, a community of ethnic nationalities complained of marginalization, which was resolved as follows:

> *And in those days, when the number of the disciples was multiplied, there arose a murmuring of the Grecians against the Hebrews, because their*

widows were neglected in the daily ministration. Then the twelve called the multitude of the disciples unto them, and said, it is not reason that we should leave the word of God, and serve tables. Wherefore, brethren, look ye out among you seven men of honest report, full of the Holy Ghost and wisdom, whom we may appoint over this business. But we will give ourselves continually to prayer, and to the ministry of the word.

- Acts 6: 1 – 4, Holy Bible (King James Version).

According to Oluwasanmi (1980), the genius of a people manfests not only in the origination of new ideas or techniques but also in the successful adaptation to its own purposes, of ideas and techniques borrowed from others. He further stated that the Obafemi Awolowo University started life in 1962 as the University of Ife with a student and academic staff population of 244 and 80 respectively and experienced a 40- and 13-fold increase in student population and academic staff members respectively by 1980 leaving a first hand experience of indigestion and frustrations in the following issues:

- Academic planning in terms of facilities for research and teaching
- Procedures for the admission of students
- Accommodation for staff and students
- Growing impersonality of administrative structures
- Building humane, environmental and community values
- Determining the most suitable academic and administrative structures that will enable it to sustain the desired size as well as maintain internal democracy, prosecute with distinction its traditional functions of teaching and research
- Assisting the country in solving the problems of food, power, water, shelter and health, and

- Contributing meaningfully to the process of national integration.

Accordingly, two great challenges were identified as facing the university (educational) system in Nigeria and that of Ile-Ife in the coming decades after the 1980s:

- the challenge of numbers based on exodus from illiteracy; and
- the challenge of science and technology.

In order to cope with these challenges, Oluwasanmi (1980) further stated that:

... it will be necessary to re-examine the administrative and academic structures of the university to determine their adequacy for the tasks ahead. This is particularly so with regard to the professional disciplines where the pressures will be greater on the university not only to admit an increasing number of students but also to assist society in more practical terms with the solution of the many problems which it now confronts.

This is in line with triple mixed-blessings of *de jure* Universities giving birth to mutants or mushroom growths of *de facto* universities, the need to pragmatically address the problems of ownership of universities and the difficulties inherent in a wholly residential university. This points to the way standards evolve in an educational system confronted with mixed-blessings; they are best regarded as adherents, switchers, *de jure* and *de facto* Universities respectively represented as man, woman, aged and child in the basic unit of society. According to Idachaba (2000), Nigeria and other developing countries must learn to handle multiple revolutions simultaneously in order to design workable policies. Knowledge institutions therefore have to resolve conflict in (knowledge) production systems by regulating the exchange of power between the input and the output of systems. There are two broad classifications of power supplies cum regulators:

i) Linear power supplies/ regulators: They are inefficient, bulky, high subsidy, employ slow components,

poor standards and with no strategy for cost recovery.

ii) Switched-mode regulators cum regulators: They are efficient, need good filters to reduce high ripple content, low subsidy, light, employ high standards, fast components and are very smart in cost recovery dynamics. They adequately represent the market or deregulated economy.

The university system is, therefore, linked with the attributes of a switched-mode economy, which include standards (an inductive element) for conflict resolution, subsidies (a "free-wheeling" diode) for communication and cost recovery dynamics (capacitive element) for adaptation presented to a switch and a bank of scarce resources. The task, therefore, is to create institutions, which according to Valien (1971) can redefine their missions on a continuous basis to cope with the social and technological change that will increase at an increasing rate. This scenario respectively transforms poverty, corruption and mismanagement into the reality of the challenges of history, change and market development in dealing with marginalization caused by growth and location problems.

3.0 Resolving Marginalization Cases
The following challenges basically qualify educational policy development as the strategy for resolving institutional marginalization cases:

3.1 Challenge of history
Past financial crises often have damaging effects, most severely felt in the developing world. Accordingly, Ruggiero (1999) has also seen a dangerous widening of the gap between the transatlantic economies, which have so far been less affected by the crisis, and the rest of the world economy, which has seen its progress towards economic development dramatically set back by financial instability, retreating investment and falling commodity and industrial prices. He stated further that since the global economy is increasingly interdependent, these imbalances could not be maintained for long as billions of people can sink deeper into poverty, while millions more grow richer.

According to Oyejide (1990), various policies are currently being implemented by various institutions without an adequate knowledge of the links and relationships between policies, reactions and behavior of economic agents, and ultimately micro, intra-sector, as well as macroeconomic performance. In addition, Hallam (1990) stated that the rate of return to publicly funded research might be inadequately expressed by econometric analysis based on the widely accepted production function approach. The source of doubts is not unconnected with the form of distributed lag between research expenditures and productivity change. Fundamentally, doubts are raised as to whether any meaningful relationship between research spending and productivity change can be established from available data. These doubts appear in the form of the:

- Inappropriateness of Conceptualization: The problem of obtaining a lag relationship is exacerbated by the conflation of the knowledge production function and diffusion process into one model. Separation of these two stages may be helpful but impractical.

- Model Specification Error: The knowledge production function, modeling of research outputs more directly, might provide the basis for a more stable empirical model with shorter lags. Even here, however, the chances of success in measuring research effects may be limited by the nature of the research expenditures data. These are a simple aggregate, in the balance between near-market and basic research, which are likely to lead to shifts in the dynamic relationship between research spending and productivity.

- Impact of Bias: In modeling a lag relationship between research spending and productivity, constraining the coefficients to lie on a second-degree polynomial,

particularly where its endpoints are additionally constrained to be zero, imposes questionable restrictions and may lead to biased estimates. Subsequently, co-integration and Granger causality tests fail to establish any relationship between research spending and productivity. There may, however, be the danger of asking too much of the data.

- Data Error: Public sector expenditures alone are clearly an imperfect measure of the research input/output. As a result of this, the assembly of more comprehensive data including private sector expenditures or the use of sharper econometric tools should be a priority for research in this area. Similarly, the validity of focusing solely on agricultural research spending, whether public, private or both, will be limited by any spillover effects of research effort in other sectors and other countries.

- Insufficiency of Data Points: Given the long delays between research expenditures and the glaring changes in productivity, the data series (points) employed are barely adequate for modeling a lag relationship if it lacks the mechanism for early warning.

Given these practical and conceptual difficulties, the plea for a lowering of expectations as to what available data can tell us remains daunting. This inevitably leads to the need to adopt a methodology that can adequately support the sociologic basis of public programs through an exemplary window and an analytic shadow of reasoning (Yesufu and Yesufu, 2003a,b).

3.2 Challenge of market development

The exemplary window of a switched-mode economy naturally breaks into standards, subsidies and cost recovery dynamics as the symmetric (in view of the model for the critic and society), reflexive (in view of the model for educational reform strategy) and transitive (in view of the model for Internet development) frameworks respectively.

3.2.1 Subsidies

The administrators of our educational system can first, identify those areas where change is needed to conform with new environmental realities; next, develop alternative approaches (choices) in educational structure, process, or content to meet the identified needs; and lastly, provide the information and financial resources required by the decentralized educational system for actual implementation. The process has two important features: continuity-that is, each identified need leads to the development and ultimate implementation of innovations in educational structure, process, or content; and repetition-that is, the cycle is repeated endlessly as the changing environment creates new educational needs.

3.2.2 Cost recovery

The Internet presents an exemplary window for the understanding of development in a university system. The Internet is a record of the international and inter-temporal choice of change amongst six standards of development that can emanate from the socio-economic reading of history in its time. In this regard, a marketing system is a socio-economic system that has subsystems responsible for the record (communication), choice (power), change (adaptation) and history (input/output) in the course of market development. There is no gainsaying the fact that market establishment is central to the understanding of the materialistic and historical development of the university system as well as that of the Internet. Hence, the development of the Internet has strong links with the total process of market establishment.

Today, most of Internet traffic grows exponentially and is carried by independent Internet Service Providers (ISPs), including AT&T, MCI, ANS and thousand of others for well over the 30 million hosts on the network in 1997 i.e. step 5, reception in Fig. 2. The International Data Corporation predicted an exponential growth in finances for the electronic commerce market from \$10.6b in 1997 to \$223b in the year 2001 i.e. step 6,

silence in Fig. 2 leading to substantial cost recovery.

> "Strategy scholars should also explore the linkage between setting a standard and subsequent performance of the educational sector based on a good understanding of prior history, change and market development."
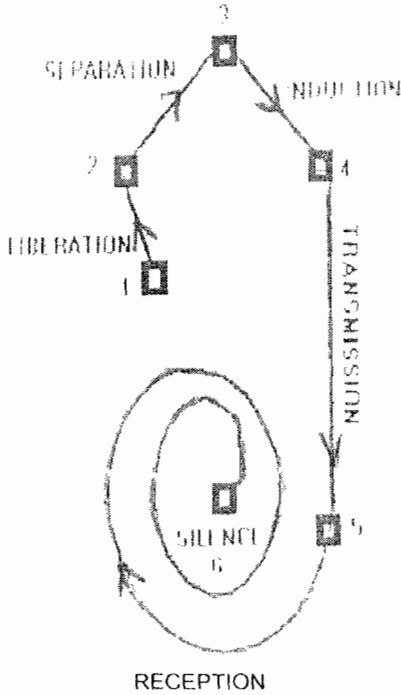

RECEPTION

Fig. 2: Stages of market development

Operators and service providers who operate in an environment like the university system with multiple new actors and new applications, must continually adapt their strategy to new requirements and concentrate on chosen areas of excellence protected by Intellectual Property Patent Rights; any invention used to define a standard constitutes an asset for its owner (Tchuruk, 1999). Accordingly, Gallagher and Park (2003) stated that strategy scholars should also explore the linkage between setting a standard and subsequent performance of the educational sector based on a good understanding of prior history, change and market development. The interaction of these evolutions in standards of universities inevitably leads to the determination of the pathological or physiological states of innovations, products and/or services in our educational system (Yesufu and Yesufu, 2003).

3.2.3 Standards

It is worth noting that the first Internet is the university system, which has long been associated with the mandate of ensuring that a global system for international cooperation and networking of knowledge exists. This massive network of knowledge exists through a systematic effort of university workers dedicated to the organization of teaching, researches, workshops, conferences and the publication of books, proceedings and journals at all levels of significance. The information age has therefore offered a new opportunity for strengthening knowledge policy towards realizing the full benefits of a global village, which attracts lesser risks and total cost of ownership, and increased coverage and channel capacity of educational systems.

3.3   Challenge of change

Educational policy development is a pattern (dot) recognition process that observes the reality of the gold leaf electroscope nexus of isolation, induction and conduction aimed at arriving at an inner product of charge. The principle of circular flow for educational policy development is therefore derivable from the steps employed in Yesufu and Yesufu (1999a) to explain a self-evident pattern recognition technique. These steps include the understanding that in a capacitive circuit (with just a resistor and a capacitor), the determination of its current (or flowing /falling charge), as in the International Centre for Theoretical Physics (1988), is not a local problem. This problem therefore requires an all encompassing framework offered by Maxwell's equation for electromagnetism to understand the production of fields associated with this system as explosive, damped or perpetual oscillations. Hence, we can define the relationship between the cause and effect of the electromagnetic field generated by this system as

$$\nabla \times H = jw\varepsilon E\left(1 - j\frac{\sigma}{w\varepsilon}\right) \qquad (1)$$

Where ∇ and j are the del and complex operators respectively, w is the frequency of the number of cycles per second, H and E are the respective electric and magnetic field intensities, σ and ε are the respective conductivity and permittivity of the system, and the characteristic equation of the system is

$$1 - j\frac{\sigma}{w\varepsilon} \qquad (2)$$

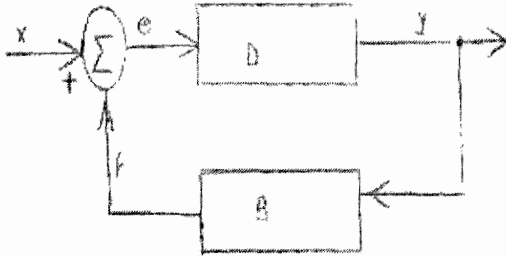And it is of the form

$$1 + BD \qquad (3)$$

Fig. 3: A system

B and D are the accelerator and the multiplier characteristics of a typical system (in which there is an output (y) for a corresponding input (x), feedback (f) and error (e) as shown in Fig. 3) respectively and $BD = -j\frac{\sigma}{w\varepsilon}$. Subsequently, the double transients associated with charge and current in an R-C circuit or system is based on charge reception and storage for the multiplier and accelerator arms (Fig. 4). The respective expressions defining the behavior of the multiplier (feed forward) arm as purely capacitive and the accelerator (feedback) arm as purely inductive (with inductance (L)) are as follows (in this case q = x and y = i):

$$\frac{dq}{dt} = i \qquad (4)$$

$$v = -L\frac{di}{dt} \qquad (5)$$

Or $\qquad q = -\frac{1}{w^2}\frac{di}{dt} \qquad (6)$

Where $w^2 = \frac{1}{\sqrt{LC}}$, the charge $q = Cv$ for a given current (i) and voltage (v) at any time (t).

We can, therefore, derive the following based on the product (in the form of BD) of the transfer relationships of both arms compared to the value of BD for the system:

$$jw^2\frac{\sigma}{w\varepsilon} = \frac{1}{qi}\frac{di}{dt}\frac{dq}{dt} \qquad (7)$$
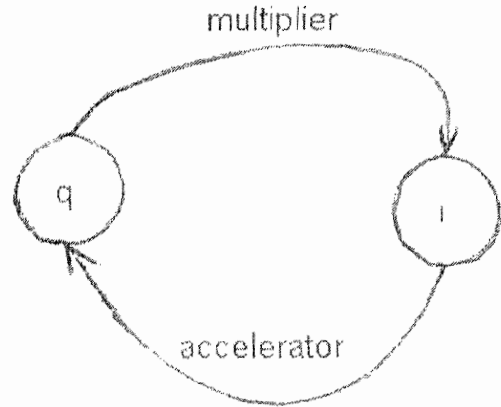

Fig. 4: Accelerator – multiplier promotion of dynamics

Based on the hyperbolic connection between q and i, we can obtain two separate expressions for their manifestations as follows:

$$\frac{1}{G_q}\frac{dq}{q} = \frac{dt}{T_q} \qquad (8)$$

$$\frac{1}{G_i}\frac{di}{i} = \frac{dt}{T_i} \qquad (9)$$

Where $G_q T_i = G_i T_q$, G and T are also separation constants in the resource (either q or i) and time domain respectively.
Hence,

$$dq = \frac{G_q}{T_q}(q\,dt) \qquad (10)$$

or $\qquad di = \frac{G_i}{T_i}(i\,dt) \qquad (11)$

Hence, investment (q) accelerates the savings (i) and vice-versa. This makes change to depend on the understanding of the dynamics, rationality and universality of the saving rate.

3.3.1 The saving rate

The English Economist Sir Roy Harrod and Evsey Domar studied in the 1950s the relationship between a nation's rate of saving and its economic growth. Their work is summarized in the Harrod-Domar growth model (Ruffin and Gregory, 1983). This model is based on two definitions and an identity:

Definitions

1. Investment (I) is the addition to the stock of capital or I = ΔK, where ΔK denotes the change in the stock of capital.
2. Marginal output to capital ratio (MOCR) is the change in output per unit change in capital.

Identity

1. This is based on the circular flow or the capture of a reciprocal attribute in a system meant to give the operational framework or information about the system.

If we know the system's devices and the circular flow associated with it then we can prescribe the operational facilities for the system. Hence, the identity of the Harrod-Domar model is the macroeconomic equality of investment (I) and saving (S).
But

$$MOCR = \left(\frac{\Delta K}{\Delta Q}\right) \quad (12)$$

Or

$$\frac{\Delta Q}{Q} = MOCR\left(\frac{\Delta K}{Q}\right) \quad (13)$$

Define $\frac{\Delta K}{Q}$ = saving rate = S and $\frac{\Delta Q}{Q}$ =

growth rate of output

Hence, the growth rate of output equals the MOCR times the saving rate. Equations (10) and (11) are in the form of the Harrod-Domar model (where MOCR = $\frac{G_i}{T_i}$ and di = ΔQ

and idt = ΔK) and the derivation shows the

nature of MOCR in the growth model (note that the cyclic nature of the model is latent).
Three issues immediately emerge from this model:

1. The Harrod-Domar growth model implies that the LDCs could solve their problems by raising national saving rates. Usually, MOCR is frequently thought of as being dependent on the technological improvements and labour inputs. It is, therefore, required that the Harrod-Domar model be rigorously proved in order to substantiate this thought or any other one.

2. Sustainable growth is a desirable experience for all natural systems. It is, therefore, required that the universality and rationality of this identity be determined.

3. Using this growth equation, we also expect that the rate of economic growth is simply going to increase when foreign assistance (fa) is made available

i.e. $\frac{\Delta Q}{Q} = MOCR\left(\frac{\Delta K}{Q} + fa\right) \quad (14)$

However, most of the fa has had a complex relationship with the actual value of S or $\frac{\Delta K}{Q}$ such that [S + fa] is mostly designed to be negative in developing countries since most of the support they attract from developed countries erodes any savings in the long run. It is, therefore, expected that obtaining a relationship between S and fa is necessary to stem the tide of confusion and conflict arising from what foreign assistance implies.

3.3.2 Rationality of MOCR

The equality of actual saving (S) and investment (I) is an important cornerstone of macroeconomics. Some mechanism is required to bring the two into equality in spite of the disparate wishes of savers and investors; this mechanism is based on the MOCR. As I increases, MOCR increases while S decreases sending counter signals to

the original increase in I. This is followed by a decrease in MOCR and the circuital flow continues. However, output versus capital (debt or equity) is such that the MOCR is positive. According to Carzo and Yanouzas (1967), rationality in decision-making is based on the ability to formulate alternatives and to make choices that optimize results.

3.3.3 Universality of MOCR

According to Wik (1997), universality is based on the constraints offered by information and knowledge in decision-making. Sustainable or natural growth theory therefore has connections with the Fibonacci sequences which is defined as

$$N_n = N_{n-1} + N_{n-2} \qquad (15)$$

where $\quad N_0 = N_1 = 1$

The relation gives a universal attribute (α) of this sequence for sustainable growth, called the divine ratio; it is expressed as

$$\frac{N_n}{N_{n+1}} = \alpha \qquad \text{for large } n \qquad (16)$$

and $\quad \alpha = 1 + \dfrac{1}{\alpha}$

α is a universal constant given by 0.6181.........

Or $\quad \alpha = \beta \cdot \gamma + \dfrac{1}{\alpha} \qquad (17)$

where $\gamma + \beta = 1 \qquad (18)$

On rearranging, we have

$$\frac{\alpha}{\alpha\gamma + 1} = \frac{1}{\alpha - \beta} \qquad (19)$$

Comparing (2) and (8) such that we have

$$MO \quad \frac{1}{\alpha\gamma + 1} = \frac{\Delta K}{Q} \quad \text{and}$$

$$\frac{1}{\alpha - \beta}$$

Hence, α or MOCR is a dynamic constant that is also connected with business information rate and the universal mechanism or universality that brings the rational response of the system to equity. MOCR, which is a representation of the switched economies network tally (SENT) of

a mutual learning environment, shows that speed or number of rounds is required to ensure that an appropriate saving rate befits a growth rate assumed.

4.0 Discussion

The level of initial assets and income shocks to which programs are often exposed determines the degree of cost recovery in the society. The target of cost recovery is central to the performance of a system that is facing the challenges of history, change and market development. Moreover, cost recovery dynamics is basically an exchange function, which is the heartbeat of marketing and, therefore, reveals the physiological or pathological states of the system. Vendors therefore carry out the study of cost recovery dynamics in order to retain the beneficiaries of their programs at all levels of significance. Programs often have significance at six levels that express their distributional consequences including their cost/returns, gender, conflict, marketing and security scenarios as they evolve; these implications eventually determine the dividend, performance and role of stakeholders.

Programs capable of generating conflict in society hinges on education, including those on health, welfare, and others that are frequently subsidized without a strategic plan for cost recovery. The free-wheeling effect associated with the effective use of subsidies needs to be further strengthened by the understanding of cost recovery dynamics in order to ensure the efficient conversion, continuity and repetition in (public) programs of a switched-mode economy In other words, there is a strong relationship between subsidies and the components of a program even when cost recovery dynamics is yet to be fully understood. There are situations that could also mar the sustainability of a subsidized program in the realm of human ideas:

- administrative problems arising from the sheer number and interconnectedness of unintended and intended beneficiaries;
- rampant cases of fraudulent and accidental loss of facilities and resources;
- inability to recover establishment, running and maintenance costs; and

disturbing signs of distress, profiteering and counter-productive competition/sharp practices within the sector.

The unfolding crisis associated with the implementation of subsidy in public programs often generate a broad spectrum of investors that may adopt defective standards for price determination and market development without strategic plans for the "withdrawal" of subsidy. This is because in market development, the learning environment of history (symbolized by activities of educational institutions/policy) determines the level of subsidy available while change is sustained by cost recovery dynamics. Market development strip, ed of its subsidy is inevitably stripped of its greatness and the strength of a market is in its cost recovery dynamics. The worst experience any nation can face is to attract commercial interests that are ill prepared for an under-nourished and crisis-ridden economy that is in desperate need of reconstruction, change and development. In line with the work of Soyinka (1982), the removal of subsidy is when we fail to take productive societies into full dialectical partnership with the motive force of history and thereby perpetuate the habit of excision, obscure the socio-economic reading of history in its time and enthrone the dictatorship of the mutant in the realm of human ideas. For instance, the accommodation fees of students was N90.00 at the Obafemi Awolowo University when the minimum wage was N125.00 in Nigeria; but the unseen hands of unintended beneficiaries of price ceiling seem to have held it at N90.00 without a single review until recently that the minimum wage became N7500.00; this was economically unsatisfactory in a nation where wages still make up a large proportion of total cost. In a similar vein, the establishment of markets on the Obafemi Awolowo University campus and the upsurge in electricity consumption in these markets and the halls of residence after the scrapping of the cafeteria system of feeding and the rising cost of municipal services are very instructive in this regard (Yesufu and Yesufu, 2000). Products and/or services require subsidies based on a history that can easily absorb the streams of innovation associated with cost recovery dynamics in order to establish the rationality and universality for drawing on funds allocated for an educational

policy development (Yesufu and Yesufu, 1999b). Real favors from nation to nation and loans from banks to universities are mostly deluding in that their main target is hardly understood to be market development, which according to the former President Thomas Jefferson of the United States in ASUU (2001) knows no country, and feels no passion or principle but that of gain; this is often a celebrated monopolization case. For instance, antitrust officials from European Commission raided the offices of nine mobile operators in the United Kingdom and Germany searching for evidence of illegal price fixing for international roaming and wholesale interconnection fees (Molony, 2001). The raids highlight complaints by competitive operators that accuse the European Commission and national regulators of being ineffective in enforcing cost-based legislation and are failing to deliver on its promise that deregulation will bring about competition and "low" prices, and are frustrated by the lack of regulatory action on mobile and other interconnection issues. According to White (2002):

For the wide range of antitrust cases involving allegations of monopoly or monopolization (or variations of that theme), the presence of market power is a necessary prerequisite for finding liability. In turn, the definition or delineation of a relevant market is essential for measuring a defendant's market share - - a key determinant of the presence or absence of market power. Unfortunately, there are few or no intellectual underpinnings for the market definition process in monopolization cases. .... the "cellophane fallacy"(which is explained), combined with the frequently cloudy state of firm-level profit data, continues to create confusion as to when the presence of competitors is an indication of the absence of market power and when their presence is the consequence of the exercise of market power. Underlying this confusion is the absence of a clear market definition paradigm for these monopolization cases. Until such a paradigm is developed, the confusion will persist, as will a pattern of erratic and

inconsistent outcomes in alleged monopolization cases.

It is, therefore, a disregard to history and change when people simply excise themselves saying the market, which is holistic, participatory, astronomic and graduated, should not develop and are putting on stiff opposition to the alleged monopolization/marginalization in the kind of loans/favors from international organizations like the International Monetary Fund (IMF) and the World Bank.

5.0 Conclusion

Education is conceived in this paper as the inner product for surmounting the challenge of numbers, and science and technology. This makes it a candidate for a policy development process that is understood using the market (definition) paradigm for carrying out pattern recognition, and understanding the predicament of a falling charge in a gold leaf electroscope. Moreover, conflict resolution, communication and coordination is seen as the basis of social change, and attributes of a marketing system and a mutual learning environment, and hence, the careful exchange of power between the input and the output of a system; this borders on the observance of standards commensurate with the level of subsidies and cost recovery dynamics in the system. An estimation of this power exchange capabilities gives the switched economies network tally (SENT), a sine qua non to the understanding of the role played by the integrated association of standards, subsidies and cost recovery dynamics in educational policy development.

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