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TABLE OF CONTENTS

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Government Expenditure and Human Capital Development in Nigeria

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Abstract:
Despite consistent improvement in government budgetary allocation and spending on health and education sectors in Nigeria, the country human capital development index stilled remained at its ebbs compared to other countries. This study empirically examined the impact of government expenditures and human capital development in Nigeria, spanning from 1981 – 2019. Government expenditure is proxied by education and health while human capital development is proxied by human Development index. Secondary data was obtained from the Central Bank of Nigeria Statistical Bulletin, various issues. The study employed autoregressive distributed lag techniques of analysis. Findings revealed that government education expenditure had significant impact on human capital development both in the short-run and long run. Moreover, empirical evidence further revealed that, it was only in the long run that health expenditure delivered a steady positive effect on human capital development. Cumulatively, expenditure on health and education improved human capital development by at most 16 percent in the long run. Thus, the researcher recommends amongst others; a composite consideration in budgetary allocation and implementation of expenditure on human capital development. This has the tendency of allowing the effect of any expenditure on human capital development to be seen and felt.

INTRODUCTION

Investment in education and health enhances human capital development in developing countries like Nigeria. The critical elements of human capital development are predicated on investment in education and health sectors. Investment in education is the hung that create new skill, knowledge and incentives which drive economic expansion through making individual more proficient and generate productive economy. Public spending on education creates new technology, invention and innovation leading to wealth formation and human capital development. Public spending on health on the other hand mirrors a state of complete wellbeing which leads to competent work force and improved human capital development through acquisition of skills and knowledge. In the words of Oluwakemi, Ayodejio and Olamide (2016), public spending on health, education, social community services, agriculture, transfer services, research and development accelerate human capital development in Nigeria. Whereas, Ehimare, Ogaga and Okorie (2019) argued that increase in public spending on education and health improves the level of human capital development. This supports the fact that, advancement in human capital development leads to healthier life and greater life expectancy. Public spending on education and health sectors help to improve life, reduce poverty and increase employability and productivity leading to increase in human capital development.

Schultz (1961) opined those investments in human capital such as spending on education and health account for most of the rise in real earnings per worker. Becker (2012) argued that

investments in human capital raise an individual's productivity and earnings. The basic philosophy is that an extremely educated and healthier workforce is projected to be relatively more industrious. Oluwakemi *et al*. (2016) observed that investment in education is pivotal to human capital development because it has social benefits of increasing the number of skill workers, enhancing occupational mobility and reducing the rate of unemployment in the economy. Still in the words of Oluwakemi *et al* (2016), fundamentally, improvement in education increase earning capacity, productivity, access to health information and enhanced human capital development compared to countries with lack of investment in education. Investment in education has been regarded as a medium for sustainable human capital development. Education enhances people's ability to contribute more to the growth process and improve their level of productivity. Education guarantees people to live a longer and healthier life, because knowledgeable persons improve human capital development. According to Richardson and Chigozie (2019), spending on health plays an immense role in the health condition of a society by lowering the effective price of health, enhancing inputs to create conducive environment for healthy living. Strategic investment in health not only deliver quality health and improve wellbeing for more people, but improved efficient economics, create jobs and productivity of labour force. Expenditure on health is a catalyst for economic growth, human capital development and social growth. The primary purpose for investment on health is to enhance healthier living, improved standard of living and prolong life on planet earth, which lead to good quality of life and improved human capital development.

Todaro and Smith (2006) opined that public expenditure on education and health is the major constituents of human capital development which play active role in improving human knowledge and decrease the number of death. Okojie (2005) posited that human capital development is the process of acquiring an increasing the numbers of persons who have the skills, education and experience that are critical for economic growth and development. Human Capital comprises of skill, experience, knowledge, competencies and abilities of the work force. Ejere (2011) observed that human capital development is the purposeful and continuous process of acquiring skills, knowledge and experience that are applied to create economic value that drive sustainable national growth. Jhingan (2005) stated that economic growth cannot take place without improvement in human capital development. He aggregated human capital development as training, education, schooling and quality health care delivery.

Evidence from reliable records shows that Nigeria education and health sectors have consistently received less amount than advocated by the UNESCO. Under funding, dearth of qualified and trained teachers, infrastructural deficits and policy inconsistencies are the constraints to human capital development in Nigeria (Asi-yai, 2013). However, government budgetary allocation for education and health in Nigeria has been consistently on the declined over the past years. Aiggokhan, Imahe and Aileman (2007) stated that the standard funding requirement for education prescribed by the united nation agency is that every country should appropriate at least 26% of its annual budget to its education sector but Nigeria spends less than nine percent of its annual budget on education. Nigeria's education and health sectors are characterized with consistent strikes by lecturers and doctors for non-payment of salaries and other benefits leading to the closure of schools and hospitals.

The level of human capital development in Nigeria as a developing nation is quite discouraging considering the level of human and material resources available in Nigeria. The fiscal policies and engagement of Nigerian government expenditure have overtime failed to address the necessary

under development within the economy. This prompted and generated series of debate among scholars as to the relationship between government expenditure on education, health and economic development. According to the study of Abu and Abullahi (2010) and Coorey (2009), expansion in government expenditure induced economic development positively. In their study, they discovered that government expenditure on education and health raise the productivity of labour and increase the growth of national output. However, the levels of human capital development are contradicted by the rate of government expenditure over time in Nigeria. The poor human capital development growth are captured in the words of Oghene and Okorie (2014), when they discovered that there has been significant reduction in the efficiency of government expenditure since 1990 till date and its effect are not far fetched in human capital development in Nigeria. Based on this established problems, the study aim at examining the impact of government expenditures and human capital development covering the period 1981 – 2019 in Nigeria. Other objectives include:

- To examine the impact of government expenditure on education on human capital development in Nigeria.
- To examine the impact of government expenditure on health on human capital development in Nigeria.
- To examine the joint effects of government expenditure on education and health on human capital development in Nigeria.

The findings of this study would enrich the existing body of literature on the relationship between government expenditure on education and health and human capital development. This will further strengthened the correlation between education and health as an essential ingredient of human capital. For the government, it would provide a framework for policy formulation and implementation. The research findings, would serve as a foundation for further research in this aspect and other similar areas

The study examined the impact of government expenditures and human capital development. The study covered a time frame period of 38 years ranging between 1981 and 2019. The time frame is considered suitable for the study because of recent thoughts on the effect of human capital development on growth strides.

The study is presented in five sections: Section one introduces the subject matter of the paper and the objectives. Some of the relevant literature pertaining to the papers subject matter is reviewed in section two. Section three deals with the study's methodology, while the data analysis is done in section four. In section five, summary of findings and recommendations are presented.

RELATED LITERATURE REVIEW

In recent times, particularly in western countries, education and health are considered as an economic device that built human capital. In the position of Fitzsimons (1999), human capital theory is the most influential theory of western education, setting the framework for government policies since the early 60's. In Nigeria, the same understanding has become attached to education as a tool for improving workforce skills, enterprise, initiative, adaptability and attitudes. Harbison (1973) noted that human beings are the active agents who accumulate capital to exploits natural resources, build social, economic and political organisations, as well as the drivers of national development. In 2013, Ilegbinosa opined that 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 experienced in less developed countries, like Nigeria, where the human development index has remained at its ebbs for decades.

Conceptual Review

Human Capital Development:

Human capital has been renowned internationally as one foremost factor that is accountable for the health of nations. Accordingly, Smith (1776), underlined the significance of the acquired and valuable abilities of all the residents or members of the public in his works. Romele (2016) defined human capital as the entirety of knowledge and skills which have been accumulated throughout life, through education, training and work experience and which influence labour productivity. Onakoya (2013) as cited in Adeyeani and Ogunsola (2016) described human capital as a vital issue used in converting all resources to benefit mankind. Frank and Benanke (2007) as cited in OECD (2009) defined human capital as 'a combination of factors such as education, experience, training, intellect, energy, work habits, steadfastness, and incentiveness that influence the worth of worker's marginal product'. Hence, human capital refers to the method of acquiring and growing the quantity of citizens who have the skills, good health, schooling and experience that are vital for growth. Aluko (2015) defined human capital development to mean enhancing the skills, knowledge, efficiency and resourcefulness of citizens through a process of human capital formation. Thus,human capital development (HCD) is a citizen's centered strategy of growth which is documented as an agent of national growth in all nations of the world. Human capital formation refers to the procedure of acquiring and increasing the number of human being who have the skill, good health, education and experience that are critical for economic development. Human capital development is thus connected with investment in man and his expansion as an incentive and prolific resource. Jhingan (2005) categorized and developed human resources into six ways: Health facilities and services, on the job training, formally organised education at elementary, secondary and higher levels, study programme for adult and finally transfer or importation of technical assistance, expertise and consultants. Access to affordable health services, increases life expectancy, reduces infant mortality and improved upon many other health parameters. Healthiness reduces casualty due to illness and increases the competence of the workforce, which indirectly contributes to human capital development.

Human Development Index:

Nzotta and Okereke (2009) stated that Human Development Index is a composite index which includes life expectancy, literacy rate and per capita income. In other words, Human Development Index consists of a healthy life, knowledge and decent standard of living. In the position of Nseabasi (2012), the chief aim of Human Development Index is to provide nations with complete measure of environment they offer for their citizens in terms of opportunities for personal accomplishment. Ogen (2003) noted that the higher the Human Development.
Index, the better the conditions the country created for its citizens to live and work. Lawal (1997) was of the opinion that the main idea of Human Development Index was as follows: people are the real value of any nation, and the richness of human life is what every nation's government should worry about.

Human Development Index measures long term progress in three basic areas of human development: access to safe and healthy life, access to education and a decent standard of living (UNDP, 2014). Human Development Index is a move towards a more holistic view of development which had previously focused more on per capita income. The United Nations developed Human

Development Index as a measuring tool that ranks countries levels of social and economic development based on three criteria: Health index, education index and standard of living index. The health index represents life expectation (i.e. no of years) of a particular region or country under study. It correctly describes the extent to which life expectancy of the people in the area under study is greater than the minimum life expectancy. The education index represents the literacy rate and enrolment rate of people in a particular region under study. The standard of living index represents the per capita income of a region or country expressed in US$ at Purchasing Power Parity (PPP) rate. They consist of the income of a country, the exchange rate between the country's currency and US$ and the price level index of the country in comparison to the US price level. Nigeria's human development Index value for 2014 is 0.523, which is the lowest human development category ranking the country at 152 out of 187 countries and territories. The Nigeria's human development Index value increased from 0.519 to 0.539, between 2013 and 2019, an average of about 0.81% or an increased of 8.1% (UNDP, 2020).

Public Education Expenditure:

In the economic growth literature, education has been highlighted as one of the most significant investments in human capital. It has been argued that education can affect growth through many different mechanisms. For instance, education can affect growth by increasing the efficiency of the work force, by promoting health and by creating better conditions for good governance, and by measuring and increasing the knowledge and the innovation capacity of an economy (Hanushek and Woessenmann, 2008). Nigeria government over the years performed abysmally in its budgetary allocation to the sector despite the outrageous tuition fees paid by students in the various federal institutions in the country especially at the tertiary level. For instance, public education expenditure in 1962 was 5.6% of GDP and 18.2% of all government expenditure but by 1998 it had dropped to about 2.3% of GDP and 14.2% of the total expenditure of all arms of government in Nigeria (Hinchliffe, 2002). Let us recalled that the highest approved national budget of (N8,612 trillion) in Nigeria was recorded in year 2018 and only a paltry sum of about N605.8 billion which represent about 7.05% of the total budget was allocated to the education sector. These figures showed that the government has not been giving the sector the kind of attention it deserved despite her critical role as the drivers of the growth of modern economies. They are also in sharp contrast to UNESCO benchmark of 15 to 20 percent of the total annual budget as contained in the EFA global monitoring reports for 2000 – 2015 (Adedigba, 2017).

Public Health Expenditure:

Public health expenditure consists of recurrent and capital expenditure from government budgets, external borrowing and grants (including donations from global agencies and NGOs), as well as obligatory health insurance finance (WHO, 2008). Nigeria's health transformation agenda is well expressed in the national economic empowerment and development strategy (NEEDS), engineered by the national planning commission (NPC, 2008). The aim of this health restructuring is to advance the health condition of Nigerians in order to achieve internationally satisfactory rank of poverty reduction. Aranda (2010) opined that the major reasons for health expenditure is the expectation of improved health status, and that health position is governed by health investment. The demand for health care is derived from the demand of health itself. Both health care spending and enhanced health condition are means to an end; the end is improved outputs and output growth.

Berger and Messer (2012) were of the opinion that one of the fundamental ways by which government can modify health care delivery systems is to raise public funding of health care

infrastructure. However, several authors came out with different ideas that affect health care spending. Clement *et al*. (2011) identified demographic and non-demographic factors that influence health care spending. Denton *et al*.(2004) identified structural and behavioural factors that determine health (such as age, family characteristics, profession, earnings and societal support). While Denton and Walters (1999) noted that structures of societal disparity is the most vital determinants of health. In his words Irvin *et al*.(2008) explained that materials circumstances which include factors such as housing and neighbourhood quality, consumption strength and physical work surrounding can influence health conditions.

In recent times, the pattern of federal government expenditure on health showed a fluctuating or unstable patterns over time. For instance, allocations in the 2006 budget of the Ministry of Health stood at ₦38.04 bn, increased to ₦51.17 bn in 2007. Between 2008 and 2011, it reduced to ₦33.53 bn before jumping to ₦60.08 bn in 2014. And in 2017 and 2018, it stood at N55.6 bn and ₦71.11 bn respectively. Overally, Nigeria's annual budget grew more than 20-fold since the nation's return to democracy in 1999, with regrettably little impact on key socioeconomic parameters. Over ₦52.67 tn has been spent by the federal government of Nigeria alone on health between 1999 and 2016 (www.yourbudgit.com)

Theoretical Review

Human Capital Theory:

Human capital theory originated about four decades ago, under the strong and inspiring leadership of Theodore, Schultz, Becker and John Mincer (Bakare and Salami, 2011). The core assumptions of this theory is that investment in human capital is usually dependence on the costs of acquiring the skills and the returns that are anticipated from the investment. Economies that are better off, for example can lower the costs of human capital acquisition for their citizens by subsidizing their education and training costs. Furthermore, more affluent and better-educated economies can shape the taste and preferences of their citizens by instilling in them a high regard for education and a desire to accomplish in school. This translates into a higher rate of returns on knowledge and skills relative to that of citizens from less-advanced economies. Thus, nations play an essential role in creating advantages for their citizens by encouraging them to acquire substantial stocks of human capital. Eventually, it is human capital which has value in labour markets (NPC, 2008). Therefore, the central idea of human capital development theory is that investment in human capital will lead to enhancement in the value of human capital which in turn yield basic physical outputs.

Endogenous Growth Theory:

Economic growth theory which is growth – education investment nexus is rooted in the endogenous growth theory (Romer, 1986, 1990 and Lucus 1988). In its submission, Romer (1986) acknowledged that the economic growth rate is driven by technological change catalysed by human capital, hence the need for human capital accumulation. Comparatively, Romer's endogenous growth model differs from neoclassical because he acknowledged the role of technological change and human capital in growth process solely in the hand of technological change. In the attempt to deal with the limiting capital of the neoclassical paradigm, Romer advocated that human capital should be treated as capital goods which is subject to increasing marginal productivity since human investment can generate positive externalities for the entire economy. That endogenous growth model depends on technological changes and human capital.

It advocates for measure aimed at stimulating economic growth and development. One of such measures of government spending on education can help to boost economic growth. Similarly, Gupta and Chakraborty (2004) in a dual analysis, emphasized that human capital development is fundamental for economic growth to take place. Dual relationship exists between the rich and the poor in the form of capital accumulation mechanism. Just as the rich allocates more time in accumulating knowledge for production, they expend more time in training the poor. Hence, economists consider expenditures on training, education, medical care, research and development (R&D) as investment in human capital. They are so called because people cannot be separated from their skills, knowledge, health or values in the way they can be separated from their financial and physical assets.

The Augmented Solow Growth Model:

This model is an extension of the Solow growth model and it underpinned the framework of this study. The Augmented Solow-growth differs from Solow growth model in that, it includes human capital as a factor that can enhance economic growth. The model also emphasizes that human capital can also be used to explain the differing income levels in different economies. It does not explain human capital being idle but development of the human resource in a country, it highlights that education is a way in which human capital can be better formed as it allows labour to acquire skills, knowledge and competencies that can enhance productivity as well as growth. Makiw, Romer and Weil (1992) presented the human capital augmented growth model of economic growth. They assumed that the economy produced one good output (y). It is produced according to:

$$Y(t) = K(t)^{\alpha} H(t)^{\beta} A(t) L(t)^{1-\alpha-\beta} \quad - \quad - \quad (1)$$

Where: α, β E (0, 1), $\alpha+\beta$E (0, 1), and t denotes time. This implies that the production function exhibits constant returns to scale in three factors: physical capital (k), human capital (H) and productivity-augmented labour (AL).

Specifically, physical capital and human capital are assumed to be accumulating factors; that is, the representative agent saves output to have more capital (either physical or human). Their equations of motion are:

$$K^{1}(t) = S_K Y(t) - \delta(t); \quad - \quad - \quad (2)$$

$$H^{1}(t) = S_H Y(t) - \delta H(t); \quad - \quad - \quad (3)$$

Where: S_K and S_H are the saving rates for physical capital and human capital respectively. They are exogenously given. Notice that both physical and human capital are assumed to depreciate at the same rate, δ . The equation of motion for Labour (L) and Labour augmented productivity (A) are:

$$L^{1}(t) = nL(t) \quad - \quad - \quad (4)$$

And

$$A^{1}(t) = g^{A}(t) \quad - \quad - \quad (5)$$

Where: n and g are exogenously given growth rates. Since output per worker on the balanced growth path is:

$$\left(\frac{Y(t)^*}{L(t)}\right) = A(t)\, y^*(t) \quad - \quad - \quad (6)$$

Regardless of whether human capital is included, the growth of output per worker on the balanced growth path remains, the rate of technological progress of the growth rate of labour augmented productivity. Based on the foregoing preposition, Makiw *et al*. (1992) make some important assumptions; that people invest in human capital just like they invest in physical capital, that is, by foregoing consumption and devoting a fraction S_H of their income to the accumulation of human capital (analogous to the fraction S_K invested in physical capital), that human capital depreciates at the same constant rate δ as physical capital and that output(homogeneous good produced in the economy) can be used for either consumption or investment in (physical or human) capital.

Musgrave Theory of Public Expenditure Growth:

This theory was propounded by Musgrave as he found changes in the income elasticity of demand for public services in three ranges of per capita income. He posited that at low levels of per capita income, demand for public services tends to be very low, this is so because according to him such income is devoted to satisfying primary needs and that when per capita income starts to rise above these level of low income, the demand for services supplied by the public sector such as health, education, transport, etc, starts to rise, thereby forcing government to increase expenditure on them. He observed that at the high level of per capita income, typical of developed economies, the rates of public sector growth tends to fall as the more basic wants are being satisfied (Edame and Euturoma, 2014).

Empirical Review

Ojo and Oshikoya (1995) examined the determinants of long-term, growth in selected African countries using the framework of endogenous growth model between 1981 and 1994. The study found human capital as the most relative important factor influencing long-term growth in African countries.

Hinchliffe (2000), while analyzing public expenditure on education in Nigeria using time series data, OLS techniques stressed that low budgeting persists till 2000 when the federal government spend about 2.4% of her Gross National Product (GNP) on education in 2000.

Adenuga (2002) while analyzing government spending on education and health on human capital development in Nigeria using ECM techniques stressed that Nigeria's government spending has been totally inadequate or that amount purported to have been expended on education was not actually spent, while Olaniye and Adam (2002) in their study observed that government expenditure on education and health and the share of total spending to the GDP have been declining.

Wilson and Briscoe (2003) in their study on the impact of education and training found out that increased investment in education is shown to lead to higher productivity and earnings for the individual and similarly; such investment results in significant social rates of return.

Lyakurwa (2007) on his work on the viles of education and health on human capital development reported that human capital development has the capacity to enlarge people's choice and opportunities, improve healthy living through acquired skills and knowledge and eventually

enhance growth in the nation's GDP through increased productivity, meaning that education and health are engine room and key drivers in the development of human capital of nations.

Similarly, Nabil *et al.* (2007) reviewed the dynamic effects of public investment in human capital in the Canadian context of population ageing, a computable overlapping generations model (OLG). The study found a significant effect of a tax-financed increase in public spending on education had a crowded out effect in the short run while higher education contributed immensely to human capital accumulation in the long run and also had negatives effects on population ageing.

Lawanson (2009) examined the role of education and health on human capital development in Nigeria using ordinary least square technique and found that education and health are necessary conditions for human capital development in Nigeria, while government expenditure on health and primary education enrolment had negative effects on growth.

Dauda (2010) using the endogenous growth model reviewed the relationship between government spending on education and human capital development. The study employed enrolment in the different levels of education as proxies for human capital and found out that there is a long run relationship between educational and human capital development in Nigeria with a feedback effects.

Obi and Obi (2010) position in their paper tiled government spending on education and its effects on human capital development (1982 – 2007) posited that by providing new opportunities and expanding the capabilities of people, government spending on education play an imperative role in ensuring productivity and hence a sustainable growth. Lucas (1988), in his work on education and health, a panacea for human capital development draws influence from the ordinary least square analytical techniques. Result revealed that the growth rate of human capital is dependent on the amount of time an individual puts into acquiring skills. Thus, government and multinational investments in education and health result in the development of human capital which has been described as the key determinants of economic development which multiplier effects reflect in economic growth.

The World Bank (2010) on their study on education and health infrastructure on developing economies using Nigeria as a case study discovered that Nigeria has found it difficult to grow her economy in her quest to become a knowledge-based economy because of the challenges faced in the national education system. The organisation, categorized these problems into poor access to education which is evident in high cost of education, poor quality of education, poor ICT infrastructures and poor governmental funding of education.

Adamu (2011) determined the impact of government spending on education and health in Nigeria between 1980 and 2010 using cointegration and error correction mechanism., The study revealed that investment in human capital in form of education and training stimulate economic growth.

Ejere (2011) submit that human capital development is undoubtedly the pilot of any meaningful programme of socio-economic development of an economy. Scholars like Adedeje and Bamedele (2003), World Bank (2010), Barro (1993) and Illegbosa (2013) acknowledge that education is the primary source of human capital development. The works of Oluwatobe and Ogunrinola (2011),

Schultz (1993), Adawo (2011), Bloom & Canning (2003) supports health as a component of human capital development.

Kanayo (2013) explored the impact of human capital formation in Nigeria. The study employed ECM as an analytical tool. Findings indicated that investment in human capital in form of education and health impacted significantly on economic growth. The study recommended that educational institutions as well as health institutions should be restructured and well equip for greater outputs.

Ehimare *et al*. (2014) investigated 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. Unit root test was invoked through PP test. Data analysis was conducted using data envelopment analysis involving input-output variable return to scale. Findings revealed that there has been significant reduction in the efficiency of government expenditure since 1990, up till 2011. This result in poor quality and output experienced in the Nigerian education and health sector. They recommended that effort should be made in improving Education and health care delivery which has effect on human capital.

Ogbonna *et al*. (2017) empirically investigate the relationship between government human capital spending and human capital development. Evidence from Nigeria (1990 – 2015). The study adopted ARDL methods. The results reveal that both in the short and long run, government health-spending impact positively though to a very large extent insignificant on human capital development in Nigeria but not so with government education spending. This account for the low human development index we have in Nigeria.

Ngozi and Samuel (2019), investigate government educational expenditure and human capital development in West African countries. The result obtained showed that increase government education and health expenditure have positive and significant impact on primary and secondary school enrollment. The Granga causality showed that there was bidirectional secondary school enrollment. The result also shows that there was bidirectional causality between government educational expenditure and secondary school enrollment. Michael (2017) investigated the effect of human capital investment on economic growth in sub-Saharan African. Evidence from Nigeria, South Africa and Ghana (1980 – 2013). The results indicates that, two out of the three human capital proxy variables, health (GIH) and education (GIE), shows significant positive effect on growth only in Nigeria, while literacy ratio (LR) is insignificantly positive in all countries. Christopher and Utpal (2020) investigated government expenditure on human capital an growth in Namibia: a time series analysis: From 1980 – 2015, the findings reveal a significant long-run positive relationship of government spending on education with literacy rate, net primary and gross tertiary enrollment rate. Whereas no cointegration between government spending on education and gross enrollment rate at primary and secondary level was observed. The vector cento-regression (VCR) analysis revealed significant impact of expenditure on health care and education on the GDP in the long run through improved human resources.

Stylized Facts of Human Capital Growth in Nigeria

The role of human capital resource in stimulating economic progress has been acknowledged in the literature. Human capital resource has been identified not only as a major growth determinants and a channel to ease poverty but it is also very important in building and improving

the quality of human beings in general (Kasim, 2010). The growth focus in Millennium Development Goals (MDGs) is more concentrated as the importance in achieving clear and real progress as an indicator or human capital indicator measured through education and health foundation. Most of the literature highlights the effect of education through human capital investment on economic growth. Moreover, the literature also revealed studies on inter-relationship between human capital and economic progress. Ramirez and Stewart (1998) explain that although there are bilateral ties between human capital and economic growth, specific factors to link them still lacks in the aspects of systematic exploration. They show that high level human resource capital development will affect the level of economy through population's increase in their capacity, productivity and creativity. A well educated and enlightened population determines their ability to absorb and organise all economic growth resources such as technology usage or technological innovation. Akita and Alisjabbana (2002) explain that areas having quality of human resources are able to cope better when facing an economic crisis. In the work of Wibisono (2001), variables such as educational attainment which is measured as successful completion of education level, life expectancy, fertility rate, infant mortality and rate of inflation. The study shows that human capital in the form of education especially, is the most important contributor to economic progress. Mansur *et al*. (2009) noted that education provides better employment opportunities, and thus, increase the income of an individual. Therefore, education is perceived to be an important factor in human capital development. The study also found that a correlation exists between education investment among women and fertility. In Africa, educated women are able to get higher wages, and tend to have educated children.

Human development has remained unimpressive as shown by the indicators in table 2.1. Over the years, successive Nigeria government recognized the importance of human capital formation in the development process and has embarked on various programmes and projects which led to the establishment of educational and health centres throughout the country. However, in the late 1980s and early 1990s, Federal government spending grew substantially resulting in fiscal crisis, inflation and heavy borrowings, subsequently, through the austerity measures adopted in 1982 and Structured Adjusted Programme (SAP) introduced in 1986, the country attempted to bring down fiscal deficits as part of its stabilization and adjustment programmes often by reducing public spending on across – board basis. These reductions resulted in unprecedented economic and social costs as HCD was neglected with adverse long-term development consequences (Oyinlola and Adams, 2003). Thus, the ultimate goal of economic development which underscore the need to improve the well-being of people were overlooked.

Nigeria HDI Value and Rank:

Nigeria HDI value for 2019 is 0.539 which put the country in the low human development categorizing – positioning it as 161 out of 189 countries and territories.

Between 2005 and 2019, Nigeria's HDI value increased from 0.465 to 0.539, an increase of 15.9 percent. Table 2.1 reviews Nigeria's progress in each of the HDI indicators. Between 1990 and 2019, Nigeria's life expectancy at birth increased by 8 years, mean years of schooling increased by 1.4 years and expected year of schooling increased by 3.3 years. Nigeria GNI per capita increased by about 58.0 percent between 1990 and 2019.

Table 2.1: Nigeria's HDI trend based on consistent time series data and new goal posts

Year	Life Expectancy at birth	Expected year of schooling	Mean year of schooling	GNI per capita (2017 ppp)	HDI value
1990	45.9	6.7		3.109	
1995	45.9	7.2		2.775	
2000	46.3	8.0		2.739	
2005	48.3	9.0	5.2	3.675	0.465
2010	50.9	8.4	5.2	4.636	0.482
2015	53.1	9.7	6.2	5.356	0.526
2016	55.5	9.5	6.3	5.160	0.526
2017	54.0	9.7	6.4	5.032	0.531
2018	54.3	9.7	6.5	4.929	0.534
2019	54.7	100	6.7	4.910	0.539

Source: UNDP (2019) Secondary of human development report for Nigeria (1990 – 2019)

In recent times, renewed attention was paid to the role of HCD in the country's development process and this has prompted the federal government to declare in its 1999 – 2003 economic policy programme that the economy exists for and belong to the people, and at all times, the general well-being of all the people shall be the overriding objectives of the government and the proper measure of performance. This policy statement of the government was further reiterated in the National Economic Empowerment and Development Strategy (NEEDS). The provision of high-quality education and health care to all the country citizens was considered a key element of public policy by all level of government. Against the above background, this study aimed at unraveling, how expenditures of government impact on human capital development in Nigeria spanning from 1981 – 2019.

METHOD RESEARCH METHODOLOGY

Research Design

The research design employed in this research is the ex-post facto research design which according to Kerlinger (1964) defined ex post facto research as that researcher in which the independent variable or variables have already occurred and in which the researcher starts with the observation of dependent variable or variables. In ex-post facto research, the researcher takes the effect (dependent variable) and examines the data retrospectively to establish causes, relationships or associations, and their meanings. The ex-post facto research design is adopted because, our data are time series data. We are only analysing our obtained data for the period (1980-2019).

Analytical or Estimation Techniques

We specify our model base on the Autoregressive Distributed Lag (ARDL) method. Studies on Autoregressive Distributed Lag (ARDL) models date back to the preliminary works of Pesaran and Shin (1999) and Pesaran, Shin and Smith (2001). The preference for this approach relies on the easy estimation of the parameters of the relationship. That is, that both the long run and the short run parameters could be obtained in a single estimation.

The basic form of an ADL ($p, q_1, q_2 \ldots q_m$) model is specified thus:

$$\Theta_t = \sum_{i=1}^{\rho} \delta_\kappa \Theta_{it-\rho} + \sum_{i=0}^{q} \beta_\kappa x_{it} + \mu_t \qquad (1)$$

Where,Θ_t, is the explained variable; x_t, are the vector of explanatory variables in the model which could be endogenous or exogenous; μ_t, is a white noise variable assumed to be serially independent of other variables in the model; *(p,q)*are the various lags of the variables in the model, $(\delta_\kappa, \beta_\kappa)$ are estimated parameters to their lags $\kappa, and\ q = 1,2 \ldots m$.

Other scholars have outlined other benefits of the Autoregressive Distributed Lag (ARDL) models (Akpan, 2011 and Nkoro and Uko, 2016). The long run relationship of the underlying variables is detected through the F-statistic (Wald test). In this approach, long run relationship of the series is said to be established when the F-statistic exceeds the critical value band. That is, if the computed F-test value lies above the upper bound critical value, long run cointegration relationship exists among the variables. A computed F-test value lower than the lower critical bound value is an indication of no cointegration. Similarly, a computed F test value in-between the two critical bound values are indication of inconclusive analysis (Bassey and Ekong, 2019).

An expansion of the above model to a standard bound testing procedure becomes:

$$\Delta\Theta_t = \delta_o + \sum_{i=1}^{\rho} \delta_\kappa \Delta\Theta_{it-\rho} + \sum_{i=0}^{q} \beta_\kappa \Delta x_{it-q} + \psi_1 \pi_{it-1} + \psi_{2i} x_{it-1} + \mu_t \qquad (2)$$

Where, ψs, are the parameters of all the included variables in the model lagged one period, Δ, is the difference operator, other indices are as already defined.
For our human capital development and key government expenditure on education and health expenditures analysis, the long run relationship is specified in equations (3) thus.

$$\begin{aligned}\Delta HDI_t = \delta_o &+ \sum_{i=1}^{\rho} \delta_1 \Delta HDI_{it-\rho} + \sum_{i=0}^{q} \beta_0 \Delta Gov\ Edu_{it-q} + \sum_{i=0}^{q} \beta_1 \Delta Gov\ Heaith_{it-q} \\ &+ \sum_{i=0}^{q} \beta_2 \Delta GE_{it-q} + \sum_{i=0}^{q} \beta_3 \Delta gfcf_{it-q} + \sum_{i=0}^{q} \beta_4 \Delta gdp_{it-q} + \sum_{i=0}^{q} \beta_5 \Delta\ Ir_{it-q} \\ &+ \sum_{i=0}^{q} \beta_6 \Delta\ Exc\ Rate_{it-q} + \psi_1 HDI_{it-1} + \psi_2 Gov\ Edu_{it-1} + \psi_3 Gov\ Health_{it-1} \\ &+ \psi_4 GE_{it-1} + \psi_5 gfcf_{it-1} + \psi_6 gdp_{it-1} + \psi_7 Ir_{it-1} + \psi_8 Exc\ Rate_{it-1} + \mu_t \end{aligned} \qquad (3)$$

Definition of Variables and Wources

Human development index (HDI): A summary composite measure of a country's average achievement in three basic aspects of human development, health, knowledge and standard of living (World Health Organization).

Government expenditure on education ($\mathrm{Gov\ Edu}$): This is government public spending on education and may include direct expenditure on educational institutions as well as educational related public subsidies given to households and administered by educational institutions. Higher expenditure on education will increase education infrastructures, improved the quality of education through manpower training and ultimately improves the economy's human capital.

Government expenditure on health ($\mathrm{Gov\ Health}$): This is the general expenditures of government on health. It also includes private expenditure on health channeled through the government. Basically, allocating more funds to the health sector should make health care presence assessable and affordable for many.

Gross Domestic Product (GDP): GDP is the total market value of all final goods and services product within a given period by factors of production located within an economy.

Government expenditures on other sectors (GE): This is the general government expenditures on other items net of expenditures on education and health. The intuition here is that government expenditures on other things may have spillover effect on human capital development that may be disguised in education and health expenditures.

Exchange rate (Exr rate): This is the rate at which the Nigerian currency (the naira) is exchange for other country's currency.

Interest rate (IR): Interest rate is the percentage of a sum paid on the loan for investment. In the case of government investment, it is the price paid to raise funds for investment such as expenditure on education and health.

Gross fixed capital formation (GFCF): Net increase in the physical assets of the country over a specified period of time.

A Priori Expectation

A priori expectation of government expenditure on key development variables like education and health has the right positive signs as captured in equation 3; $\psi_2 > 0$, and $\psi_3 > 0$, respectively implying that as the government expenditure on education and health increases human capital development proxied by human development index (HDI) increases, hence a direct positive relationship. Other variables such as Gross Domestic Product, Government expenditure on other issues, and gross fixed capital formation are expected to have the right positive sign. However, interest rate is expected to have a negative sign.

Stationarity Test

We used the PP test for stationarity developed by Perron (1997) in this study. There is wider acceptability in the literature that the PP test evaluates the time series properties of the variables in the presence of structural changes at unknown points in time and thus endogenises these structural breaks, an advancement from other traditional diagnostics test. The PP test is specified as:

$$\theta_{\alpha}^{*} = \theta_{\alpha}\left[\frac{\gamma_{\circ}}{\omega_{\circ}}\right]^{\frac{1}{2}} - \frac{T(\omega^{\circ} - \gamma^{\circ})[se(\varphi)]}{2\omega_{\circ}\frac{1}{2}s} \qquad (4)$$

We support this with the DF-GLS test, which possess good size and power properties will also be employed on the variables (Aziakpono and Wilson, 2013). The test statistic is generated from the parameters gotten from the following equation;

$$\Delta y_t^d = \vartheta y_{t-1}^d + \delta_1 \Delta y_{t-1}^d + \ldots . + \delta_p \Delta y_{t-p}^d + \mu_t \qquad (5)$$

Where, y_t^d is the detrended data series; Δ is the difference operator; $\vartheta, \delta_1, \delta_p$ are parameters to be estimated and μ_t is the error term.

Data Analysis

The result of the PP and DF-GLS unit root test are reported in Table 4.1. The PP and DF-GLS indicate that all the variable were non-stationary at levels apart from gross fixed capital formation (gfcf) which was stationary at level, but others such as gross Domestic product (GDP), human development index (HDI), government expenditure on other sectors (GE), government expenditure on education (Gov Ed), government expenditure on health (Gov health), interest rate (Ir) and Exchange rate (Exc Rate) were stationary at first differences. This implies that the null hypothesis of non-stationarity for all the variables apart from gfcf which was rejected at levels, other were rejected at first difference of each series. Most importantly, the result shows that we can confidently apply the ADRL methodology to our model.

Table4.1: Unit root test results

Variables	P P test			D F-GLS test		
	Level	1st diff	p-value	Level	1st diff	p-value
gdp$_t$	7.0946			0.1704		
Δgdp$_t$		-8.5407***	0.0000		-7.5775***	0.0000
HDI	0.6611	-5.6335***	0.0002	-0.1487	-4.9076***	0.0002
Gov Health	3.2579	-5.0145***	0.0000	0.3734	-4.5557***	0.0003
Gov Edu	0.9422	-3.0523**	0.0479	0.7400	-3.1756***	0.0049
GE	-0.77405	-14.7487***	0.0081	-0.1556	-8.8801***	0.0000
Ir	-0.1570	-3.7869***	0.0001	-1.0496	-2.0353**	0.0324
Exc Rate	1.9314	-3.2645**	0.0242	1.3204	-3.3447***	0.0002
gfcf$_t$	-2.5932*	-9.1547***		-3.3152***		

Source: Author's Computation extracted from Eviews 10.0

Superscripts *, ** and *** denotes rejection of the null hypothesis of existence of unit root at 1%, 5% and 10% significance level. Model includes intercept only with lag selected based on Akaike information criterion

The ARDL bounds test for the presence of long-run relationship in equation 3 are reported in Table 4.2. The bound F. statistics for cointegration test yields evidence of a long run relationship between human capital development and government expenditures on key development issues like education and health. The computed F-value of 7.8 is greater than the lower and upper bound of the 5% critical values resulting in the rejection of the null hypothesis of no long-run relationship between the examined variables. This evidence rules out the possibility of estimated relationship being spurious.

Table 4.2: Bound Test result

Test Statistic	Value	Signif.	I(0)	I(1)
			Finite Sample: n= 38	
F-statistic	7.8039	10%	2.277	3.498
K	8	5%	2.73	4.163
Actual Sample size	38	1%	3.864	5.694

Source: Author's Computation extracted from Eviews 10
Note: The lag structure was selected based on Akaike information criterion. K is the number of regressors.

Table 4.2 shows that under a finite sample size of 38, the calculated F-value of 7.8 greater than the lower and upper bound values at 5 percent level of significance mean that the null hypothesis of no level relationship cannot be accepted. The implication is that there is an investigable relationship between human capital development and government expenditure on Education and Health that should be investigated. Thus, we proceed to investigate the relationship.

First, we examine the lag length appropriate for the relationship and present the result in Figure 4.1. Figure 4.1 shows 20 top lag selection after a random analysis of over 2500 different lag specification is systematically generated. From Figure 4.1, the best lag specification for the relationship is ARDL (1,2,3,2,2,2,1,2,) based on Akaike Information criteria. This lag length was adopted for the study.

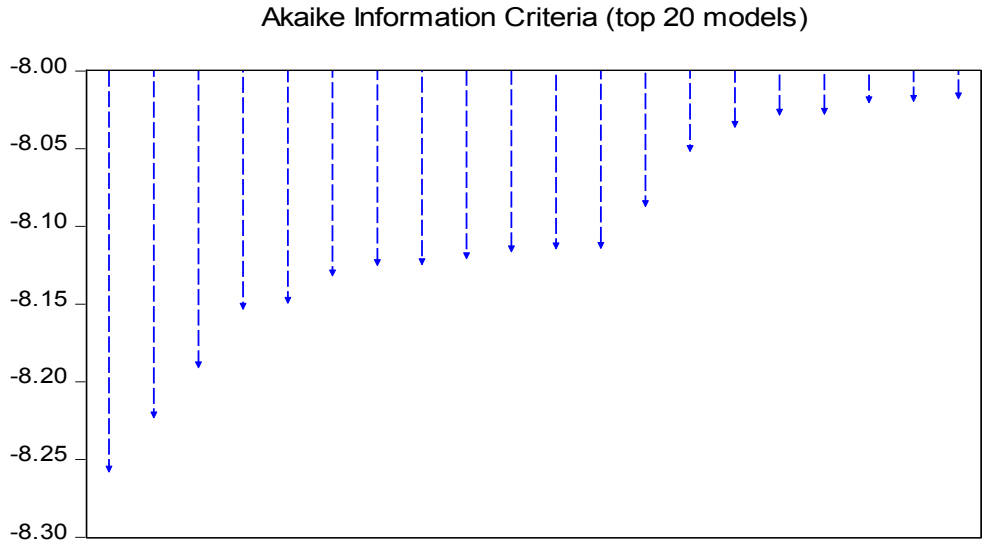

Figure 4.1: Model Lag Selection
Selected lag: ARDL (1,2,3,2,2,2,1,,2,)
Selection Criteria: Akaike Information criteria
Source: Author's Computation

We estimate our ARDL model using the lag specification adopted above and present the short run result in Table 4.3. Table 4.3 shows that government expenditure on Education exerted statistically significant positive effect on human capital development (HDI) at significant magnitude throughout the short run period. At least a unit rise in government expenditure on education improves human capital development by 0.30 units in the short span. Cumulatively, the short run effect of education expenditures on human capital development is approximately 32 percentage point. This outcome complements Obi and Obi (2010), who found that rising

expenditure on education raised human capital for future development and differed from the results of Adenuga (2002) who had a negative impact of expenditure on education on the growth of human capital in Nigeria.

However, government expenditure on health weakens human capital development at the current period. A percentage rise in government expenditure on health reduces human capital development by 0.2 percent approximately in the current short run period. However, such effect will not be significant statistically. As the short run period prolong, government expenditure on health produced positive effect on human capital development that will be significant statistically over time. Cumulatively, a percentage rise in government expenditure on health will produce at least 2 percent improvement in human capital development approximately. Equally, total government expenditure on other sectors net of education and health exerted statistically significant positive effect on human capital development in the short run. A percentage rise in general government expenditure net of education and health will go a long way in boosting human capital development by at least 3.4 percent cumulatively within a short time.

As expected, a rise in interest rate will reduce human capital development. As our result shows, a percentage rise in interest rate will dipped human development index by approximately 1 percent in the short run. the implication here is that a rise in the cost of funds reduces government expenditure, including government expenditure on EDU & Health, thereby dipping human development index and statistically significant.

The effect of capital stock as proxied by gross fixed capital formation on human capital development is mixed in the short run.

Table 4.3: Short run Estimates

Dependent Variable: HDI

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
HDI(-1)	0.551891	0.320710	1.720845	0.1236
Gov Edu	0.024275	0.010910	2.225087	0.0567
Gov Edu(-1)	0.300105	0.062963	4.7663707	0.0055
Gov Health	-0.001540	0.002660	-0.579009	0.5785
Gov Health (-1)	0.003073	0.003425	0.897310	0.3958
Gov Health (-2)	0.014588	0.004723	3.088440	0.0149
Ge	0.021218	0.008988	2.360627	0.0459
Ge (-1)	0.012743	0.011699	1.089306	0.3077
gfcf	-0.333304	1.110505	-0.300205	0.7790
gfcf (-1)	9.320701	3.450701	2.701102	0.0539
Ir (-1)	-0.006568	0.002857	-2.298422	0.0302
Exr rate	-0.000163	0.000103	-1.589640	0.1379
Exr rate (-1)	0.000205	0.000113	1.820580	0.0937
gdp (-1)	-0.002299	0.001140	-2.015687	0.0668
Ecm (-1)	-0.156882	0.047856	-3.278209	0.0021

R-squared	0.78	Prob F-stat	0.0289
Adjusted R^2	0.70	Mean dependent var	0.000579
Wald F-stats	6.5757	S.D dependent var	0.010797
Jarque-Bera	1.5967	Akaike Inf. criterion	2.1481
Durbin Watson Stats	1.99	SC	3.1675

Source: Author's computation extracted from Eviews 10.0

An initially declining insignificant effect of capital stock on human capital development soon grows into statistically significant positive effect as time passes (This shows that gfcf affects HDI after a lag). Equally, both exchange rate and the general economic performance also produced statistically significant negative effect on human capital development

Generally, our study is a good fit as over 70 percent of variations in the dependent variable is explained by the explanatory variables in the system. Our DW statistic of 1.99 shows that the system is free of autocorrelation.

The long run result of government expenditure on health and education on human capital development is reported in Table 4.4.

Generally, our study is a good fit as over 70 percent of variations in the dependent variable is explained by the explanatory variables in the system. Our DW statistic of 1.99 shows that the system is free of autocorrelation.

The long run result of government expenditure on health and education on human capital development is reported in Table 4.4.

Table 4.4: Long run estimates

Dependent Variable: HDI

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Gov Edu	0.0941	0.0316	2.9778	0.0406
Gov Health	0.0728	0.0485	1.5018	0.2075
GE	0.0253	0.0246	1.0276	0.3622
$gcfc_t$	0.0218	0.0153	1.4262	0.2270
gdp_t	-0.1334	0.0360	-3.7057	0.0207
Ir	-0.0222	0.0105	-2.1096	0.0451
Exc Rate	-0.0198	0.00561	-3.5294	0.0243
C	0.5639	0.0907	6.2145	0.0034

Source: Author's computation extracted from Eviews 10.0

The result shows that in the long run, expenditure on education continues to impact positively on human capital development at statistically significant levels. A percentage rise in expenditure on education will increase human capital development by not less 9 percentage point. Equally, it is only in the long run that expenditure on health will deliver a steady positive effect on human capital development even when the effect will be marginal statistically. At least a unit rise in expenditure on health will produce 0.1 unit increase in human capital development approximately. Cumulatively, a unit increase in expenditures on health and education may improve human capital development by at most 16 percent in the long run. This has implications for development. Development is a composite issue and should be discussed as such. Discussed at the individual level, development may be slow, sluggish or even meaningless. However, considered at an aggregate or composite level, much larger progress may be deciphered. Perhaps such duo impact was what motivated Kanayo (2013) to agitate for higher investment in education and health as a joint venture for economic growth. The short run negative effect of IR continues to the long run. In the long run, the effect is more rather pronounced, as percentage rise in IR will reduce human development index by more than 2 percent and statistically significant.

Government expenditure on other things in the economy continues to show positive outlines on human capital development in the long run. However, its effect will be statistically insignificant. Following the same trend, new additions to physical structures in the economy(gross fixed capital formation) also produce statistically insignificant positive effect on human capital development of not above 2 percent at every single change. Gross Domestic Product and Exchange rate both exerted statistically significant negative impact on human capital development that draws extensively from the short run.

Stability Checks

Figures 4.2 and 4.3 present the cumulative sum and the cumulative sum of squares respectively of the analysis of expenditures on health and education on human capital development. When the validity of our results were investigated and reported on Figures, we could not reject the hypothesis of stable parameter estimates. The cumulative sum test that identifies systemic changes in the coefficients of the regression, shows that our parameter estimates falls within the 5 percent confidence interval. The implication of this result is that our estimates are stable as there is no indication of instability arising from the figure.

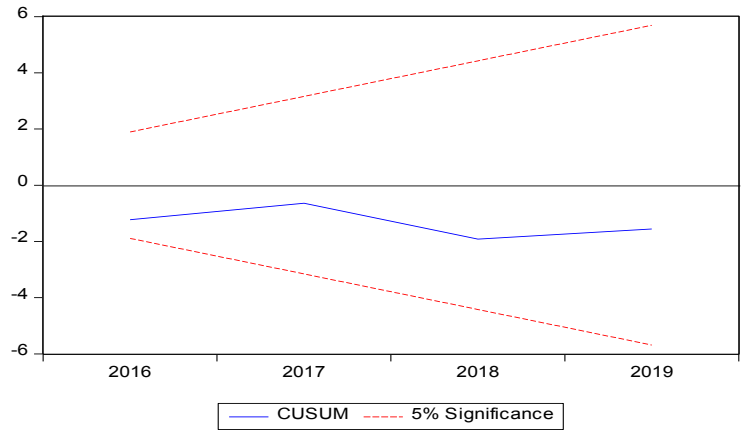

Figure 4.2: Stability results for government expenditures on human capital development (Cumulative sum test)

Source: Author's extraction from Eviews 10.0

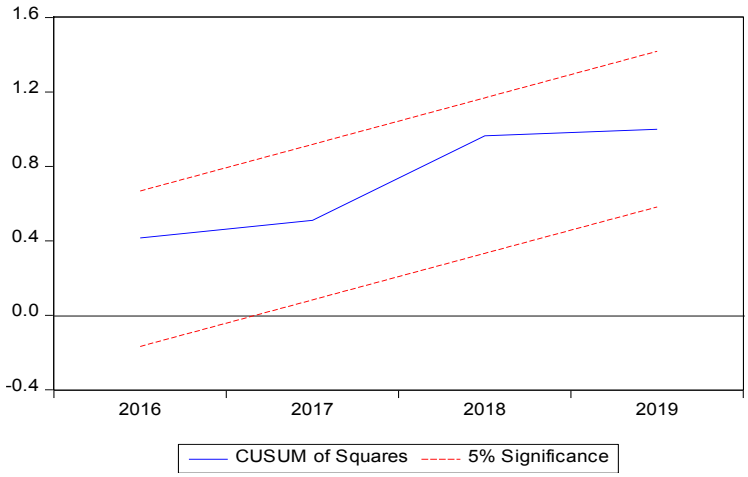

Figure 4.3: Stability results for government expenditures on human capital development (Cumulative sum of squares test)

Source: Author's extraction from Eviews 10.0

SUMMARY, CONCLUSION AND RECOMMENDATIONS

In investigating the effect of government expenditure on human capital development for the period 1981 – 2019, we modeled govt. Exp on education (Gov Edu), government expenditure on health (Gov Health), Gross Domestic Product (GDP), Government Expenditure on other sectors (GE), Exchange rate (Exr rate) and Gross fixed capital formation (gfcf) against human Development Index (HDI). The study employed the PP and DF-GLS unit root test and ARDL Bound test to estimate the long run relationship between human capital development and government expenditures on key development issues like education and health. It revealed that government expenditure on education exerted statistically significant effect on human capital development in Nigeria both in the long run and short run implying that public expenditure on education contributes to increase in human capital development in Nigeria. However, government expenditure on health weakens human capital development in the short run, but as the short run period prolong, government expenditure on health produced a statistically significantly positive effect. Moreover, the effect of capital stocks proxied by gross fixed capital formation grows into statistically insignificant positive effects as time passes. Equally, both exchange rate and general economic performance also produced statistically significant negative effect on human capital development.

The structural stability tests as presented in figure 4.2 and 4.3, both CUSUM test and CUSUM square test showed that the model is stable and there is no structural change in the coefficients as vectors of the coefficients remain constant all through the period because the blue lines are between the red lines at5% level of significance, hence we accept the null hypothesis of no structural change in the coefficients.

On the basis of the result, the study concludes that cumulatively, expenditures on education and health may improve human capital development by at most 16% in the long run. Thus, they should be composite consideration in budgeting, allocation and implementation of expenditures on human capital development. This has the tendency of allowing the effect of any expenditure on human capital development to be seen and felt.

Recommendations

1. There should be a balanced allocation of funds with adequate attention paid to the Education sector since this has the tendency of improving the quality of human capital at significant levels. Education allocation at the present should have at its back education security given the current reality in the education sector.
2. Equally, we recommend significant allocation to the health sector since there could be long term positive effect of such expenditure. Again, talking from the position of current realities, this will present a proactive stance in militating unexpected health situation like the case of covid 19.
3. We strongly recommend for composite consideration in the budgetary allocation and implementation of expenditures on human capital development. This has the tendency of allowing the effect of any expenditure on human capital development to be seen and felt.
4. From the position of this paper, a fall in the exchange rate weakens human capital development, we therefore proposed revenue diversification for the country for improved exchange rate position. In this case, local content production is suggested since it will also reduce dependence on foreign production and boost human capital development.

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Towards a School Physical Education Learning Model Based on Traditional Sport Game to Develop Pupil Well-Being in Tunisia

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Abstract:
The introduction of the concepts of health education for physical education raises many questions and apprehensions among physical education teachers in Tunisia who have been entrusted with this new disciplinary field while imposing on them a different approach to teaching. In fact, in this perspective, rather great importance is given to health education. Moreover, among the pedagogical orientations put forward by these designers, the accent must be placed on replacing the notions of learning objectives with an approach organized around the notions of the development of disciplinary and transversal skills through the traditional sports game. Interested for several years in games and health education, we wanted to make our contribution to the attempts undertaken so far to implement traditional sports games in the school environment. To have a more objective idea of the needs of the educators, we began by surveying the status of the implementation of traditional sports games in and around the Sfax region. This approach made it possible to highlight the understanding that some teachers have of the concepts involved and the strategies they have developed to implement them. Subsequently, taking into account the needs identified during our survey, we developed an innovative intervention approach, integrating games in the field of health education and didactic devices already tested in schools. We think, through this work, to bring our contribution to the actions already undertaken by the teachers, to make health education through traditional games an integral part of the Tunisian school.

Keywords: Traditional sports game, physical education, health education, Action field, Well-being, Tunisian pupil.

INTRODUCTION

Traditional sports games are motor situations that were historically common in the Tunisian territory (urban and rural); these games were adapted to the particularities and cultures of the regions. These games have been forgotten after industrialization in recent years. Traditional sports play can be considered a form of behavior, which takes place according to rules in a specific space and time. Because of this characteristic, the game becomes the subject of study in different sciences. Interest in the study of the game arises in pedagogy, psychology, and sociology. This fact confirms the importance of play as a unique phenomenon that accompanies us throughout our life since early childhood. Many games are intended for different age groups of children and adults. Some of them are used in working with children, due to the possible effect on improving the child's psycho-physical state. In the traditional sports game, players pay attention to compliance with the rules and warn against certain deviations. Children are very critical and consistent in applying specific rules. During the game, they warn each other about behavior that is not allowed. Therefore, the traditional play-based school can improve human relationships. In traditional games, children experience higher positive emotions in cooperative motor

communications than in opposition motor interactions. Moreover, in ambivalent motor interactions, this emotion is very balanced since the child lives in the same situation of play cooperation and opposition at the same time. Traditional sports play can contribute to children's motor, linguistic, cognitive, and social-emotional development (Parlebas, 1999, 2009). They are all mentioned as being psychologically healthy for children. As a result, sports games could provide benefits to physical health, in other words, increase heart rate, oxygen consumption, and blood pressure. This benefit indicates a potential role in cardiovascular health strategies for children (Dugas, 2019).

In short, traditional sports games contribute not only to the improvement of psychological and social health but also to the physical health of children (Bergugnat and al., 2017). Therefore, traditional sports games, given the richness of their motor communication networks about sport, are a source of motor skills development that help children control their bodies, manipulate their environment, and train skills. Traditional sports games must be taught and practiced as a field of action in school physical education in Tunisia. Have several studies shown the positive effects of early movement competence programs on children's movement competence development (Legrand; Meziani and Collard. 2017), including those at risk Legrand; Meziani and Collard. 2017; Ben Amar & al., 2020). While the literature suggests different teaching programs, traditional sport can be proposed as an approach to teaching movement skills in school physical education; it is the main way children learn about their bodies and motor skills. It also plays an important role in children's cognitive and emotional growth. The purpose of this study was to understand how physical education teachers believed that traditional sports games could benefit the psychological, social, and physical health of their pupils. The research will also explore teachers' perceptions of traditional sports games as a field of action and how they could be adapted as part of a physical education program. From these considerations; our goal is to expose the contribution of traditional sports games to each dimension of health.

In terms of the emotional, Parlebas, (1969), and ParticipACTION (2018), argued that the affective dimension is the key to "motor conduct" and personality development. Emotional involvement is a constituent part of motor Behaviors. The study conducted by Elloumi (2000 ; Ben Amar and al., 2020), on the Tunisian traditional sports games, confirmed their extraordinary contributions to the education of emotions. Traditional sports games also play a vital role in social and cultural dimensions of health: Interpersonal relations, social dialogue, and socialization occurring from different motor interactions within the cultural context in which we live are among the most notable contributions in this regard.

Finally, we will consider the hypothesis of social health education as part of physical education and in particular, the contribution that the traditional game can be improved. For this reason, we will demonstrate the educational and social richness that games bring to the twenty-first century. In this perspective, the traditional sports game is a prominent tool that can contribute to developing the social health of pupils.

In this complex school and social system, we try to ascertain whether the educational values of traditional games are still recognized and in what educational context these games still occupy a significant place today. They would actively participate in the psychic, motor, social, cultural, and physical training of pupils in PE or not.

METHODS

This study was conducted in the city of Sfax in Tunisia during the 2020-2021 school year. The study took place in schools in the city center, with PE teachers aged 25 to 55 (See Table 1). In this qualitative research, data is collected through in-depth interviews with participants. The participants are composed of 15 teachers (five from each grade). They are asked to comment on the effects of traditional sports play on psychological, social, and physical health and their integration as an area of action in school physical education programs. As an illustration, we asked the teachers, "What do you think about traditional sports games?" ; "Is there anything special about traditional sports play compared to sport?" ; "To what extent are traditional games both culturally relevant and valuable to society?", "What is the place and role of traditional games in PSE sessions now?" , "What are the factors and representations that can influence this place and role?" "What suggestions do you have for senior officials to integrate traditional sports games into school-based physical education programs?" (See, table 2)

Table 1: Summary of methodological approaches

Field investigation	**Study population**	**Interest**
Semi-directive interviews with school teachers,	5 primary school teachers	Data collection of the effect of traditional PSE sports games on the well-being of primary school pupils
Semi-directive interviews with college PE teachers	5 College teachers	Data collection of the effect of traditional PSE sports games on student well-being in college
Semi-directive interviews with PE teachers in high school	5 High school teachers	Data collection of the effect of traditional PSE sports games on student well-being in high school

The interview is composed of four open-ended questions, based on four axes (see maintenance grid):

- Teachers' perception of traditional sports games.
- The educational value of traditional sports games according to teachers
- The impact of traditional sports games on the student's health, psychological, social, and physical health.
- The importance of traditional sports games as a field of physical education.

What we are interested in is the reality, the thoughts they have about these games, their practices, and how they are presented. It was of great interest to our study as it helps us to understand the perspective of physical education teachers at different school levels (primary, college and secondary).

Table 2: Subthemes Within Each Themes

Thèmes	Corresponding Sub-themes	Relaunch
Representatives of teachers towards traditional sports games.	Development of transversal skills, Development of physical and motor skills, Fun, Educational interest, Development of the desire to win without the spirit of competition, Transmission of «tradition», Stand out from the sporting/competition model	Ask the same question in different forms, if you don't get a well-developed answer…
The educational value of traditional sports games according to teachers	Imagination and creativity in the game, Respect of the rules of the game, Pleasure of the game, Cultural reference, Culture put into action, Knowledge of societies, Safeguarding a traditional culture, Education of the body and mind of children, Education through play	
The impact of traditional sports games on the health, psychological, social and physical health of pupil.	Speed, Skill, Balance, Relaxation, Strength, Flexibility, Endurance, Respect for others, Cooperation, Respect for rules, Diversity, Autonomy, Motivation, Creativity and invention of rules, Citizenship learning, Relational well-being, Good health, Health benefits of the game, Sociability and Fulfillment, Sources of Moral and Social Development, Assertiveness and Motor Personality Building, Taking Responsibility, Improving Intellectual Performance; the joy of action, Confidence building, Control of the body, Control of emotions, and Decision-making.	
The place of traditional sports games as a fi99eld of action in PES.	Educational Interest, Physical and Motor Skills, Game Didactization, Learning and Renewal of Educational Practices, Significant Educational and Educational Use Opportunities	

RESULTS

In-depth interviews with physical education teachers on the effect of traditional sports games on the well-being of Tunisian pupils have revealed a great deal of information on the type of games and their effects on health: psychological, social, and physical of the pupil. Furthermore, teachers affirm that traditional sports games are richer than sports and should be included as an activity area in school physical education curricula.

Impact of Traditional Sports Games on Pupil's Well-Being, Psychological, Social, and Physical Health

Biological Benefits:

In the opinion of teachers at all three school levels, traditional games develop the student's physical qualities of speed and skill. Balance is very important in learning (sensory and motor learning), according to teachers in primary education, this is certainly the preschool case. This is less the case for the larger ones for whom the engine balance is acquired. In primary education, endurance is an essential quality developed by traditional sports games but it loses its importance in the upper classes. In primary school, we believe that the development of these qualities is partly linked to the investment and commitment of students in activities that are more spontaneous in primary school than in secondary school. Students are always active, running and moving. The majority of teachers emphasize that traditional sports games are beneficial;

"Just as sports involve the student in a complete activity, so they affect all the parameters of a Unlike society games, the nature praxis of traditional sports games requires players to make some physical effort in all motor situations, whether in "psycho-motor" games where we participate without interaction with other players (short runs, jumps, throws ...) or in "socio-motor" games, where it is necessary to interact with other players (danced games, fight games, ball games, ...), object to the opponents (confrontations of fights, ...) or by opposing teams and cooperate with other groups (games ball, hide and seek ...). However, energy expenditure is very different in track racing games where all participants make a physical effort and similar games in which the internal logic gives rise to situations that are changing constantly, due to uncertainty or unexpected from opponents or the relationship with the physical environment. In these cases, each player will make an effort according to the different decisions associated with roles, strategy, and the risks taken during the game.

In contrast, it should probably qualify that paradise by the fact that institutional sports games carry their institutional pathology. Beyond the sports injury, visible and often in the business logic, some aspects are more pernicious and traumatic. We can cite for example osteoarthritis early, due to the intense and repeated solicitation of certain joints in road runners or gymnasts. Mention may also be cardiac events in patients with hypertension associated with intense isometric muscle work (See Legrand and al.2017; ParticipACTION 2018; Dugas, 2019). Commitment to regular "fun-motor" games accompanied by a modified self-image and a more careful attitude toward the lifestyle (See CMHCC, 2018; Dugas, 2019). For Parlebas, "emotion is the key to motor behavior". These affective and emotional aspects will be extensively explained below.

Emotional Benefits:

Teachers at all three school levels say that traditional games develop the pupil's emotional experiences, which confirms what Parlebas said: "Affectivity is the key to motor skills" (Parlebas, 1986). This idea is approved by the majority of teachers:

"The traditional sport's game carries an infinite number of optimal experiences, which can contribute to improve self-esteem, consciousness and emotion regulation and, therefore, promote emotional dimension of health or quality of life."

The contribution of traditional sports games to education for improving the emotional aspects of health is undisputed. The different situations offered by these games can affect different dimensions of emotions. Traditional sports games are a collection of unusual situations that

require interaction with others, partners, or opponents. In these socio-motor games, affective is inseparable from the ability to interpret emotions. Learn the contingencies and risks created by other participants and how to respond to them. This is the case in the "Greek fighting games", where the actors must decipher, interpret and react to the opponent's unpredictable motor movements. This is the same example of team games that, like many ball games, must adapt to the behavioral and emotional reactions caused by the intervention of others. The environments in which traditional sports games take place (street, square, wasteland, or gymnasium) are laboratories that produce emotional experiences, learning, movement reports, and social benefits worthy of investigation.

Another teacher confirms this
"The individuality of an actor is expressed when he acts and moves his body. It is his whole being engaged in reflexes, emotions, expressions, decisions, or aspects of relationships."

The teachers also said;
"In a physical education course, the joy of the participants replaces the bitterness of the defeated...Traditional games offer competition that emphasizes positive relationships over dominant interaction increase."

The above considerations have led various research groups at universities in Spain, Portugal, and Brazil to study the relationship between different types of emotions and different families of traditional sports games. Data analysis confirms that different domains of family games do not behave in the same way. Positive emotions were expressed more strongly in non-winnable cooperative games, whereas negative emotions were elicited mainly in games where there was a chance of winning, losing, or being eliminated (Lavega, Filella, Lagarde, Mateu, & Soldevila, 2009, Legrand, Meziani & Collard. 2017, ParticipACTION 2018; Dugas, 2019; Quintana and Etxebeste, 2019).

Social Benefits (Relation Well-Being):
What can we understand by "well-being relational" in the context of traditional sports games? It is indeed a pleasure to play with others, live with them, and share common behaviors and emotions. The joy of interaction does not preclude the empowering effects of confrontation and combat, but confronting opponents within an accepted framework is part of collective stimulation. Traditional sports games have an inexhaustible variety, and relationship well-being depends on the adaptability of this prolific player. According to comments from physical education teachers (all school levels), traditional games can improve students' relationship well-being, and this confirms Parlebas' words: "To operate is to cooperate" (Parlebas, 1986; 1999). At the social level, play activities generally develop more social than innate physical qualities. This idea is supported by the majority of teachers;

"Traditional games are important for strengthening group spirit, know-how, and communication among participants (respect for others, cooperation, adherence to rules, gender diversity)."

Unanimously,
"Respect for your opponent seems to be innate in playing the traditional game."
"If you don't follow the rules, it will be difficult to play."
"Likewise, cooperation seems to be a hallmark of their practice... Cooperation is one of the main goals when setting up collective games."

One teacher interviewed
"It's about emphasizing cooperation and group organization in evaluation rather than technical know-how (passing, shooting, etc.). Traditional games develop all the qualities of a team sport, or more." It helps."

Based on Parlebas' work (1969, 2018) some of these activities, especially paradoxical games, present social interactions superior to certain collective sports. Legrand and al. (2017) noted that these social relationships "are much more ambiguous than those attested by the sports model. A playground or a work meeting is more like a game of "sitting ball" than a transparent and exclusive confrontation of the sport." Also, having a form of a ten-pass with the students at some point in time can include girls. Tunisian teachers confirm this idea;

"Gender diversity in PE is certainly more present and easier to implement in primary than in secondary. At least we think it will be more present in traditional sports games than in more institutionalized activities, as social practices of reference."

Players must be able to adapt to opposite situations, accepting opposition and cooperation in various forms. When faced with conflicts, the complexity of alliances, and unexpected initiatives within the group. All these urges to commit to serving your partner, to receive support from your partner, and to act in solidarity with others can create enthusiasm that ignites an emotional relationship. Upon reaching this level, Playful Happiness accepts the regulatory constraints of collective bargaining agreements. It becomes an essential framework for sharing the various vicissitudes, sometimes delightful, sometimes uncomfortable, that is part of an overall very motivating adventure. Learning to overcome defeat, risking personal gains to save a partner in trouble, or sacrificing oneself to free a partner's prisoner is an over-reliance on the player. It's a rich experiment that encourages you to break out of your routine.

The complexity of motor communication is so different from verbal communication that it makes for fascinating originality. The body is a sign Players must decipher other people's locomotion while knowing that others are deciphering their own. False evidence and deception lurk on the floor of "dodgeball" and "mini-goal." Children are enthusiastic about deciphering and coding this interaction-guided practice. Inherent in itself: You have to "hide the strategy game", provide false evidence, put yourself in the shoes of others through empathy and try to deduce their intentions.

The fun of the game lies in communication about communication, "meta-communication" that encourages players to intervene not only in the first level but also in the tactical implications of the second level. From an early age, the gleeful child feels the luxury of being a master of current affairs. For a while he holds the key...or whoever thinks he holds the key in the presence of another presumes the same fleeting privilege. Player to player, in this intertwined contact, the experience of interaction is multiplied, participants gradually come together, and a sense of belonging develops. Participants share a bit of adventure and a sense of collective identity and assertiveness. A college physical education teacher confirms this by saying:

"This relationship well-being is experienced as a joyful and stimulating emotion, a powerful motivator for exchange, contact, and sharing."

As such, traditional sports games promote better lives and are an undeniable element in the sense that health means the World Health Organization. 's happy reaction shows that traditional sports

games can be exhilarating. This relationship well-being is experienced as a joyful and stimulating emotion, a powerful stimulus for trade, contact, and exchange. Playing traditional sports, therefore, promotes a better life. This is an undeniable factor in the sense that the World Health Organization means health.

A Traditional Sports Games as a Pe Action Field

Interest in traditional sports games arises, in particular, from the variety of interaction situations they propose. Pupils learn to live different aspects of communication, exchange, and counter roles. Learning this adaptive capacity in contact with others is a socialization factor that supports interpersonal comfort and playfulness. Traditional sports games are veritable laboratories that seek to turn playful positivity into the gold of social cohesion. There is one problem though. In the spirit of sports, traditional sports games are based on confrontation and competition. Well, we've observed that organized competition tends to create frustration and discomfort. Can traditional sports games avoid this evil, the achievement of relational health? The aforementioned analysis allows him to distinguish between two types of competition: exclusive competition and departmental competition increase. An official decree from Tunisia determines the EP program.

Traditional sports games are rarely left out of these texts. PE teachers, especially in elementary and middle school, can afford to program games into EP sessions. Formal education is never a sport in primary and higher education. Skills are somewhat related to sports, but are given scope to engage in other physical activities;

"We can see that traditional sports games are being rehabilitated to a great extent in the physical education curriculum, especially in elementary, middle school and less in secondary."

In high school, teachers explain

"Traditional sports games in high school often used early in the cycle and during muscle warm-up, gradually transition into technically institutionalized activities."

The higher the level of the school, the more teachers choose sports activities presented in official texts instead of games. But teachers, for example, cannot be accused of using "mini-goals" as more of a collective game than football. The latter is certainly more sociable, but so are the 'mini-goals'. As such, teachers should justify these choices. However, Tunisian PE teachers may freely use traditional sports games. According to a college PE teacher;

"You have to have courage in your job if you want to make a little progress. For PE to be what it claims it wants to be through the official texts, teachers must be a bit courageous, but the courage is slim to have, because no one prevents traditional sports games, it is written nowhere. Just have the personal culture of the teacher in question. Indeed, the dimension of traditional sports games in the IOs is not highlighted. From the moment the teacher argues, he can introduce these fun activities..."

The fact that traditional sports games are absent from official examinations does not influence the choice of college teachers, since they have no exams to prepare for. A high school teacher says:

"...that a high school teacher prepares for the pupil the final EP baccalaureate exam throughout the year."

We found that traditional sports games could not be graded and were alienated from the school system built on performance and evaluation. We wanted to know if and at what level teachers excluded traditional sports games from physical education classes. Collected responses show that traditional sports games are virtually eliminated in the high school setting, but can be useful early in the session. According to the physical education teacher;

"The more traditional sports games are incorporated into the EP. They still hold an important and dominant position in Tunisia."

In short, traditional sports games are used fairly frequently in elementary, middle, and slightly lower high school sports programs. Teachers are more than willing to give traditional games more space in their sessions. Therefore, nothing prevents them from using them more often. Teachers who say they enjoy using traditional sports games often justify that they primarily prepare for group sports as well as fun activities. Moreover, it is essentially a playful feature attributed to traditional sports games by teachers. Therefore, while games allow for the understanding of motor skills, they must not be used coercively or legitimately. The most common situations in which games are used are warm-ups and group sports preparations, where session facilitation is minimal and scoring is non-existent.

According to a DUGAS study (2007) of teachers' representation of traditional games, they "enjoy a good image among both elementary and middle school teachers." However, this interest does not allow its use during EP. Also note that in DUGAS (2007; 2019), these results contrast starkly with the reality of the physical practice chosen during the sport session. "There is a reason why the didactics of collective games seem to have so little shared emotion! When the game looks fun, all that is left is the sport in its simplified form, the learning cycle. little by little, perhaps just to prepare for a better form of play: sport."

Although these games are widely used in primary school by adapting them or adapting certain rules, they can be used in a field of action apart from all school levels and allow the development of movement skills, social and cognitive. We put forward some motor specs in traditional sports games, which do not exist in sports, and which can serve as an area of action.

Game without Competition

These practices are employed in various group forms such as farandoles, parades, chains, rounds, trios, and duets, often accompanied by nursery rhymes or sung verses and choruses. The overall scenario of action is customized through a series of lyrically heralded events. This gives actors the option to intervene in certain sequences, often allowing them to name their partners. In these sung games, the relationship experience is free from competition and accountability. There is no final winner. This is a role-play of a true staging in which the harmonization of the motor driving the player's collective needs; creates a strong sense of fusion in the group. The song, which supports the course of action, increases the sense of group belonging and emphasizes the collective tone of this type of game The atmosphere of joy that usually accompanies these singing games shows how these can be active agents of fun to work together, generating relational wellbeing.

Unstable and Flexible Network Game

Aside from team duels, teams facing two monoliths after a positive or negative relationship remain strictly irrelevant throughout the game, and there are sports games where alliances suddenly reverse. They provide the player with the opportunity to suddenly change partners and opponents even during the game. A player who was a teammate who helped or a player who passed the ball suddenly becomes an opponent to continue or take. Both cooperation and opposite relations are exclusive, i.e. completely different, separate, but unstable. More stable and unsolvable relationships feel, but flexibility in the player's relationship skills.

For example, in "Ball to Hunter", players who are actively attacked by hunters become partners with this ancient predator at the touch of a button. In "Ball at the Flag" in "Dodgeball"... the relationship suddenly reverses, but it's never ambiguous. Teammates and opponents split every moment. These "fun motor skills" situations are a bit disconcerting but still train relationship plasticity.

Games to the Original Network

Many traditional sports games, some of which belong to the category described, are based on interaction systems that are very different from typical sports of double symmetry. These systems provide children with opportunities to experience relationally abnormal and diverse situations, immersed in social environments far removed from the typical patterns of institutional sports games of dichotomous 'social movements. These structures are sometimes exemplified by motor interaction networks, which require unusual patterns of social connections, while others provide players with surprising forms of permitted behavior at any time during play. It is sometimes exemplified by the social movement's role network.

Paradoxical Games

Some traditional games offer radically original situations. They are paradoxical games in which the player's opponent is also a partner. Unbeknownst to the sports team, this scheme projects participants into the ambivalence of an unsettling yet highly stimulating relationship: both ally and foe. There is a paradox here. Anxiety related to the behavior of others persists.

Players must subtly decipher the actions of various actors and interpret them as He Twice or He Twice 'meta-communications'. And it is this subtlety that makes for a hilarious paradoxical game that will delight both children and teenagers or adults. In certain game, the paradoxes are imposed and seem obvious.

Players must anticipate the reactions of other protagonists, negotiate, and make address-proof relationalships before others' ambiguous actions. Solidarity communication and hostility communication always intersect and merge. Bonds are formed, revived, and unraveled in playful adventures. This tumultuous experience, punctuated by successes and disappointments, creates excitement that fuels intense enthusiasm. It enriches the player's relationship skills.

Approved by the game's internal logic, this ambivalence disrupts the usual pattern of restricting sports encounters to absolute conflicts between two adversarial blocs such as rugby, basketball, and water polo. The paradoxical harmony between the two players foreshadows trusting each other and showing loyalty in return. This way of overcoming the paradox negates betrayal. In this situation, betrayal is promoted by the expectations of the partner.

Paradoxical games abound in traditional sports games. These games will please the participants. They allow for physical performance and demonstration of possible athleticism but do not preclude a more robust and more modest part of the child. They lend themselves to mixing between boys and girls. They allow for frequent jokes and humorous exchanges, adding salt to conflicts.

Competitive showdowns, which can be very lively in many traditional sports games in sudden changes in alliances, especially know their progression. In other words, in "Ball to the Fighters" or "Sparrowhawk", the player who is caught does not lose. On the contrary, it ends up being one of the victor's partners and thus incorporated into the winning camp. In these games on a converging network of roles, all players participate in the victory and become winners. Competition is sharing. In traditional role-switching network games, splitting is done differently. Games like "Bear and His Guard", "Four Corners", etc. require each player to seize a dominant post to achieve success. However, he still cannot avoid moving up the ranks soon. Then, temporarily, each is triumphantly overcome. The game lacks calculations and ends with no score to claim the supremacy of one of the protagonists.

DISCUSSION

Traditional Sports Games: Area of Action for Social Health in Pe

Tunisian primary and secondary school teachers tend to agree that traditional sports games can teach new skills. it's not a priority. Rather, we believe that new skills are learned through game situations. Traditional sports games, on the other hand, can present situations in which learning is reinvested. However, this is not the case in high school. Similarly, the majority of teachers agree that traditional sports games make their students feel better. Certain authors (Parlebas, 1990, 2001, 2009; Dugas, 2007; Oboeuf and al., 2008; Bour, 2007; Brussoni et al., 2015; Quintana and Etxebeste, 2019; Etxebeste, 2012; Ben Amar and al., 2020) Traditional games play an important role about pupils' exploration of 'relationship happiness' and 'pleasure of meeting others', 'living together' and sharing common behaviors and emotions. role. The joy of this encounter does not preclude the tension of confrontation and struggle. Confronting dissent within an accepted framework is part of collective stimulation. There is an endless variety of traditional games, and interpersonal well-being depends on a player's ability to adapt to this rich variety of games”

Similarly, the majority of primary and secondary school teachers agree that traditional sports games promote good health. We are aware that teachers cannot object to this proposal. The good physical condition generally has a positive effect on health. According to Parlebas (2009), "His role can contribute significantly to learning to be socially productive while mastering the health determinants that are essential aspects of social well-being."

Our results also show that the majority of teachers tend to agree with using traditional sports games to preserve traditional culture. This consideration has already been made by Parlebas (2005), who describes games as cultural symbols. "Games are the creation of culture, the fruit of storytelling...They are also from rural areas. They correspond to social roots of behavior, communication with others, and contact with the environment. ... physical games inspired by the practices of everyday life are part of our cultural heritage, a cultural heritage based on the use of the body, based on motor behavior ... This playful ethnocentricity is a living It represents a culture, a culture that lives in the body and gesture. As such, games are places of memory, often ignored, but rich in evocative symbolism (...) The study of games can therefore provide an interesting entry point into the knowledge of society."

A variety of traditional sports games represent an introduction to learning and an update of pedagogical practice and should be integrated as a field of activity in physical education at all school levels. These results show the undeniable impact of modern practices on the exclusion of traditional sports games in high schools, suggesting that culturally, especially socially, traditional sports games should continue to be fully provided. , wondering how tradition and modernity can be reconciled. , which competes with the purely technical aspects of modern games. We believe this is an important role teacher can play in maintaining the social context of the game.

Knowing how to grasp them, traditional games offered action situations highly favorable to the self-realization of sociability, open and adaptable to multiple configurations, and confusing. Academic dueling in established sports provides an exciting practice of a very clear dichotomy that separates partners from opponents. However, a systematic and monopoly appeal to this kind of exclusive competition is fraught with various forms of resentment and frustration. Sports dueling, which has its rightful place in a balanced education, becomes fatal when its supposed practice is almost exclusively accepted as pedagogical. Many traditional sports games bring out unique perspectives, channel conflict and cooperation to competitors, and favor those who thrive on the greater well-being of relationships. Traditional sports games are a kind of model, a kind of "scaled-down model" (Collard and Dugas, 2008; Dugas, 2008; Jaouen, 2009; Quintana and Etxebeste, 2019). Therefore, managing the complexity and harmony of social relationships can contribute significantly to learning broad sociability and acquiring health factors that are important aspects of social well-being.

In the context of sports games, we find parties and local festivals to be one of the settings where traditional sports games get all the meaning, meaning. It promotes reciprocity and helps to revitalize conviviality, harmony, and relationships with others. In addition, in an increasingly cross-cultural society, we need to be aware of the ethnic dimension of our games (Eichberg, 2001; Lavega, March, and Filella, 2013; Legrand, Meziani, and Collard, 2017). It promotes different rights, shares our game and yours, promotes a culture of peace based on democratic relations, and integrates all stakeholders into the collective context to which they belong. (Jaouen, 2001; Joncheray & Richard, 2016; Amar, and al., 2020).

Today, there are many communities in Tunisia and other continents where traditional games are an integral part of local celebrations. The results obtained with the organization of traditional sports games in several parts of Europe have been demonstrated by local communities – municipalities, trade fair and festival governing boards, cultural associations, clubs, and professional organizations (Brotherhoods), cooperatives, breeders) shows great importance. Undoubtedly, this aspect, combined with the previous one, is the contribution of traditional sports games to improve various aspects of health. A systematic vision of traditional games and health justifies the necessary role of traditional sports games in the 21st century.

CONCLUSION

If descriptive and causal studies can confirm the evolution of health in physical education, we cannot imagine health education related to the subject, because only he can give meaning to his " motor conduct ". Therefore, the social benefits of epidemiological studies on the justification of physical education in school systems cannot be ignored. However, it has proved difficult to healthily educate a pupil to accept the relationship between meaning and meaning, so it is the humanities and social sciences that allow him to be given disciplinary status. The reports subjects maintain on their bodies, others, and traditional sports games determine the building of

relationship well-being and even social health. It is about building emotion and sustaining the search for meaning within the framework of the motor situations proposed in the lessons.

The reference to the sport diverts the school's physical education of the attention which it carried in the health, and of the continuity in which it was situated about the re-education. Winning in institutional autonomy, this one achieves at the same time profound theoretical processing. Confronted with the public of young children, working either in school, or specialized institutes, physical education teachers abandon the model of body-building to be raised and supported.

They will have to join logic where the motor behaviors are considered as the expression of the person, the shape taken by his being to the world. Referring to genetic psychology shows the continuity of the adaptive answers, which are motor, verbal, or operating, in clinical psychology for which, for example, the subconsciously deliberate mistake and the slip of the tongue are of the same nature. Physical education has to give the means to think of care of the child, not built on the weakness and the lack, but on the implementation of another relation to one, to the material world, and others.

Motor education can succeed only if it leaves the activity of the subject, the activity which transforms him because it expresses him in the totality of its dimensions.

Traditional games not only benefit the physical health, but also the mental and social health of children who play them. Games should be expanded in schools as part of the school curriculum. When using traditional sports games as a field of action, it is important to consider the child's entire personality, not just the execution technique.

AUTHOR CONTRIBUTIONS

IB, JA, NK and AE contributed to the conception and design of the manuscript. IB wrote the first draft of the manuscript. IB and AE revised it critically for important intellectual content. All authors contributed to the manuscript revision, read, and approved the submitted version

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Soccer and Culture: Aesthetics for the Masses

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Abstract:
In this brief account, I argue that the ubiquity of soccer should not be taken lightly. In fact, there may be a strong connection between soccer and aesthetics and by extension the "high" culture of art itself. I develop this argument based on a formalist account and then also make the claim that soccer is well appointed as a mechanism that is also instrumental in other social-cultural dimensions: politics; religion, philosophical thought and in envisaging a new world, marked by its innocence and creativity.

Keywords: culture, soccer, art, aesthetics, utopia

INTRODUCTION

The impact of soccer as a world sport is unparalleled. In this essay, I will outline how soccer inspires countless by its sheer formal beauty. Then I will analyze how that also has a dramatic effect culturally in terms of its extra aesthetic implications and meanings. I will ask the question whether this impact contains vestiges of art and philosophy or at least prepares the great mass of supporters towards such an awareness. I conclude that indeed soccer has the potential for world bettering.

The position of the researcher is a reflective one. The researcher stands back as it were in order to analyze and understand a particular area of focus. The problem arises when one considers that the manner and protocols of such research are itself part of a game, itself caught within the web of culture and institutions of power, and therefore no more than the product of a larger cultural sphere, rather than objective and factual. The researcher him/herself is also determined by the system and therefore does not operate at an intellectual distance enabling assessment of culture as such. Notwithstanding, the premise of this argument is that analysis and research can understand and quantify aspects of culture even as it is embroiled within it and thus can indicate or produce valuable insights about what is taking place currently. In such terms, I believe art and philosophy as applied to sports culture, in particular the game of soccer, can deliver a useful interpretation of the massive impact such a game has on a global scale.

SOCCER AS BEAUTIFUL

Gumbrecht's book In Praise of Athletic Beauty (2006) sets the benchmark for the idea that sport is an aesthetic phenomenon and that it may be beautiful. I would extend the argument and claim that it is eminently artistic. Unlike previous writers (Cordiner, Best et al.), I do not make the distinction between various kinds of sport, some of which are artistic and others not or even that sport as a whole is not artistic; rather I claim that sport is a form of art, and soccer certainly one such example.

This argument can be made on the basis that like art, sport is formally attractive; expressive; Institutional; an ideal; a kind of mimesis and accords with the flavor of the postmodern. I will not

focus on all such aspects, but draw the reader to the first, namely the formal beauty of soccer as that is most closely aligned with an aesthetic appraisal of sport and thence its artistic merit.

Drawing from Kant and later Greenberg, artistic formalism took root as a basis for the beauty of art. Art could be assessed and appreciated for purely artistic meanings, the elements of art working in harmony and producing a heightened aesthetic experience, a certain "disinterestedness" on the part of the viewer. The same can be said of soccer, often conceived as low culture compared to the sacrosanct arts.

Such an argument can be based on the following observations: 1. The coordination of a "move"; the perfect geometric bisection of a pass; the deft touch – these are all instances of beauty. 2. The order of play: the festival atmosphere; the regalia; the pageantry; the ritual dimension – these too are instances of aesthetic delight. 3. The superlative play, totally unimagined and providing a vision of excellence; indeed, a certain beauty and finally 4. Tactical excellence: skillful maneuvers and the often-unpredictable unfolding of the game towards its coda are commensurate with creating an artwork and the reception thereof wherein the viewer is complicit in the continuous dynamic effect that the artwork as an instance of beauty, may express.

It is common to hear soccer being described as the beautiful game and this should not be taken lightly. It provides an island in space and time, where the sheer joy of skillful athleticism is on show, communicating an embodied experience of health and vitality and youth in a culture saturated with the digital and superficial. One may retort that soccer is itself superficial and contrived, yet consider the dynamic influence of the game at the highest level and how the game itself has resonance and influence over so many, in which case such an aesthetic dynamic is alive, even an act that may initiate a change in consciousness as it impacts culture, whereas art and philosophy pales into obscurity by comparison. This need not be problematic, for the argument here is that by equating soccer to aesthetic potency, those without access to "deep" or higher culture are yet attuned to an aesthetic dimension within an ideal world – a game – and this may be described as both an artistic creation and philosophy in action. The Ancient Greeks intuited this, aligning reason and aesthetic prowess, a harmonious state of body and mind.

SOCCER AS POLITICAL

Change can come from below. A simple kick by a soccer player may be a statement, a political act. Consider the case of Maradona, whose seeming socialist leanings were concretized in his skillful play on the football pitch. His brilliance in the Mexico World Cup of 1986 was considered an act of aggression in trouncing England and thereby taking revenge for the Falklands war of around that time.

There are countless examples where political leaders make it their business to use sports as instruments of propaganda and power-mongering, joining the mass gathering to strengthen their hold on the public.

Soccer can be seen as a battle between the richer Europeans over the poorer South Americans; as the potential for Africa to develop; as the rising power of Asia and of course while the States have not fared that well in this sport (as opposed to being a leader in the Olympic medal tally) have been hosts as have the Middle East in the most recent installment of the World Cup.

Considered formally, one might think one can simply revel in the beauty and joy of the game itself where time-and-space are experienced differently and the flow is purely of another world, nevertheless as part of culture and as exerting influence over a great throng of people, soccer becomes a symbol of nationalist sentiment, perhaps even more so than as a world game or as an expression of a common human set of actions and feelings. Rather such actions and feelings are often mobilized to support political sentiment. Its apparent freedom from the claims of "this world" succumbs to the various "...isms" that have constructed and conditioned human lives for good or for ill.

SOCCER AS RELIGIOUS

Whereas art galleries and museums have been described as the new temple or church, one may claim the same for stadiums, cathedrals of intoxicating fervor, cathedrals that began with the onset of modern industry and empire and that also recall the chivalrous games of the past and the ancient colosseums of entertainment, though now rather less dangerous and ludicrous.

The masses desire salvation: they hanker after hero-worshipping; the god incarnate in the flesh, and they may find that on the soccer pitch and especially in connection with the star of the team. Maradona was a case in point and now, while probably not eclipsed by Messi, there is a new star, one that carries the dreams of Argentinians and football lovers the world over. His uncanny skill cannot be denied. This leads people to think he is beyond politics and rather represents a religious sentiment: a sort of miracle, a perfect example, a dynamic player whose destiny is from above. People believe in such notions; children follow and world culture especially through the medium of digital platforms, create a god out of the player. He is adorded for giving pleasure and entertainment; he arouses ecstatic worship and soccer itself becomes more than just 22 players running after the ball, but a ritual act of sublime beauty, mystical intrigue and some are heroes, their fame cutting across all boundaries in what might be called a world culture, a religion transcending traditional worship, practice, and divide.

SOCCER AS PHILOSOPHICAL

Having argued thus far that soccer is a cultural phenomenon akin to art and motivating a certain religious dimension, how can it be philosophical, considering it is clearly not intellectual or about anything as such - the game is just a game, one which is fundamentally physical and perhaps just entertainment? Soccer is only philosophical if it is reflected upon, otherwise it is just mindless patterns and athletic excellence. Hence the significance of Gumbrecht's book mentioned earlier, namely the worthy academic study of mass cultural phenomenon such as sport.

Reflecting then on soccer, what might we find? The medium is the message: in the formal harmony and beauty of a particular move or of the game as a whole, concepts, while not intellectually derived or "thought about" are nevertheless shown and instantiated. So, for example, the ideas of "speed"; "accuracy"; "joy"; "despair"; "perfection"; "vision"; "health"; "cooperation" and "strength" is exhibited, much in the same way an artist may allude to such notion through artistic form, and similarly, without discursive understanding or in line-by-line logical deduction. One might say the soccer game at the highest level is philosophy in action. One has an image of the Brazilian player Socrates, at once a skillful athlete and pensive philosopher, creating the unexpected on the field, a creative act that a philosopher may search for in developing say a new theory (in that field).

THE GAME AS UTOPIA: A NEW WORLD

Following Suits (2004) definition of games as the overcoming obstacles in an inefficient manner and that such games offer a certain utopia, one will note that soccer is clearly contrived kind of play within certain rules. It transports one (as player or participant) into an ideal world, a sabbath from ordinary life, if you will, that nevertheless influences and improves the experience of life itself. Troubles are forgotten and only the game at hand assumes importance. It is naturally unpredictable, offering emotional excitement (at least sometimes) and has a historical and social discourse that spans well over a century. It sanctifies time and space. It is an arena where dreams may be made or broken. It leaves a memory at the highest level or simply helps a kid deal with exuberant energy.

Soccer is a simple game. A round ball will do, some kind of surface, imaginary goals, and a few friends. It is the world game whose embrace includes rich and poor. It thus knows no boundaries or class distinctions. Every so often a star is born, and the world follows. His impact may be more widespread than a political leader or billionaire. The utopia that soccer offers then is inclusive, joyous, and creative. On the other hand, the sheer volume of competitions, its obvious commercial interest or the possibility that sport (as with artistic culture) will simply be manipulated as a pawn of other power structures always remains a threat to the simple innocence of passing a ball to a friend who gratefully controls it and passes back in kind.

The fact that soccer is so incredibly popular and ubiquitous means that in many respects it does the work of art and philosophy to an even greater extent, offering mass consumers a beautiful arena, a respite from troubles both personal and of more collective import – offering in its stead a hero; a beautiful image and something exasperatingly mystical that may transcend cultural and political boundaries and interest. On the other hand, as a function of culture as a whole, it is not "pure" or immune to other insidious aspects of "the game".

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Review of Tellurium Resources in the World and in China

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Abstract:
Tellurium is an indispensable vitamin in modern high-tech fields, and it plays an irreplaceable and important role in many aspects such as national defense and medical treatment. Studies have shown that tellurium will be the best replacement for the next generation of green batteries. This article introduces the important uses of tellurium, summarizes the characteristics of different types of tellurium ores (independent tellurium and associated tellurium deposits), introduces the reserves and distribution of associated tellurium deposits in the world, and roughly predicts the demand for tellurium in major countries in the world this year.

Keywords: tellurium, application, ore type, resource distribution, associated deposit, independent deposit

INTRODUCTION

Tellurium (Te) is usually categorized as one of the scattered metals (SM), semimetals and/or nonmetals that have similar geochemical characteristics with Clark values too low to enrich into independent deposits, but that play very important roles across modern science, industry, national defense, frontiers of technology, and new clean energy industry.

In the traditional theory of mineral deposits and geochemistry, it is thought that Te cannot form independent deposits, but only exists as an associated component in other metallic deposits. The abundance of Te in the Earth's crust is very low. According to Li [1], the average content of Te in the Earth's crust is only 2.0 × 10–8 in China, and an even lower 1.34 × 10–9 worldwide.

At present, the world's supply of refined tellurium is mainly recovered from Te-bearing minerals including pyrite, sphalerite, chalcopyrite, galena, pyrrhotite, volcanogenetic sulfur, bismuthinite, arsenopyrite, and cassiterite, etc. Generally, only sulfide ores containing more than 0.002% Te can be used. As a result, the amount of refined tellurium that can be recovered is very limited. Most of the recoverable Te in the world is from copper deposits, and it is estimated that only 0.065 kg of Te can be produced in the refining process of one ton of copper [2-3].

In view of the important role of tellurium in modern scientific and technological civilization, this paper summarizes the geological origin types of tellurium ore, its global resource distribution, and predicts its prospecting direction in the future.

TELLURIUM APPLICATIONS

As mentioned above, the content of tellurium in the earth's crust is extremely low and it is difficult to form independent deposits so the pure tellurium that humans can obtain is very limited. However, the uses of tellurium are very extensive and important, and it is not an exaggeration to describe its application value as rare and expensive.

Tellurium and other SM group elements are known as the vitamins of modern industry, national defense and cutting-edge technology, the bridge to create miracles on earth, and the supporting materials of contemporary high-tech.

With the development of human society today, it has entered an unprecedented new era of science and technology. The aerospace industry has developed rapidly, and transportation and communication technologies have made people far away in the world feel like neighbors and so on. All of this is due to the development and application of rare dispersed elements including tellurium. Some experts bluntly say that both the present and the future are eras of rare scattered elements including tellurium.

Relevant data show that with the rapid development of cutting-edge technologies such as aerospace, atomic energy and electronic industries, the demand for scattered elements including tellurium is increasing day by day. Compound semiconductors, electronic optical materials, special alloys, new functional materials and organic metal compounds composed of SM group elements including tellurium make SM a new support material required for electronic computers, communications, aerospace development, energy, medicine and health, etc.

The cutting-edge weapons manufactured by SM group elements including tellurium played an irreplaceable and huge role in the Middle East War, the Falklands Sea Battle and the Gulf War, making countries compete to develop their own national defense power and sense of security. Elements of the SM group constitute important materials such as night vision devices, thermal imagers, large-scale integrated circuits, optical fibers and other communications and special alloys (Table 1).

Weapons such as electronic computers, satellites, missiles, rockets, aircraft, nuclear submarines, ships, tanks, radars and artillery equipped with these materials play a great role in modern warfare. When used for reconnaissance, the enemy has no secrets to keep, and when used for guidance, the hit rate is extremely high, so that the multinational forces achieved absolute victory with extremely low losses in the Gulf War.

Many people have never heard of tellurium. But this is about to change, a next-generation battery that is smaller and more powerful than what's presently available will be produced. The key material for this kind of battery is tellurium, which has high electrical conductivity and a high volumetric capacity. As a result of this, tellurium will become more and more popular and well known to human beings in the near future. While rechargeable lithium-ion batteries are currently the most popular on the market, the latest test battery includes a flexible gel polymer electrolyte that allows lithium ions to move between lithium anode and tellurium cathode. This results in a quasi-solid-state lithium-tellurium battery that has improved performance compared to lithium-sulfur and lithium-selenium batteries. The high purity of the tellurium along with the mineral's overall attributes makes it ideal as a rechargeable battery material. Moreover, it's not just about making a better battery; it's also about helping the planet (Table 1).

Table 1. Main fields of tellurium materials required by contemporary and future high-tech2-9

Application	Material
Night vision and thermal imager	HgCdTe, PbSeTe
Ray detector, nuclear energy	CdTe single crystal
Infrared camera, radar	$Hg_{1-x}Cd_xTe$
Photovoltaic cells (energy)	Zn(S,SE,Te)
Xerography	Se-Te, Se-Te-As
Radiation	CdTe etc.
Solar battery	CdTe
Thermoelectric power generation	GeTe/PbTe etc.
Refrigeration	Bi_2Te_3, Sb_2Te_3
Metallurgical additives	Te

Facts tell us that without new materials and technologies, we cannot compete with our opponents, and there is absolutely no sense of security at all. For this reason, relevant experts in China submitted a report with the words "confidential" to the relevant national authorities, suggesting that we pay attention to and strengthen the search, exploration, development and utilization of tellurium and other rare elements. At the same time, it is not without worry to remind that developed countries such as the United States and Japan have used state machinery to control the use and development of SM group elements.

As a rare semiconductor element, tellurium is an industrial raw material with important development and utilization value. It has extensive and unique uses in metallurgy, chemical industry, electronics, national defense, medicine, aerospace and other fields. The level of research and application of tellurium can largely reflect the level of science and technology and industrial modernization of a country. With the deepening of scientific exploration, its potential economic value will continue to emerge.

In developed countries, about half of tellurium is used in the metallurgical industry (Table 2). Adding a small amount of tellurium can improve the cutting and processing performance of low carbon steel and stainless steel. Adding an appropriate proportion of tellurium to lead, tin and aluminum alloy can improve its fatigue resistance and corrosion resistance, and can improve its hardness and elasticity, so it is especially suitable for submarine cables, automobile bearings and chemical equipment pipelines.

In the chemical industry, tellurium is mainly used as an additive for petroleum cracking catalysts, a secondary catalyst for rubber, and a catalyst for ethanol production. Tellurium compounds can be made into various catalysts, which are used in medicine as a fungicide, glass colorant, ceramics, plastics, printing and dyeing, paint, skin care products and enamel industries.

Tellurium is an important photoresist element in photosensitive elements used in photoengraving, laser printing and copying equipment.

In recent decades, scientists have discovered that the escape of chlorofluorocarbons (CFC-11 and CFC-12), namely Freon, which is widely used in the human refrigeration industry, has caused a significant reduction in the concentration of ozone in the atmospheric stratosphere 15-50

kilometers from the earth's surface. The decline in ozone concentration has caused increasingly serious "cavitation" damage, causing excessive ultraviolet rays generated by a large amount of solar radiation to enter the earth, deteriorating the climate and producing a greenhouse effect, directly endangering human health (vision loss, cataracts, skin cancer, etc.) and destroying ecological balance. Human beings are challenged.

Table 2. Application statistics of tellurium in foreign countries3-9

Year		1985		1988			1989			1990			1991			1992		
Country /Region		World	USA	World	USA	Japan	World	USA	Japan	World	USA	Japan	World	USA	Japan	World	USA	Japan
Application	Metallurgy	42.0	77.0	55.0	85.0	70.0	55.0	75.0	67.7	55.0		50.0	75.0	most	N/A	N/A	N/A	N/A
	Chemical	28.0	15.0	25.0	10.0	3.9	25.0	17.0	3.9	25.0	N/A	N/A	15.0	N/A	N/A	N/A	N/A	N/A
	Electronic	16.0	N/A	15.0	N/A	23.1	15.0	N/A	23.8	15.0	N/A	45.0	8.0	N/A	N/A	N/A	N/A	N/A
	Other	14.0	8.0	5.0	5.0	3.0	5.0	8.0	5.6	5.0	N/A	5.0	2.0	N/A	N/A	N/A	N/A	N/A

Note: N/A – not available

For this reason, the international community has issued an appeal and deadline for banning Freon-like substances, and the global refrigeration industry is facing an urgent green revolution of updating technology.

As the voice of anti-Freon is increasing day by day, research on developing substitutes for Freon-like substances is flourishing. In this situation, bismuth telluride, a telluride with good refrigeration properties, emerged as the times require, and has become one of the ideal materials for reducing air pollution and treating environmental disasters.

In addition, the compounds of tellurium, As and Si are important materials for making electronic computer memory. Cadmium telluride film is used in optoelectronic systems due to its good light absorption properties.

High-purity tellurium used in the US military reaches 99.99%.

The application status of tellurium in China is shown in Table 3. It can be seen from this that the development and utilization of tellurium in China is still very limited and weak, and its potential value needs to be further developed.

Table 3. Application statistics of tellurium in China (%)4-9

Application	Export	Electronic	Alloy	Metallurgy	Fiber optics	Medicine	Glass	Chemical	Catalyst	Other
1986-1987	N/A	72.9-66.4	N/A	19.5-19.1	N/A	N/A	0.6-0.7	N/A	N/A	7.0-13.8
1990		70.0-80.0	10.0	10.0-20.0			N/A			N/A

The annual output, annual consumption, annual import volume and market conditions of tellurium in the world during the approximately ten years from 1984 to 1992 show that the development momentum of tellurium resources is good, and its application value is attracting more and more attention, and the price keeps increasing (Table 4).

Table 4. Production, consumption and market statistics of tellurium in the world between 1984-1992[9]

Year	Annual output (t/a)			Annual consumption (t/a)			Annual import volume (t/a)			Annual selling price (US$/kg)		
	World	USA	Japan	World	USA	Japan	World	USA	Japan	World	USA	Japan
1984	290.0	106.0	57.3	305.0	107.0	73.4	N/A	35.0	38.5	N/A	25.0	54.8
1985	215.0	78.0	55.6	240.0	80.0	43.8	N/A	20.0	4.4	N/A	25.0	54.3
1986	215.0	N/A	55.6	200.0	N/A	46.0	N/A	22.0	0.8	N/A	28.0	58.6
1987	224.0	70.0	53.3	225.0	N/A	58.7	N/A	9.0	4.6	N/A	30.8	90.8
1988	215.0	N/A	55.2	223.0	N/A	51.9	N/A	52.0	2.3	N/A	77.1	83.7
1989	230.0	N/A	50.9	259.0	55.0	44.0	N/A	43.0	4.4	N/A	74.9	64.0
1990	215.0	30.0	49.7	270.0	50.0	60.0	N/A	34.0	6.3	N/A	68.3	88.1
1991	N/A	N/A	57.0	270.0	50.0	60.0	N/A	29.0	24.3	N/A	70.5	99.3
1992	N/A	N/A	60.0	N/A	N/A	N/A	N/A	50.0	N/A	N/A	77.1	N/A

Note: N/A – not available

INTERNATIONAL TELLURIUM DEPOSIT TYPE

All recovered tellurium material known internationally to date, with the exception of China, is from associated deposits. They are recovered as by-products when non-ferrous metals such as Cu, Pb, and Zn are milled and smelted. Apart from China, no independent tellurium deposits have been found in other countries. In other words, all the international tellurium ore resources mentioned in this article are associated tellurium ore.

According to the main mineral types, the associated tellurium ore has the following genetic types:

- Porphyry copper deposits and copper-molybdenum deposits (USA, Peru, Chile, etc.) and copper-nickel sulfide deposits (USA, Canada, etc.)
- Copper-bearing pyrite deposits (former Soviet Union, Canada, Japan, Sweden, etc.)
- Layered sand shale copper deposits (Zaire, Zambia, etc.)
- Precious metal Au, Ag deposits (USA, Japan, Philippines, etc.)
- Pyrite polymetallic deposits
- Cassiterite-sulfide deposits
- Hydrothermal uranium deposits
- Stratabound lead-zinc deposits in carbonate rocks
- Low temperature Hg, Sb deposits.

In addition, tellurium is also associated with coal, petroleum, oil shale, iron and phosphate deposits, but the most promising is in "fluid ore" seawater. However, we have not yet been able to extract tellurium from these ore-bearing geological bodies at present. I believe that with the advancement of science and technology, in the future, human beings will definitely extract the tellurium from these geological bodies we desire.

According to the above-mentioned specific types of associated tellurium deposits, tellurium deposits in the world can be classified into the following main genetic types (Table 5).

Table 5. Main genetic types of international associated tellurium deposits 5-9

Deposit type		Rock types and tellurium deposit	
Major type	**Sub-type**	**Acidic igneous rock related**	**Alkaline-ultrabasic igneous rock related**
Endogenous	Igneous rock related deposits		Copper nickel sulfide deposit (Ni, Cu,Te, Se, Pt etc.)
	Hydrothermal deposits	Quartz - cassiterite - wolframite - molybdenite vein (Sn, W, Bi, Te, and Li etc.)	Not Available
		Chalcopyrite-molybdenite-bornite vein (Te, Se, and Cu)	
Exogenous	Biological-chemical sedimentary deposits	Sedimentation and sedimentation-leaching uranium deposit (U, Te, Se, Ge, ΣY, Mo, V, etc.)	

TELLURIUM DEPOSIT TYPE IN CHINA

China not only has associated tellurium deposits similar to those in foreign countries mentioned above, but also has the only independent tellurium deposit in the world so far.

The Independent Tellurium Deposit

The Dashuigou tellurium deposit, which was discovered in 1992, is the only known independent tellurium deposit in the world. The deposit is located in the transitional belt between the Yangtze Platform and Songpan-Ganzi folded belt, as part of the Tibet Plateau and nestled in the convergence between the Indian, Eurasian, and Pacific Plates[2,10].

Since its discovery in 1992, it has been debated between domestic geologists in China. Chen and others believed that tellurium mineralization is related to the Yanshanian alkaline intrusive rocks[11], while Luo et al.[12] and Cao et al. [13] believed that the mineralization is related to the Yanshanian granitic magma activity. Yin et al.[14] proposed that scattered elements including tellurium and bismuth originated from gas blown off from the deep Earth and enriched through nano-effects. Wang et al.[15] summarized the mineralizing process of the deposit as follows: a volcanic eruption deposit was formed on the ancient seafloor with magmatic eruption in the late Proterozoic. Then, the deposit was strongly superimposed and reconstructed by the Mesozoic multistage regional metamorphic hydrothermal activities.

As the only identified independent tellurium deposit in the world[1,16], the Dashuigou tellurium deposit has aroused widespread curiosity from domestic geologists in China since its discovery in 1992. Obviously, there exist divergent opinions on the origin of both the ore-forming elements and the Dashuigou tellurium deposit itself[11-15]. Yin[14], one of the authors of this paper, proposed that scattered elements including tellurium and bismuth originated from the deep Earth, mainly through the mantle's degassing in the form of mantle plume or hot spot, and enriched through nano-effect.

Associated Tellurium Deposit

In addition to the above-mentioned independent tellurium deposit, China also has many associated tellurium ores similar to those abroad. Tellurium is associated with almost all selenium deposits in China. However, China's associated tellurium resources are more concentrated in hydrothermal polymetallic deposits, skarn-type copper deposits, and magmatic copper-nickel

sulfide deposits, accounting for 44.77%, 43.859% and 11.34% of the country's tellurium reserves respectively.

Dabaoshan in Qujiang, Guangdong Province, Chengmenshan in Jiujiang, Jiangxi Province, and Baijiazui in Jinchuan, Gansu Province are three large to super-large associated tellurium deposits in China. The sum of the three associated tellurium deposits' reserves is 94% of the country's total reserves[2-9].

Hydrothermal Associated Tellurium Deposit:

Dabaoshan, Qujiang, Guangdong is a Cu-Fe-Pb symbiotic polymetallic deposit of hydrothermal origin, with proven associated tellurium reserves of nearly 6,000 tons. At the same time, this deposit is also a very large associated selenium deposit, with proven selenium reserves of nearly 1,000 tons. The deposit is located on the southern margin of the South China fold belt. The ore body occurs in a set of Paleozoic pale metamorphic sandstone, shale and limestone. The magmatic activity related to the mineralization activity is the granite intrusion in the early Yanshan Orogeny.

Skarn-Type Copper Deposit:

Skarn-type copper deposits also occupy an important position in the associated tellurium deposits in China. The Chengmenshan Copper Mine located in Jiujiang, Jiangxi Province belongs to this category. The deposit is a large-scale comprehensive deposit mainly composed of Cu and S, accompanied by many useful elements. The ore bodies occur in the contact between Yanshanian granodiorite porphyry and Carboniferous, Permian and Triassic limestone, and some ore bodies are located inside the porphyry. Te and Se exist in chalcopyrite and pyrite as isomorphs, and can be comprehensively recovered in the process of copper smelting. Apparently, this deposit is also an important associated selenium deposit, with thousands of tons of proven selenium resources.

Magmatic Copper-Nickel Sulfide Deposit:

This is a relatively important type of associated tellurium resource in China, and it is also the most important type of associated selenium resource in China. Its selenium resources account for about half of the country's total. Such associated tellurium deposits in China are mostly distributed in platforms, and the ore-forming age is mainly pre-Paleozoic. The ore-forming parent rock is usually well-differentiated gabbro, and the ore bodies are distributed at the bottom of the layered intrusive gabbro. Deposits are generally large in scale and complex in mineral composition.

The Baijiazui copper-nickel mine in Jinchuan, Gansu Province is the largest associated tellurium mine of this type. The deposit is located in the uplift area of the southern margin of the Alashan platform, and the ore body is produced in the lower part of the ultrabasic intrusive.

In addition to the above three main associated tellurium, associated tellurium in China are also found in porphyry copper deposits. For example, the Dexing Copper Mine in Jiangxi Province is mainly copper with associated deposits of Te, Se, Mo, S, Au, Ag and Re. It is also found in skarn-type Pb-Zn polymetallic deposits, volcanic sedimentary iron deposits, hydrothermal quartz-gold deposits, and mercury-antimony deposits.

RESERVES AND DISTRIBUTION OF ASSOCIATED TELLURIUM

Most of the recoverable tellurium worldwide is currently produced in copper deposits. Based on copper resources and on the calculation that 0.065 kg tellurium can be recovered per ton of copper ore, Bureau of Mines of United States, Department of the Interior estimated that the world's associated tellurium reserves are around 38,000 tons, which mainly distributed in the United States, Canada, Chile, Peru, Zambia, Zaire, Philippines, Australia, Japan, Papua New Guinea and Europe and other countries and regions.

Relevant scholars in the former Soviet Union believed that the associated tellurium in porphyry copper and copper-molybdenum deposits in western developed countries accounts for more than 70% of the total tellurium, that is, more than 10,000 tons.

In addition to copper deposits, the Te contained in the reserve base of lead deposits is about 25% of the Te in the above-mentioned industrial copper deposits. However, because electrolysis is rarely used to extract lead, and only this technology can be used to recover Te, this part of potential Te cannot be utilized for the time being. Small amounts of Te can also be recovered from gold telluride ores.

Some experts estimate that the amount of Te contained in metal minerals such as copper that has yet to be developed, that is not yet of industrial grade, or that has not yet been discovered is several times that of the identified industrial copper mines.

Another study shows that Te contained in coal mines is 4 times that of industrial copper mines. But in the near term, trying to recover tellurium from coal mines is almost impossible for technical reasons.

The proven reserves and prospective reserves of associated tellurium ore in the world are shown in Table 6. China's proven associated tellurium reserves rank third in the world.

Table 6. Global associated tellurium reserves (×104 tons)

Reserve category	**Proved reserve**				**Prospective reserve**	
Country	Worldwide	USA	China	China's ranking in the world	worldwide	China
Tellurium	14.9	2.45	not available	#3	16.12	not available

China has discovered more than 30 associated tellurium ores, with reserves of 14,000 tons, covering 16 provinces, municipalities and autonomous regions across the country. But it is mainly concentrated in Guangdong (accounting for about 42% of the national total), Jiangxi (accounting for about 41% of the national total) and Gansu (accounting for about 11% of the national total).

In addition, China's associated tellurium is also produced in metal ores such as Cu, Pb, and Zn. According to the calculation of the main mineral reserves, there are about 10,000 tons of associated tellurium resources not included in the reserves in China. The proportion of China's associated tellurium reserves in the main minerals is shown in Table 7 below.

Table 7. Proportion of China's associated tellurium reserves in the main minerals (%)

Main deposit type	Bauxite	Copper	Coal	Molybdenum	Lead-zinc	Polymetallic	Iron	Other
The proportion (%)	N/A	98.60	N/A	0.96	N/A	N/A	N/A	0.44

TELLURIUM DEMAND FORECAST

The wide application of tellurium in many aspects of modern society indicates its important role and bright application prospect in the future. It is estimated that with the continuous advancement of science and technology, the demand for tellurium in the world will increase day by day (Table 8).

Table 8. Demand forecast for tellurium in 2022

Period	Worldwide	China	USA	Japan
Average annual growth rate of tellurium demand from 1983 to 2000 (%)	2.7	1.0	4.2	1.0
The demand for tellurium in 2000 (t/a)	352	2.7	145	45
Average annual demand for tellurium in 2020 (t/a)	545	3.24	267	54.0
Possible average annual demand for tellurium in 2022 (t/a)	574	3.3	488	55.1

DISCUSSION

The irreplaceable and important role of tellurium in the modern high-tech field has made the world's developed countries pay more and more attention to its development and utilization. In 1985, the U.S. Air Force specifically discussed the self-sufficiency channels of 21 strategic metals including tellurium. The U.S. National Security Council, the U.S. Federal Emergency Management Agency, etc. have all emphasized the reserves of such metals to the military or brought them to the attention of Congress.

At the end of the 1980s, there was an unprecedented huge wave of new or expanded tellurium smelters in the world. Among them, the MHO smelter in Belgium has an annual output of 150 tons of pure tellurium; the Lower smelter established by a joint venture between Australia and the Philippines has an annual output of 40 tons of pure tellurium after it was put into operation in 1988; in 1989, a tellurium smelter invested by the United States in the Philippines was put into operation Finally, the annual output of pure tellurium is also about 40 tons and so on.

China's tellurium production began in the 1950s, basically in sync with countries such as the United States and Japan. However, due to political turmoil and other constraints such as backward technology, it has not been possible to build a tellurium application market in China. At present, only two smelters in Shenyang, Liaoning Province and Zhuzhou, Hunan Province have associated tellurium production lines, with an annual output of less than 2 tons of pure tellurium.

In addition to supplying part of domestic demand, some products or components are exported.

As the first large-scale electronic warfare in human history, the Gulf War in the 1990s made the world's major powers compete to develop Te and other rare dispersed material industries.

Looking forward to the future, with the rapid development of science and technology, the demand for tellurium will increase day by day.

CONCLUSIONS

The increasingly important role of tellurium in the fields of modern industry, agriculture, national defense, medicine and health will surely make its value higher and higher, and the demand will also increase. In this situation, increasing the general survey, exploration and development of natural tellurium resources, and at the same time strengthening investment and research on tellurium ore dressing and smelting technology, both in theory and practice, have important economic value and strategic significance.

It is believed that more and more countries and mining companies will pay more and more attention to the development of tellurium resources and related investment.

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Relationship between the Independent Variables in the 5P Model for Economic Zones in Vietnam.

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Abstract:
In the previous studies of the author and a number of scholars in Vietnam and around the world have affirmed that the formation and organization-management of economic zones in Vietnam and in the world depends on 05 variables: Position, Policies, Project, Potential, People in descending order of influence. Through the author's survey by sending questionnaires to more than 250 businesses, corporations currently operating inside and outside the economic zone in Vietnam and in-depth interviews with 10 experts from the ministries and branches under management. The management of economic zones in Vietnam and the processing of collected data analyzed that the five independent variables mentioned above have a positive and supportive relationship. This result is the cause of the other result. The results of the study show that if an Economic Zone has a good location, good policy, good development potential, and well managed people, it will attract good projects. The subdivision presented below will specifically describe the above research results in order to provide the Government in Vietnam and other countries around the world, who manage the economic zones with an overview of the organization and management. current economic zones.

Keywords: Economic zone, 5P model, Organization and management of economic zones, Relationship between variables in organization and management of economic zones.

INTRODUCTION

Currently, in the world in countries such as China, India, Korea, Philippines, Singapore, Malaysia, Thailand, United Arab Emirates, Taiwan, Vietnam, ... have built economic zones models, although they differ in name, but the nature of these types is towards Free Economic Zone. In China there are 5 Special Economic Zones-SEZ (Shenzhen, Shantou, Zhuhai, Xiamen, and Hainan) and there are 2,063 Economic Zones, which is a type of Free Economic Zone of the to attract foreign technical investment. The form of a free economy is not confined to a separate economic space but a large administrative unit, which is the open city. Currently, the most open city in the world - Hong Kong in China is a symbol of the open city that has been built for over 100 years, many cities around the world are looking towards this model. Next is Du-Bai of the Arab Emirates - the second most open city in the world, successfully built in just over 15 years. These two cities brought a new nuance of the liberal economic faction.

In terms of creating various types of Free Economic Zones in a developing country transforming its economy from central planning to a market economy, China is the country with the most types. Despite their different names and different degrees of liberalization and openness to foreign affairs, China's SEZs have a common feature of having special economic policies and special objectives in a defined region. concentration. The study of Guang Wen Meng (2003) combined China's SEZs with different names into a common concept of Free Economic Zones, under which China Free Economic Zones. It is classified as a comprehensive free economic zone, a free

manufacturing economic zone, a science-trade free economic zone and a cross-border free economic zone, with many different forms and names such as SEZs, Economic and Technological Development Zones (TEDZ), Central Development Zones (CDZ), New High-tech Park (NHIP), Growth Triangles (GT), Export Processing Zones (EPZ), the special administrative zones of Hong Kong, and Macau. Free economic zones in China are considered by many studies to be successful. Many new forms of Free Economic Zones have played a dominant role in the rapid development of the Chinese economy during the past 30 years, pushing the Chinese reforms into depth, gradually forming the background. modern market economy.

In Vietnam, up to 2018, there are 16 coastal economic zones and 28 border gate economic zones (this study only mentions the coastal economic zone of Vietnam). Based on individual research on organization and management of 16 coastal economic zones in Vietnam and through experience of other countries around the world, it shows that, to successfully build economic zones in Vietnam The South should have all 5 factors: having a favorable location (Position), Policies in accordance with international practices and showing dominance (Policies), having national key projects or works in The economic zone (Project), has the Potential to promote local advantages (Potential), has human-human resources capable of meeting the organization and activities (People). According to the object modeling method with keywords in English with the first letter of each word starting with the letter P, I came up with a 5-variable Model starting with the letter P, called this figure 5P. In the 5P model, the variables are closely related to each other, by analyzing data through SPSS premium 26 and through Multi-Berth Regression Analysis, these independent variables have a relationship with each other. the result of one variable is the cause of the other. In this publication: If there is an Economic Zone with a good location, good potential for development, good policy on attraction, and good people management, good projects will be attracted. That is the cause effect relationship between the variables that the article.

RELATED LITERATURE REVIEW

Researching in Vietnam

Vietnamese Government experts who have studied over the years the factors to decide on the organization and management of economic zones in Vietnam as follows (VN Government, 2018) at Decree No 82/2018 / ND-CP/May 22, 2018 :

According to Doan Hai Yen (2016) PhD thesis: "Sustainable development of coastal economic zones in the delta of Red River in Vietnam ". Luu Ngoc Thinh and Cao Tuong Huy (2013) in Vietnam Journal of Social Sciences, No. 9, 2013, entitled "Development of Vietnam's coastal economic zone and some lessons". According to Cu Chi Loi (2012) Free economic zone (FEZ) - The theoretical issues and practices;

According to Vo Dai Luoc (2010) A Research on the Development of Economic and Economic Conditions in Vietnam under the condition of international integration. According to Vo Dai Luoc (2013) Research paper: Free trade zones in Dubai, South Korea and China;

However, the authors in Vietnam only mentioned the summation of lessons learned in the establishment of economic zones in Vietnam. Not to mention the factors that influence and the relationship between them.

Other Researching in the World

The authors around the world have mentioned open economic zones and free economic zones, including:

- R. Ali (2010), For A Proletarian Party Journal has had his research paper titled: " Special Economic Zones (SEZ) of India and the China Model: What is going to Happen? ";
- Coenrad Muller Scheepers (2012): "A case study for special economic zones in south Africa as a means of foreign direct investment";
- Amita Punj (2013): "Development of Special Economic Zones and their Impact on Labor Rights and Livelihood in the National Capital Region";
- Bethany Anne Zimmerman (2013) "Sustainable Operation of Special Economic Zones in India: A Comparative Study of Maharashtra and Goa";
- Yulia Sorokina (2014) "Special Economic Zones of Russia ";
- Roman Kachur (2002) "Impact of special Economic zones on regional investment in Ukraine";
- Merel Hummelink (2014) "The function of special economic zone in the modernization process of China";
- Lotta Moberg (2010) "The political Economy of specilal Economic Zones";
- Andrew Cheesman (2012) "Special Economic Zones & Development: Geography and Linkages in the Indian EOU Scheme";
- Meng-Guangwen, (2005) had the article China's model of free economic zones: Experiences and prospects after over 20 years;

The authors around the world also only mentioned the successes and failures of the models of Open Economic Zones and Free Economic Zones not to mention the influencing factors and their relationship to the Economic sector.

METHODOLOGIES AND DATA

Choose the Method

This thesis uses a combination of primary and secondary data in qualitative and quantitative research. Before qualitative and quantitative research, the author conducts a preliminary study using secondary data to describe the study area and trend assessment. Qualitative research is conducted as a basis for modeling and supplementing and explaining the results from quantitative data. Quantitative research assesses the reliability of the scale and tests hypotheses. From the results of this research, it is the basis to assess the situation and recommend some policies for the organization and management of economic zones in Vietnam.

Research Methods

The thesis applies and many methods, in which the final decision method is to analyze the discovery factor of EFA, analyze the Regression model to assess the influence of factors on the organization and managing economic zones in Vietnam.

Research Data

There are many conventions on sample sizes, such as: Tabachnick & Fidell (2007) suggest that the sample size must be ensured by the formula: $n \geq 8m + 50$ (n is the sample size, m is the number of toxic variables set up in the model). Gorsuch (1983) argues that when analyzing regression, sample size needs at least 200 observations. , Hair, Anderson, WLifeMan & Black (1998) assume that the sample size must be at least 50, preferably 100 and the ratio of observations/observed

variables is 5/1, meaning that for every variable At least 5 observations are needed. This study has a research model with 28 questions, so the minimum sample size is 28 x 5 = 140. In order to achieve at least 140 observations, the author sent 250 copies of the questionnaire to the representative of enterprises, experts of the, central branches and experts of provinces and cities where economic zones are located in Vietnam.

RESULTS AND DISCUSSION

Suitable Model

EFA (exploratory factor analysis) After analyzing the reliability of the scale, the next step to determine the necessary set of variables for the research problem, we continue to use the Exploratory Factor Analysis (EFA) method to see consider the degree of convergence of the observed variables by each component and the discriminant value between the factors.

After factor analysis, only groups of factors that satisfy the conditions can participate in the regression run in the next analysis.

The important statistical parameters in factor analysis include:

- KMO (Kaiser - Meyer - Olkin measure of sampling adequacty) index: is an index used to consider the appropriateness of factor analysis. The KMO index must be large enough (>0.5) (Hair et al., 2006) that factor analysis is appropriate, and if it is less than 0.5, factor analysis is likely to be inappropriate for the data.
- Eigenvalue: represents the amount of variation explained by the factor. Only factors with Eigenvalue greater than 1 will be retained in the analytical model, factors with Eigenvalue less than 1 will be excluded from the model (Hair et al., 2006).
- Variance Explained Criteria: the total variance extracted must be greater than 50% (Hair et al., 2006).
- Factor loadings: is a simple correlation between variables and factors. The larger this coefficient, the more closely related the variables and factors are. With a sample of about 200, the factor loading factor is accepted as greater than 0.55 (Hair et al., 2006), variables with factor loading coefficient less than 0.55 will be excluded from the model.
- Bartlett test: to test the correlation between observed variables and the population, analyze the significance index when sig. value less than 5% (Hair et al., 2006).

The relationship between the independent variables of this study is confirmed as the relationship between the variables:

Human Resource Management and Working	(**People-PEO**),
Policies of the Government	(**Policies-POL**)
Potential in place for economic zones	(**Potential-POT**)
Favorable location such as traffic, port.	(**Position-POS**)
There are projects attracting to the economic zone	(**Project-PRO**).

Those independent variables have an impact on the dependent variable: EZ: (OZ: Open Zones) Economic Zones

The results of the study are described as follows:

Table 1: Factors to evaluate

Factors to evaluate	Result	Compare
KMO Coefficient	0 .845	0.5 < 0.845 <1
Sig value. in Bartlett's test	0.000	0.000 < 5%
Extracted variance	72.822 %	72.822 % > 50%
Eigenvalue	1.383	1.383 > 1

Sources: Author's field survey

Table 2: Factor analysis to discover extract

	Components					
	1	2	3	4	5	6
PRO5	.846					
PRO3	.813					
PRO1	.785					
PRO2	.777					
PRO4	.748					
POS3		.815				
POS2		.808				
POS5		.790				
POS4		.756				
POS1		.746				
POT2			.761			
POT3			.751			
POT4			.742			
POT6			.742			
POT5			.729			
POL2				.856		
POL4				.815		
POL3				.795		
POL1				.706		
PEO1					.841	
PEO3					.803	
PEO2					.797	
EZ2						.793
EZ1						.778
EZ3						.734

Results of factor analysis to discover extract 6 ingredients. Indicators bowl statistical ensure conformity, cevil are observed variables factor load factor (factor loadings) is greater than 0.55. Do it, exploring factor analysis is said to be like with the data collected.

Structural Equation Modeling-Hypothesis Testing

Path-SEM (Structural Equation Analysis) model. Check the fit of the model

The Path-SEM linear structural model analysis method was used to test the research theoretical model. Path-SEM results of the theoretical model (normalized form) are as follows:

In order to measure the fit of the model with the actual data, the results of confirmatory factor analysis (CFA) show that the model is statistically valid with the following indicator.

Table 3: Statistically valid with the indicators

Indicator	Cmin	DF	P-Value	Cmin/df	TLI	GFI	CFI
Result		264	0.000	2.613	0.852	0.804	0.870
Criteria			<0.05	<3	>0.8	>0.8	>0.8

Sources: Author's field survey

This result shows the fit of the model compared to the actual data:

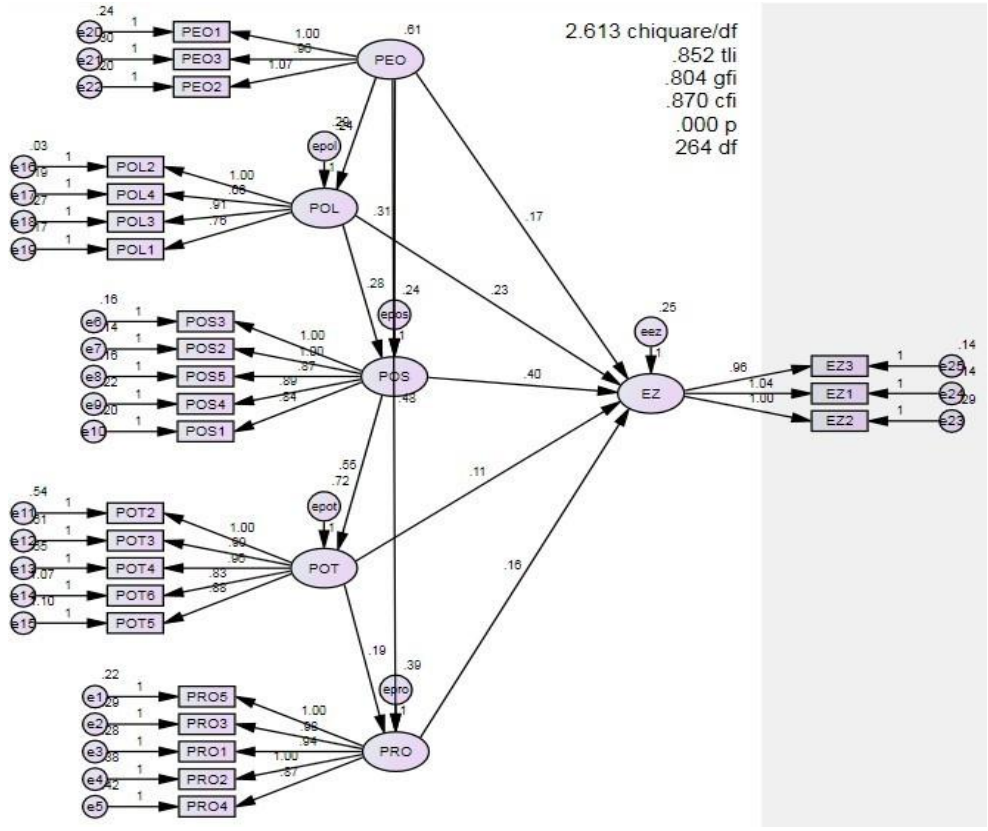

Figure 1: Hypothesis testing: The relationship between the independent variables and the dependent variable.

Source: Author's own

This result shows the fit of the model compared to the actual data (Segar & Grover, 1993). Although the targets achieved are not high, they are still acceptable in the research context of the topic.

Analysis Of Coefficients

Table 4: Effect and Coefficient of determination (R^2)

Effect			Estimate (β)	S.E.	C.R.	P-Value	Empirical remarks
POL	<---	PEO	0.238	0.054	4.421	0.000	Supported
POS	<---	POL	0.280	0.074	3.800	0.000	Supported
Effect			**Estimate (β)**	**S.E.**	**C.R.**	**P-Value**	**Empirical remarks**
POS	<---	PEO	0.306	0.057	5.396	0.000	Supported
POT	<---	POS	0.554	0.124	4.454	0.000	Supported
PRO	<---	POT	0.190	0.060	3.180	0.001	Supported
PRO	<---	PEO	0.480	0.072	6.706	0.000	Supported
EZ	<---	PEO	0.166	0.076	2.198	0.028	Supported
EZ	<---	POL	0.225	0.082	2.747	0.006	Supported
EZ	<---	POS	0.402	0.099	4.076	0.000	Supported
EZ	<---	POT	0.108	0.054	1.991	0.047	Supported
EZ	<---	PRO	0.165	0.071	2.325	0.020	Supported

Dependent variable	**Coefficient of determination (R^2)**
POL	0.107
POS	0.313
POT	0.127
PRO	0.333
EZ	0.501

Author's field survey

Based on the results of the research model, we see:
PEO has a positive effect (0.166) on EZ with statistical significance at 5%.
POL has a positive effect (0.225) on EZ with statistical significance level of 1%.
POS has a positive effect (0.402) on EZ with statistical significance of 1%.
POT has a positive effect (0.108) on EZ with statistical significance at 5%.
PRO has a positive effect (0.165) on EZ with statistical significance at 5%.

PEO has a positive effect (0.238) on POL with statistical significance of 1%.
POL has a positive effect (0.280) on POS with statistical significance at 1%.
PEO has a positive effect (0.306) on POS with statistical significance at 1%.
POS has a positive effect (0.554) on POT with statistical significance of 1%.
POT has a positive effect (0.190) on PRO with statistical significance level of 1%.
PEO has a positive effect (0.480) on PRO with statistical significance at 1%.

Regression Analysis

Regression analysis determines the relationship between the dependent variable and the independent variables. The regression analysis model will describe the form of the relationship and thereby help us to predict the degree of the dependent variable when the values of the independent variables are known in advance.

According to Hoang Trong & Chu Nguyen Mong Ngoc (2008), when running regression, it is necessary to pay attention to the following parameters:

- Beta coefficient: the standardized regression coefficient allows direct comparison between coefficients based on their explanatory relationship with the dependent variable.
- Coefficient R2: evaluates the part of the dependent variable that is explained by thepredictor or independent variable. This coefficient can vary from 0 to 1.
- ANOVA test: to check the fit of the model with the original data set. If the significance level of the test is < 0.05, then we can conclude that the regression model fits the data set.

Based on the adjusted model adjusted after exploratory factor analysis, we have a multiple linear regression model as follows:

$$OZ = \beta_0 + \beta_1 * PRO + \beta_2 * POS + \beta_3 * POL + \beta_4 * POT + \beta_5 * PEO +$$

The above equation is written based on the results of EFA analysis (the variable that forms first (in the results of EFA analysis) will be written into the equation first.

Table 5: Unnormalized regression coefficient

	Unnormalized regression coefficient		Normalized regression coefficient	t	Sig.	Multicollinear Statistics	
	REMOVE	Standard error	Beta			Tolerance coefficient	VIF
Constant	-.008	.174		-.046	.964		
PRO	.149	.019	0.165	7.732	.000	.902	1.109
POS	.307	.021	0.402	14,874	.000	.953	1,049
POL	.243	.017	0.225	14.498	.000	.976	1.025
POT	.093	.020	0.108	4.683	.000	.898	1.114
PEO	.234	.018	0.166	12.747	.000	.984	1.016

Author's field survey

Based on the above table we see:

Check the Fit of the Model:

- Test for multicollinearity: The variance exaggeration factor (VIF) of all the independent variables is less than 10, so the multicollinearity in the model is evaluated as not important (according to Hoang Anh Gia Lai). Trong & Chu Nguyen Mong Ngoc, 2008). (Multicollinearity is the phenomenon where the independent variables in the model are linearly correlated with each other).
- The results of ANOVA test with significance level sig = 0.000 show that the built multiple linear regression model is suitable for the data set and usable.

Evaluate the Level of Explanation by the Independent Variables in the Model:

The coefficient R^2 (R Square) = 0.744, this means that 74.4 % of volatility in financial results will be explained by factors that are the independent variables that have been selected to be included in the model.

The results of the research model show that all independent variables have a statistically significant impact (due to Sig. < 5%). The degree of impact of the independent variables on the dependent variable in order from strong to weak is as follows (based on Beta coefficient): So, the regression equation is normalized (see column Beta):

EZ = + 0402***POS +** 0225***POL +** 0166***PEO +** 0165***PRO +** 0108***POT**

In the article: " Factors influencing the Organization and Management of Economic Zones in Vietnam " specifically stated the analyzed data published in the Palarch's Journal of Archeology of Egypt under the SCOPUS index Q3 level. Therefore, the author does not present analysis of specific data for the independent variables. In this article, the author presents more details about Regression analysis and combines it with Cause-Effect theory to see the relationship between the independent variables.

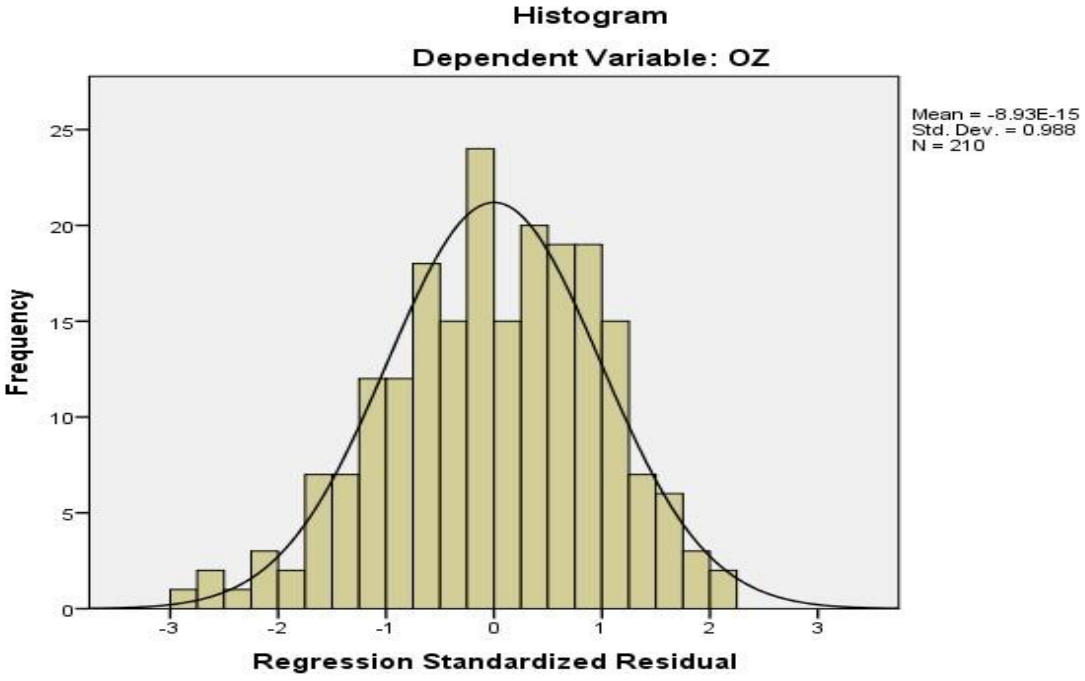

Figure 2: Regression standardized residual

Based on the graph through the analysis of regression standardized residual was found that: The dependent (OZ or EZ) is a condition for organizational-management of economic zones in VN or in other words the conditions for formation of economic zones In Vietnam, there should be Position, Policies, People, Potential and Project elements. In which, Position is very important.

At the same time, we see that at position 0, the maximum Frequency mean that at which the Dependent Variable reaches the highest value for the independent variables when optimized for the conditions and at that time the curve reach a general value and begin to fluctuate if the factors are not optimizing.

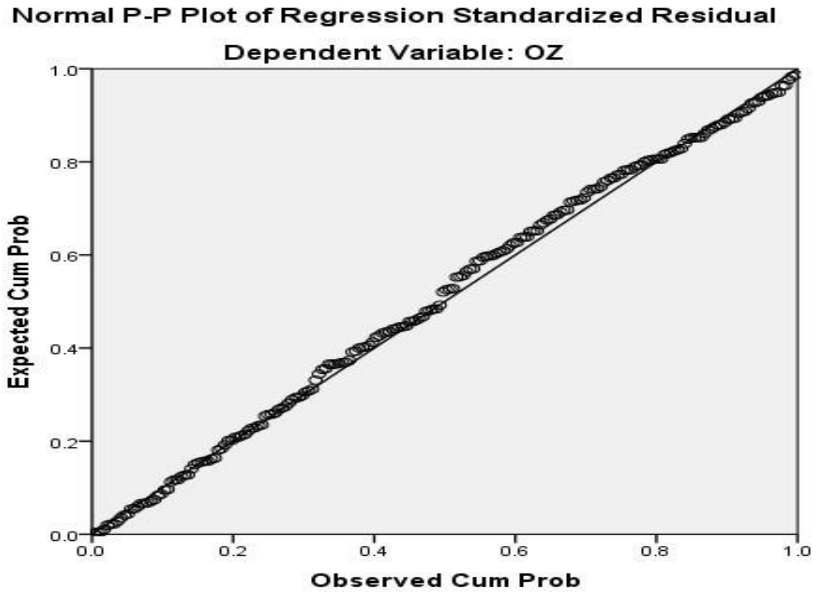

Figure 3: Normal P-P plot of regression standardized residual

Observing figure 2, we see the relationship between Observed Cum Prob and Expected Cum Prob as a linear relation in a near-straight line and with a positive slope, making the survey values with this value increase, the obtained value is also. increase. This corresponds to the independent variable OZ (EZ), which gets higher values when the independent variables reach optimal values in the practice of managing economic zones in Vietnam.

Analyze the Relationship Between the Independent Variables

Position:

Recent experiences of China and Vietnam show that the formation of an economic zone often relies on natural factors such as coastal location, often associated with deep-water bays or located at border gates, to welcome trade opportunities with your country. Since then, two types of economic zones have been formed: coastal economic zone and border gate economic zone. Both types of economic zones use the attraction of external resources as their goals and motivations. Economic zones are often far from major cities to have ample land availability, sufficient for forming urban-industrial complexes and attractive due to low land rental rates. On the other hand, it is necessary to choose the positions with the most advantages, first of all, an international port and convenient traffic with the international maritime route; close to arterial traffic routes, close to developed economic, scientific, cultural and social zones. The minimum area of an economic zone must be more than 10,000 ha to be able to arrange all types of functional areas inside, ... The internal distribution of heavy functional zones currently needed includes: essential

functional zones and these zones must achieve ratios of the total charge of an economic zone in order to develop harmoniously; in which: general industrial zone accounts for 50%; Export processing zone: 15-16%; commercial area: 10-12%; Infrastructure area: 1012%; public service area: 8-10%. Location plays a very important role in forming an economic zone.

Policies:

Policy formulation needs to ensure factors such as a favorable domestic environment (the country's political, social and economic situation must be stable; market economic development trend, international integration. must be the main trend; the exchange relationship between free economic zones and inland economic zones must be clear...); developed international relations (friendly partnerships are required with all countries, especially great powers, economic blocs, international organizations). At the same time, it is necessary to build a system of administrative and economic institutions in accordance with universal international standards for Free Economic Zones in general, including a protective barrier of zero, export tax- import zero, remove all tariff barriers; visa exemption for all tourists, traders and businesses; allow long-term residency for business managers, technicians ... taxes with attractive rates; allow free business in all fields except some prohibited areas ... allow the implementation of the regime of administrative autonomy; ensure the independence of three powers: legislative, executive and judicial, the central state only holds unified authority to manage security, defense, foreign affairs, ... varies according to Free Economic Zones in different countries. But it can be seen that the greater the degree of freedom, the greater the attraction. The development of operating regulations for the economic zone is consistent with international practices, and at the same time exploits the comparative advantage of the national economy. This Regulation should be uniform, easy to understand and easy to implement on the basis of ensuring the principle of "One-stop, on-site", and management of access to the economic zone should be strictly ensured. cumbersome and need to ensure security and order for the economic zone with feasible and effective measures.

Policíes is the second most important factor, human-made factor to attract projects into economic zones.

People:

This is a very important factor. This factor requires selecting a team of human resources from experts to managers with modern thinking, enthusiastic about the country. Human resources are abundant in quantity and properly trained. The management apparatus of economic zones should be very compact, with staff with high professional qualifications, knowledge of economics, legal, foreign language and organizational capacity, political and professional skills. steady subject. In the stage of forming special economic zones in China, 3 points can be drawn to note: to arrange the industry structure reasonably; the mechanism must be very flexible to adapt to the market; Management and worker qualifications must adapt to the requirements of the special zone.

The decisive human factor covers all activities.

Potential:

This is a factor that aims to promote local potential and create a pervasive developmental influence in surrounding areas. However, in Vietnam, when building economic zones, this factor is often paid little attention, so the economic zone, often with the same spatial structure of functional zones, has not yet brought into full play its potential. in place such as natural

advantages, natural resources. Economic zones operate separately, no economic zone has really created spillover force to influence other economic zones for development.

According to the analysis, the above figures, if there are four factors that are the cause above, there will be a consequence factor, which is to attract good projects into the economic zone.

Project:

The construction of a key project or project needs to take one of the basic elements as the nucleus, as a driving force for development, such as: a road gate, a deep sea bay, or a key project, ... An economic zone is not just an area with clear boundaries, with its own policy mechanism and as a driving force for the development of the region, but also needs to add some factors such as an economic zone. Formed in the location most favorable for attracting external resources in relation to the internal market, with a large land fund and not close to a crowded residential area, and is conveniently organized for and have key projects to drive the development. For example, in Dung Quat economic zone, Nghi Son, Nam Phu Yen, to form a national key project on petrochemical refining; in Van Phong economic zone, to form a deepwater bay seaport; Chan May-Lang Co economic zone, Van Don forms high-class eco-tourism economic zone, ...

The Influence of Cause-Effect Theory

When we say event B has a cause as event A (or event A is the cause of event B), this is referring to a Cause and Effect theory or called the theory of Cause and Effect (Rudolf Carnap). Its significance is that there are certain laws in nature from which event B can be logically deduced, when they are combined with the full description of event A.

For this article, we see that: The Project event was the result of causes: Position-PotetialPolicies-People. In addition, through the Regression analysis we see that the Position element is the most important to Policies, then People, Potetial, and finally, Project has confirmed the relationship between the independent variables. The following figure, with Venn diagram, will illustrate the intersection of 4 sets POS, POL, PEO, POT and the main intersection is PRO.

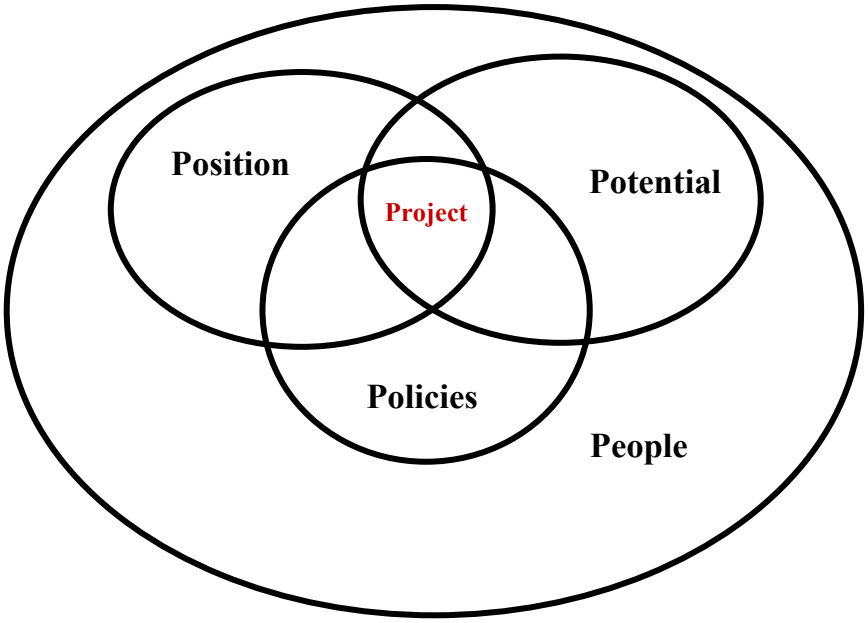

Figure 3: The Model describes the factors for organizing and managing EZ by Venn diagram as follows: (5P Model)

CONCLUSION

Through data analysis and especially Multivariate Regression Analysis, we see that the independent variables are in the order of influence from high to low as the equation with coefficients from high to low ranked: Position, Policíes, People, Projects, Potential. Thus, the position of an economic zone was born is the most important thing that managers need to pay attention to. Next, an economic zone with good location, good policies, well-managed people, a good project will be attracted to the economic zone. These are the two basic problems that the paper has solved.

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Hopefully, with these studies, it will contribute to confirm the influencing factors and the relationship between the factors for the organization and management of economic zones in Vietnam and in the world.

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