



Munich Personal RePEc Archive

On the Psychological Foundations of Economic Development

Odedoyin, Stephen

Obafemi Awolowo University, Ile-Ife, Nigeria

11 February 2018

Online at <https://mpra.ub.uni-muenchen.de/91504/>
MPRA Paper No. 91504, posted 02 Mar 2019 05:48 UTC

ON THE PSYCHOLOGICAL FOUNDATIONS OF ECONOMIC DEVELOPMENT¹

Stephen Olabode Odedoyin

M.Phil. Student

Department of Economics

Obafemi Awolowo University,

Ile-Ife, Nigeria

E-mail: bodebeloved@gmail.com; Tel: +234(0)8060693871

Abstract

This paper considered theoretical propositions on the psychological mechanism underlying economic growth and development in diverse nations, particularly how it accounts for variations in levels of per capita income across the globe. Descriptive and analytical techniques were employed in eliciting the basic parameters that underlie this psychological mechanism which motivates inevitably productive economic engagements in various countries of the world.

JEL Code: E71

Keywords: economic collocation; psychological propensities; national pride; self-interest; Psychological image; national psychological capital; economifugal

The pattern of profound output growth and economic development in terms of changes in real per capita income levels across diverse countries in recent times have generated critical analysis on what might be the motivating force behind all these developments. The dynamics of how human psychological dispositions individually and collectively in different economies could account for variations in growth rates and income per capita levels given the underlying psychological considerations of the economic behaviour of nations is certainly not an easy theoretical formulation. The transition of China from its position as the 8th largest economy in the 1980s to the second largest within a space of less than three decades may be due to many factors but what could account for such a breathtaking transformation and increases in growth rates and income levels of its citizens accordingly is indeed not only worthy of due considerations but warrant explanations within the context of global economic interactions. Likewise is the need for an exposition of what could account for the sudden large or huge rise in

¹ This paper which was conceived intuitively after many years of critical contemplation on the idea came to light and fruition through Divine Providence. For this I'm grateful to the Almighty God through my Lord and Saviour, Jesus Christ for the Sure Mercies of David to me in the successful completion of the paper. I'm also grateful to my beloved wife for the support, love and dedication towards the completion of this paper. This work did not receive any funding or financial support from any organization or body.

the growth rates and per capita income levels of many countries from the perspective of what inspired or motivate such profound events. It is imperative to note, however, some of the reinforcing mechanisms for national psychological disposition and tendencies (or ‘patriotism’) in many countries of the world. One of these is sport. From experience, we do know that baseball as a sporting activity that unite many Americans than any other sport or recreational activity. The same is true of cricket in countries such as India, Sri Lanka and Australia while it is football in Nigeria, Brazil and Ghana. Moreover, the flags of many nations symbolize the psychological image of such countries. Defaming these national symbols sometimes has been meted with stiff penalties in many countries globally. Several studies (Fehr and Falk, 2002; Rabin, 1998, 2002; Camerer, 2006; DellaVigna, 2009; Muramatsu and Avila, 2017; Almlund et al, 2011; Surkov, 2014) have examined the psychological basis of economics and economic activity or behavioural economics (as it is so called), there is virtually none that have specifically considered the psychological foundations of productive economic engagements and how that translated in to growth in per capita GDP across various countries of the world. In other words, why we set to understand and explain this fundamental problem or the issue of the psychological basis of economic development is because hitherto as far as we know what motivate economic activity resulting in disparate economic growth rates as well as growth in income per capita levels in many countries have not possibly been explored or given due considerations in economic literature.² The role which the psychological image of nations and their institutions play in spurring growth and real evolution in per capita income levels across diverse countries is critical. Moreover, the economic behaviour of nation-states in spurring economic development through creating a motivating atmosphere and incentive mechanisms for output growth suggests a significant influence of psychological parameters in macroeconomic activity globally. The reason is not far-fetched. Only motivated citizens can be involved in productive economic engagements. These postulates suffice for the attainment of a simple and consistent theory of the psychological foundations of economic development of nations using the basic tools of economic analysis. The theory to be developed is based – like all economic theories – on the application of economic analyses to this fundamental problem since the assertions of such a theory have to do with the relationships between the diverse patterns observed in per capita income levels across the nations making up the global economy and the underlying psychological influences such as patriotism, ‘national image or pride’ etc. had in the coercion and mobilization of citizens in diverse countries across the globe for the purpose of national economic advancement. However, insufficient consideration of these issues lies at the root of the difficulties with which the psychology of national economic behaviour encounters at present. This paper which is actually a theoretical essay addresses these issues to some extent. It is however approached purely from a heuristic perspective or standpoint. However, it might possibly provide insights in to our understanding of human affairs thereby advancing the frontier of theoretical economics towards a broader horizon. Moreover, it is imperative to stress that this paper only attempts to explain what account for profound growth experiences and eventually increased per capita income levels in many countries from the viewpoint of psychological considerations such as the habits, instincts, incentives, sanctions, satisfaction, and motivations that promote or negatively affect citizenship and patriotism in many nations. Psychological considerations vis-à-vis patriotism (with all its commitments) in a nation more than anything are capable of unleashing new and

² While the origin of psychology or psychological basis for economic decision making and choices can be traced to the Austrian School of Economics especially those masters as Carl Menger, Bohm-Bawerk etc, there is no gainsaying that almost if not every rational economic choices are based on psychological considerations.

dynamic economic forces which would stimulate creativity, innovation and economic activity on broader scale than ever seen. If there is a pervading atmosphere of pessimism in a country regarding patriotism, the level of motivation to work through productive engagements for the advancement of such an economy would be low. The contributions of its citizens by implication would worth less compare to when there is a pervasive atmosphere of optimism about macroeconomic variables in the country. The latter development would much more likely result in optimal allocation of productive resources as well as economic decisions that optimally advanced the course or frontier of the nation's economy not only in terms of output growth but also in per capita income terms. In other words or put differently, the psychological atmosphere that enveloped an entire economic system and processes unleashes the forces of motivations, incentives, habits, pessimism or optimism, and euphoria etc that over time have been known to greatly influenced economic activities. The effect of political and social upheavals on a nation's Stock Exchange is a classic example. All these are against the background that there is an underlying system of motivations and psychic rewards that sustains most economies especially those that are operated on the *laissez faire* model. Nevertheless, the attainment of a perfect nation in terms of economic sovereignty and efficiency (immune from these psychological forces) in any part of the world is no doubt a Sisyphean task or endeavour. Constructing a theory of the psychological foundations of economic development is certainly not the affirmation or attestation of a specific statistical relationship or law among variables in any real economy but rather an attempt on how to account for this perceived phenomenon in economic science lately fundamentally within an *Apollonian* global economy. It is pertinent to stress however that theory here implied the narrower sense of the explanation or exposition of a specific fundamental economic issue or problem. Whether the theoretical postulates and propositions raised here in this paper would suffice for the attainment of a well-validated theory we would leave till later towards the end of the paper. The paper is organized in to five sections. Following this exordium or introduction is Section II which presents the perspectives on the psychological foundations of national economic engagements in diverse countries of the world. Section III provides the theoretical parameterization of the model – where some of the basic parameters are considered while the modelling framework and analysis is the focus of Section IV. Section V contains the concluding remarks.

II. The Psychological Foundations of National Economic Engagements

Inherent in the economic development of many nations of the world is the psychological dimension that is closely associated with nationalism and patriotism which has strong implications on growth and development³. Individuals ordinarily as rational optimizing agents would be primarily concerned with production and consumption, but governments of the different countries where they are citizens impinges on the consumer and producer free choice to varying degrees to advance the course of such nations or rather the promotion of their 'national pride'. The economic strength of many advanced and emerging economies is hinged on the bulwark of nationalistic and psychological sentiments by their citizens for the economic growth and development of such countries. Two succinct examples would suffice in addressing the fundamental problem of this proposition. They are U.S.A. and China. We first examine the United States in our exposition of the theory while we would consider China in a later section. The United States was founded on Judeo-Christian tradition as set forth in the *Mayflower*

³ Nevertheless, there is an apophthegm or maxim that states: "patriotism is the last refuge of a scoundrel"!

Declaration by the Pilgrim Fathers of the Non-Conformist persuasion in the sixteenth and seventeenth centuries when they left the shores of England or Great Britain to form the American Colonies (now U.S.A.) across the Atlantic. Since then, the economic growth and development of the American Colony, albeit U.S.A. have been assured independently of England on the other side of the Atlantic. Measures such as the civil liberties enshrined in the American Constitution since 1776 granting freedom of expression, unalienable liberty of every human or individuals etc as well as the *New Deal* introduced by President Roosevelt in 1933 in the wake of the Great Depression of that period in the early 1930s had more often than not strengthen this position⁴. However, it was these same rights and privileges that some extremists or terrorists while enjoying in the States exploited or rather abused and destroyed during the September 11, 2001 attack on the World Trade Center in New York under the guise of achieving some extreme religious objectives. Therefore, the considerations of the growth and development of many nations are so complex and sophisticated in the developing and emerging nations and particularly more pronounced in the post industrial economies of the North. Individuals, firms and governments (as economic agents) in many countries aside having expectations from the nation no doubt derived psychological satisfaction or utility in supporting the advancement of their nations. What account for the mobilization of the whole populace of Britain by their wartime Prime Minister, Winston Churchill against Hitler and Nazi Germany is certainly more of psychological considerations and needs of national exigency for events that lead to the *Battle of Britain* and even after attested to the role or significance of this line of actions in the Second World War. Likewise was the *Atlantic Charter* between Great Britain and the United States in confronting the common enemy –Nazi Germany and the Axis Powers. This national mobilization of the British economy and population then not only helped in fighting the aggressor in belligerent Germany but also in the process of reconstruction after the war and provides impetus for the success of the Marshall Plan for the whole of Europe. That *post bellum* initiative set the stage for the recovery and resurgence of Europe in the global economy.

One remarkable instance related to the earlier mentioned proposition that citizens through their expectations derived psychological satisfaction in supporting the advancement of their nations is the well-known renunciation by Albert Einstein of his German citizenship and subsequent adoption of Swiss citizenship and nationality in the wake of the persecution of Jews and subsequent pogrom in the Holocaust. Also to this end or equally important is that had Scotland becomes independent in the referendum of 2014, it would be apparent that Scottish nationalism which has been dormant for hundreds of years but which finally come alive did not probably implied better times for *Scottish whisky* or the sublime Scottish culture but a new beginning for the prospective world's newest and youngest nation with promising prospects of being one of the wealthiest economies in the OECD.⁵ The American spirit of free opportunities

⁴ The civil liberties in the States especially those enshrined in the *Declaration of Independence* and the *Constitution of the United States of America* are predated by earlier developments in its 'mother' country in the other side of the Atlantic i.e. Britain as can be seen in the great charter, *Magna Carta*, which was enacted on 15 June, 1215 and grants personal and economic liberty to the people of mediaeval England. The *Magna Carta* certainly set the stage for the transformation that follows the end of the Dark Ages particularly the *Industrial Revolution* in the eighteenth and nineteenth centuries.

⁵ The birth of new nations however do not always translate in to better living standards for their citizens. South Sudan, the youngest nation on the planet is a classic example. Since attaining independence following a referendum ending the long Sudanese Civil War in 2011, it has been engulfed in its own civil war due to power struggle in the political leadership of the country. Politics and psychology does not necessarily translate in to economics as far as

for all pervade the whole fabric of the U.S. economy ever since and this has provided the much needed background for the expression of patriotism on the part of its citizens within the context of the free enterprise, *laissez-faire* capitalist model that had characterized the country's production system since its independence. For any nation to develop economically and otherwise, the onus lies on its citizens to spearhead and consistently pursued activities and processes that would inevitably lead to and result in such developments. At no point in time or history had the growth and development of any country been pioneered or brought about by citizens of other nations or foreigners as witnessed in the United States. While the U.S. economy is been fueled and developed optimally by migrants from many parts of the world who are attracted by the American spirit of free opportunities for all and guarantee of freedom of expression among other civil liberties that the American nation provides over the past two centuries and decades, the underlying theoretical basis is worthy of exploration. The mode of production or economic system of any nation to a large extent is determined by the political set up and process in such a country. This ultimately and fundamentally shapes the milieu of the citizens in such an economy towards issues of growth and development. The citizens and leaders of U.S.A. over the past two centuries have demonstrated a formidable commitment to the American spirit and nation which has ultimately result in its growth and development. The evolving institutions of democracy and free enterprise or *laissez-faire* had further cemented this commitment to such a high magnitude or extent than coercion or force can ever have achieved. Inherent in the human nature is the desire and yearning for freedom of expression and other liberties that a free sovereign nation can guarantee devoid of coercion and force thereby enabling the individuals or citizens to pursue their economic activity or endeavour. A classic example is the mass relief and euphoria that accompanied the introduction of the "*glasnost*" and the "*perestroika*" in the ending days of the former Soviet Union. The rest is now history. Now, the individual's expectations towards the preservation and perpetuity of such enabling environment that the sovereign nation (which he is a citizen of) only can conferred on him *ab initio* of his decision making horizon. The economic agents' saving and investment decision and behaviour are inherently linked and this is uniquely characteristic of each and every given nation or country in the world, whether advanced, emerging or developing. Moreover, the aspect or dimension of how the psychological disposition of a nation predisposes or forms the basis of the saving rates in such a country is achieved or arrived at through the instrumentality of policy formulation and implementation. The saving and investment behaviour as well as decision of an average American is quite different from that of an average Nigerian or Mexican on the same level of per capita income or social status. Their saving and investment decisions as well as behaviour vary across countries and are dependent on the aggregate saving propensity of their respective countries. As the per capita income level of a nation increases or grows by a certain percentage or rate, let say, n , the psychological expectations of its citizens as rational optimizing agents towards its growth and development aspirations also increases by an approximate amount. This asymptotic approximate growth rate, $\approx n$, likewise corresponds to the growth rate of the aggregate saving and investment propensity of such a country relative to other economies of the world. Moreso, the intellectual base of any nation or economy also plays a vital or critical role in its growth and development as well as psychological ambitions and aggregation. The pool of its intellectuals and academics no doubt has a significant effect on the technological advancement of such nations. From economic growth literature, the determinant of long run growth is

nationalism or nationhood is concerned. Economic growth is a function of output which is dependent on physical and human capital endowments, though psychological factors could either promote or inhibit productivity.

technological progress. This is attributable to the quality and productivity of a nation's workforce anywhere in the world. The Jewish people have been particularly noted for industry and profound scientific discoveries and breakthroughs. Little wonder why Israel is one the most advanced nations on earth in terms of science and technology. Though dispersed across the world, with many of its intelligentsia living in the United States the psychological sentiments and attachments to the State of Israel is not in doubt and the significance of this on the Israeli economy and academia is not only well pronounced but also certainly assured. The chunk of research and patents that can be traced to the Hebrew University in Jerusalem is enormous (when compared to other reputable universities that have been established over many centuries ago) and is primarily due to its citizens. One remarkable fact from our analysis so far is that inextricably linked to the economic activities and considerations of the citizens of any particular nation are the psychological sentiments and dimension towards such a country which obviously has significant growth and development effects. This theoretical model of the psychological underpinning the economic development of nations is borne out of the need or necessity to understand some of the fundamental issues intricately linked to economic growth and development in terms of growth in income per capita levels but which are not obviously apparent or somewhat not explored hitherto.

The successive spate of nationalization and indigenization of public enterprises in many developing and emerging economies over the past few decades is an evidence or rather indicative of this theory of psychological sentiments as represented by nationalism in implying or accounting for the economic growth and development of nations. The recent nationalization of some public oil companies in Venezuela is a good example of this trend and phenomenon. Moreover, there are many situations and circumstances in a nation with underlying or apparent psychological basis which produced spin-off effects on growth and development thereafter. For example, the launching of communication satellites by a nation (which may be for national pride) would definitely impact on growth and development. The United States has the highest number people having or possessing dual citizenships in the whole world⁶. Hearing such hyphenated words as Nigerian-American, Indian-American, Chinese-American etc is a commonplace. Migrants from all over the world who have settled permanently in the States have been integrated in to the mainstream American society and they obviously see themselves more as Americans than citizens of their native or originating countries. The only exception might possibly be the Chinese-Americans who obviously maintained a closer link and relationship with their country of nativity, China. The *laissez-faire* model and the American spirit of free opportunities for all more than anything else reinforce and strengthen this psychological attachments to the American state by these erstwhile migrants now citizens of the United States of America. The demand for the psychological loyalty of migrants from diverse countries to the States is been created through the instrumentality of the civil liberties enshrined in the American constitution and its amendments as well as the quintessential spirit of free opportunities for all – the *American dream*. Somehow, the economic hardships been faced by many people and families across different nations create conversely a supply chain for psychological attachments and loyalty to any favourable nation for the migrating folk who are in search of greener pastures.

⁶ The global euphoric success of Barack Obama (born of a Kenyan father and a white American mother) in the 2008 U.S. Presidential election in regard to his swearing-in as the first black or African-American President of the United States lay credence to the belief that America is a land of opportunities for all. This however is the result of a long fight against racism especially as championed by the late Civil Rights activist and Baptist minister, Martin Luther King who was assassinated in 1963.

This is a clear demonstration of *Say's Law* ("supply creates its own demand) in international labour mobility flows as well as the realignment of the psychological sentiment and loyalty to a conducive, accommodating or absorbing nation. The expectations model of a country for growth and development can be more aptly illustrated by the economy's expectations demand curve. Fig.1 provides a graphical illustration of the psychological dimension of economic development expectations. In a particular economy with a given population comprising mainly the nation's citizens is depicted against the level of economic development expectations. In (a), the diagram depicts the scenario or situation of things before nationalization of state enterprises for instance, by the managers and government of this hypothetical economy⁷. The demand curve of this country's expectations for economic development can be observed to be very steep. This is obviously due to the inertia of the citizens of the country to growth and development of their domestic economy relative to the global economy. However, upon nationalization of such state owned enterprises as illustrated by (b), the demand curve becomes less steep.

The demand curve becoming less steep as depicted by Fig.1(b), is apparently not only due to the psychological effects of nationalization of these enterprises on the citizens, but also their reaction and disposition to growth and development from that point on. The adjustment process that occurred between (a) and (b) is facilitated by the differential effects observed in the psychological disposition of the citizens to economic growth and development. It is not an instantaneous process. The time lag is however not something that can be observed empirically, though its theoretical plausibility is certainly assured. It is pertinent to stress that the psychological capital present and necessary for output growth and sustained per capita income improvements is more or less responsible for keeping most economies in well-ordered states. Undisrupted equilibrium cannot be maintained and sustained for long in any economy as the market forces cause unavoidable disequilibria many times over aside the uncertainty that pervades most economies. Nevertheless, the state of the economy where virtually all agents, markets, forces, processes etc at therein in it are set together in an ordered manner and space – *economiclocation* is highly critical for any meaningful transformation in economic growth and development to occur.⁸ Another remarkable dimension in this psychological theory of economic development of nations is the role played by the size of and magnitude of a country's population in enforcing as well as reinforcing the psychological expectation models of the nation's citizens towards growth and development. The larger and closely connected the population of a country is, the higher the level of the expectations and possibility of events and policy outcomes that reinforces such expectation models. Conversely, the smaller the population of a country and the sparser their concentration and aggregation, the lesser or lower the possibility of such expectations and outcomes. Fig.2 depicts a hypothetical global economy comprising two countries A and B.

⁷ The market behaviour of multinational enterprises or corporations is another critical issue on the underlying psychological forces or considerations influencing economic activity across the borders of diverse countries of the world. The allegiance of multinational corporations (important as it were) is however a function of the free-play or rather interplay of the forces of international capital flows and might not primarily be to the parent nations of such corporations *ab initio*. Deciphering the thin line between the operations of these corporations and the influence of the governments in their parent nations in the murky waters of international geopolitics is however a Herculean task, if ever possible.

⁸ In real world scenarios, national economies can come to or rather arrive at a stage where they are devoid of disorderliness and hence achieved as a state of harmonious equilibrium permanently *ad infinitum*.

While A is larger in terms of population and is densely concentrated, B is relatively smaller and sparsely concentrated in terms of people. Now, in this framework of analysis, it is apparent that the expectations of citizens of country A would be higher relative to those of the citizens in country B because of the sheer fact of a larger population and the necessity for growth and development *ab initio* in comparing their stages of economic development as well as their initial natural endowments. Two real world examples that would suffice at this point are Venezuela and Mongolia. This is evident from the fact that the per capita land intensities for the two countries are 40 square metres and 500 square metres respectively⁹. They are located on different continents, hence the plausibility of their comparison in regard to this theoretical postulate, albeit, observation. This obviously drives home our point or explanation of this theory from this exposition.

III. Theoretical Parameterization

Hitherto, in economics, the underlying psychological motives or considerations in economic behaviour of individuals, firms and governments are ignored primarily in simplifying the assumptions of the frameworks of such analysis. More realistic theory would embrace them in order to examine all possible causes and parameters involved or connected to such analysis. What motivate the economic behaviour of individuals as citizens of different countries as statement of reality should be drawn so widely or rather more broadly to include all possible motives. One of these motives or considerations is psychological factors or parameters. It is expedient to stress at this point that one of the central underlying bases for economic activity in Adam Smith's treatise, *The Wealth of Nations*, is the notion that individuals as rational economic agents would work hard and increase their productivity and hence output growth if there is a system of incentives for them in so doing especially in a free market capitalist economy. This obviously connotes the underlying psychological foundations of economic activity right from classical times. We now turn our attention to consider the critical defining parameters in the psychological foundations of economic growth and development in many nations across the world. There are some basic parameters that defined the psychological atmosphere of nations with critical implications on growth and development. Some of these parameters include national pride and image (as can be seen in the domain of space explorations), source of unity and national coercion (evident in sports such as cricket and football), technological research and national defence evident in huge research and development projects such as the Advanced Research Project Agency (ARPA) in the States in the 1960s which gave birth to the Internet as well as strong industrial military complexes in many countries. The national, psychological sentiments attached to indigenous domestic firms in many countries sometimes could be very strong. For instance, the psychological outlook or disposition of many Finnish would have diminished or plummeted when Nokia (the global firm producing mobile phones) which originated from Finland was bought up or took over by Microsoft, an American firm. The same is true of the Mercedes Benz car for Germany and the Samsung Smartphone for South Korea.

Before we turn our attention to the analysis of China in explaining the psychological theory of economic growth and development of nations, we would digress a bit and discuss an interesting

⁹ Though China is the most populous nation on the earth (with an average per capita land mass or intensity of 7.8 square metres), Singapore is one of the countries with the lowest per capita land mass or intensity with an average of 0.2 square metres. The per capita land intensity or mass is computed by dividing a country's population by its total area or land mass in square kilometre and then expressing the result in square metre for a single individual.

evidence of this theory – Space Exploration. When the former Soviet Union launched the first artificial satellite, *Sputnik I*, on 4 October 1957 thus starting or heralding the space age, there is no doubt that it was primarily inspired by a national, psychological ambition to beat or overtake its rival, the United States in the race and exploration of outer space. It is evidently clear that the feat by the Soviets spurred the Americans to embark upon a gigantic space programme that witnessed the launch of many space satellites and probes to the moon as well as interplanetary missions to Mars and distant galaxies over the past five decades. The spectacular landing of astronauts Neil Armstrong, Michael Collins and Edwin Aldrin as the first men on the moon on 16 July 1969 is indeed a remarkable achievement by the Americans, though Yuri Gagarin (a Soviet astronaut was the first man in Space). These two nations, the United States of America (U.S.A) and the defunct Soviet Union for many years were the only ones in the space exploration race. The technological advancement as well as the economic or financial costs that is associated and which comes with these exploration activities are huge and profound, nevertheless they result in the economic growth and development of these nations. Psychological propensities more than any other factor or variable could possibly account for economic engagements resulting in the growth of per capita income levels which can primarily be traced to space exploration missions in these two economies as well as others lately. Moreover, no reason or parameter other than psychological sentiments could have inspire or motivate the development of strong and huge industrial military complexes in these advanced economies with its resultant research and development (R&D) effects that impact positively and greatly on growth and development in these countries. One example is the ARPA programme that birthed the Internet in U.S.A. Nations that embark upon space explorations hoped to greatly project their national image in the eyes of the world. The knowledge spillovers emanating from space explorations of the American's NASA for instance generate a wide range of advancement in science as well as research and development (R&D) activities in many other sectors over time. The advancements in technology that comes with or which is rather associated with space exploration are not only impressive but profound as such inevitably have positive implications on growth and real per capita income levels. What could motivate nations such as U.S.A., Soviet Union (now Russia), U.K., France, China, India, Pakistan, North Korea etc to produce nuclear warheads and even hydrogen bombs than the national psychological sentiments it generate and project their countries' images in the eyes of the world. They are produced sometimes not necessarily for defending their countries in the case of aggression. The *Manhattan Project* for instance that result in the world's first atomic bomb was built through the marshalling together of eminent scientists for this singular effort by the American government. Though these weapons were used on the Japanese thereby ending the Second World War, national interest lies at the heart of the project despite opposition by eminent scientists such as Albert Einstein.

Most space missions produce spin-offs in other sectors of a nation's economy whether in engineering, R&D, human capital development. It is imperative to note that the Manhattan project demonstrated explicitly that technological advancement or progress is not an uncontrolled stochastic development. However, quest for new sources of energy and all associated technologies e.g. green energy, biofuels etc are not likely to be pursued from the perspective or viewpoint of national psychological image because of the global, universal nature and benefits that would emanate from them. Other advanced industrial economies such as the United Kingdom (U.K.), France and Germany were only able to participate on a collaborative European level or platform in partnership with the space missions of both Americans and the Russians (following the demise of the Soviet Union in 1991). The financial resources as well as

the technological base and skilled human capital workforce needed for space exploration as earlier mentioned are not only huge but staggering such that it can only be inspired by national pride and psychology by these nations than anything else in the space race. New entrants such as India and China are likewise inspired by this singular factor than anything else. The *raison d'être* is not far-fetched. What could have inspired or motivated India (though a new global emerging economy with a high level of indigenous technological prowess) with over 270 million of its citizens living in extreme poverty to embark on interplanetary space explorations to Mars - a feat which its neighbor and rival, China is yet to achieved. India has a long history or experience of technology associated with space science and explorations. It developed and launched its first ballistic missile carrying nuclear warhead far back in 1974¹⁰. There is no doubt that missile technology is closely connected to space exploration. This is purely a technological race as well as a psychological adventure by the Indians to beat the Chinese who have also embark on a manned space mission to the moon.

Now beaming our searchlight on China, also known as *Sinim* in ancient times, we discovered the world most populous country as having a strong national bond that is influenced greatly by psychology closely tied to its roots or origin as a civilized advanced nation dating back to the past five thousand years¹¹. Modern China came in to being however in 1949 under the late Chairman Mao Tse Sung after the war of liberation with the nationalists led by General Chiang Kai-Shek who established the breakaway Republic of Taiwan (though Mainland China still sees it as part of its territory). For quite a couple of decades, thereafter China was a sleeping economic giant as the whole country is swept under the influence of the *Great Leap Forward* of 1959 which is not successful and later the *Cultural Revolution* which is aimed at inculcating and instilling a cultural rejuvenation or rightly put, communist ideologies whether of its opposition to the free market *laissez-faire* model or democracy as a political creed on the Chinese people both under Mao. Apparently the Chinese people have a strong social fabric or structure closely or tightly knitting them together in a sense of national bond fuelled by profound psychological considerations that can be traced to their history as nation. Perhaps the issue of whether the *Cultural Revolution* succeeded in reinforcing this disposition is still a question of serious theoretical and empirical discourse. However, the economic reforms been pursued by the late Chinese leader, Deng Xiaoping in the 1980s – starting from 1984 laid the foundation that actually led to the emergence of the country as the second largest economy only surpassed by the Americans from its position as the 8th largest in the world in the 1980s when those reforms started. The huge industrial complex in China producing all kinds of goods from smartphones to heavy industrial machineries is been made possible by hundreds of millions of semi-skilled and skilled workers from the rural areas of the country who see themselves and their contributions as parts of the continuous growth and prosperity of a strong indivisible China steeped back in history. China's neighbor, Russia also has a sense of national pride dating back to many

¹⁰ The former Indian Prime Minister, Indira Gandhi (daughter of former Prime Minister Jawaharlal Nehru) was reported to have said that India would produce nuclear weapons even if it meant it feeding on grass. No one need to be told that such statements which were actually implemented were psychological - in terms of boosting the national 'pride' of India which was facing threats from its neighbour and rival, China on the one hand and Pakistan in particular on the other hand (over the Kashmir crisis) than anything else.

¹¹ The present name of China is probably derived from the reign of the Ch'in dynasty which completes the conquest of all the separate independent states in this ancient nation under Shih Huang-ti around 221B.C. The *Great Wall* of China was constructed during the reign of this dynasty in 214 B.C. It is interesting to note that the *Great Wall* of China is the only landmark or structure that is visible from the surface of the Moon.

centuries ago – a psychological viewpoint which is not shared by other nationalities such as the Armenians, the Uzbeks, the Kazakhs etc that make up the former Soviet Union. The inevitable result then was the ‘*glasnost*’ and the ‘*perestroika*’, developments that led to the demise of the once powerful superpower in 1991¹². The success story of the economic reforms embarked upon by the Chinese leaders in the 1980s have made Chinese leaders and people –though mainly Communists to be seen as better experts and masters of the capitalist, free enterprise *laissez-faire* model than the Americans and the Europeans from whose nations or continent it actually originated. Better and efficient application and management of any economic model are never the sole attributes or capabilities of any nation or people as what matters most is the correct diagnosis and right application of economic principles and policies anywhere in the world. Having the largest population in the world –despite the demographic policy of one child per couple by the government there, the Chinese people have been able to assert their economic might and power through their enormous industrial and manufacturing production of goods of all kinds that not only find a huge domestic market but also found its way to many developing and emerging nations in Africa, Latin America etc. The fact that they seem to be good or better managers of resources and economic models is a clear testament of the achievements in terms of economic growth and development that the psychological disposition and collective strength that the citizens of any nation can inspire and muster towards this end. How the Chinese managed their economy and currency-the *Renminbi* (previously known as *Yuan*) despite criticisms and misgivings by the Americans and the I.M.F. is indeed remarkable. Recently when the currencies of the other global emerging economies that make up the BRIC (Brazil, Russia, India, and China) lost some of their values, only the Chinese *Renminbi* maintained a steady and stable position against the American dollar. These other *R*-currencies that is, the Brazilian *Real*, Russian *Rouble*, and the Indian *Rupee* all lost over ten percent of their values against the dollar. Many American and European policymakers see the *Renminbi* as deliberately been manipulated and undervalued by the Chinese to favour their exports which found ready markets in their economies. This position, though a subject of serious theoretical and applied analysis is by and large a psychological warfare with underlying economic factors or considerations. Economics and psychology sometimes goes hand in hand not only in day to day human activities but also as it concerns the economic policies and management of nations. That psychology as the force behind many productive economic engagements is now very plausible from our analysis so far in this paper. The processes obviously have growth and development implications. The expectations function of citizens from their governments across diverse nations of the world though might seem similar vis-à-vis hope of good infrastructures, even distribution of wealth etc, there are variations from one country to another. We now proceed to the modelling framework and analysis and thereafter the implications thereof given the theoretical parameterization we have just considered.

¹² The *glasnost* was a precursor to the *perestroika* as it begins the opening up of the Soviet Union to the outside world and paved the way for the latter which essentially granted all the constituent Soviet Socialist Republics such as Ukraine, Georgia, Turkmenistan etc independence under the more liberal regime of Mikhail Gorbachev. The advent probably of a similar political outcome in the People’s Republic of China especially the emergence of a leader in the mold of Mikhail Gorbachev as well as prelude processes such as the *glasnost* and *perestroika* in the former Soviet Union happening in the communist party of this great Oriental nation in the sense of introducing political liberalism is certainly a question in the womb of time.

IV. The Modelling Framework & Analysis

How the psychological parameters of ‘patriotism’, nationalism or ‘national pride or image’ has been deployed by various countries of the world in enforcing social cohesion and public commitments towards achieving better per capita income levels is a complex issue and possibly inexhaustive. Much more need to be put in perspective to understand and address these issues. We have only been able to identify and possibly draw attention to one of the fundamental considerations underlying not only the economic behaviour of nations or nation-states, but also the whole gamut of productive economic engagements and hence increased per capita income levels. How these aforementioned psychological forces stimulate a system of incentives, rewards and sanctions directly or indirectly on the economic superstructure with concomitant effects on the living standards. It is also possible that extensive research can unearth better and vital insights in to how economic systems are motivated and influenced in diverse nations across the world. It is well-known that expectations by citizens of a country whether as producers or consumers could most probably account for the somewhat sudden swings in macroeconomic activity resulting inevitably in business cycles scenarios. These possibilities are fostered in an atmosphere of optimism and sometimes pessimism, most often than not in disproportionate dimensions. We have tried to isolate this particular or specific role of psychology in promoting or inhibiting economic growth and development revealed in the pattern of per capita incomes distribution globally without incorporating other aspects such as monetary or financial matters because attempts of this nature entails theoretical abstraction and simplification. Much more important however is the fact that one cannot theorize about everything at a point in time. There are no kits and instruments whether theoretical or empirical to undertake such an adventure in economic science anyway. Real per capita income level would be modelled as the dependent variable, while the psychological parameters or variables such as ‘patriotism’, ‘national expectation’ and nationalism were considered or modelled as the independent variables in our model. The mechanics of how to account for the psychological underpinnings of economic behaviour in different nations and consequent effects on per capita income levels though a complex exercise we would approach in this section through theoretical abstraction and simplification.

As all theoretical modelling begin with abstraction and simplification, we would start by considering the basic premises or assumptions of the model. Later we would explore the hypothesis and deduct or infer some ‘heuristic’ implications of this model from the analysis. In any given country n , for instance, the psychological expectations of its citizens as rational optimizing economic agents are summed up in a sort of unique nationalistic ‘utility maximizing function’ that had implications on changes in real per capita incomes both in the medium and long term horizons. Economic agents whether individuals and households as well as firms do certainly have saving propensities which might later are transformed in to investments in the course of economic engagements in the macroeconomy. Having noted that, it is expedient to stress that their investment and saving behaviour and function are influenced fundamentally by their own personal economic considerations as well as the psychological expectations towards the growth and development of their country which conferred on them the enabling environment and avenue for their optimal development within the wider global economy which obviously

calls for consideration¹³. We would now consider a framework for modelling the psychological parameters that most probably underlies economic activity and engagements in most modern economies. For a hypothetical economy, *Lalupon*, with a finite number of citizens ($n_1, n_2, n_3, \dots, n_N$) with their individual utility functions ($u_1, u_2, u_3, \dots, u_N$), then the patriotic or nationalistic psychological expectations of its citizens (hereafter to be referred to as *Laluponians*) is the sum total of the individual utility functions multiplied by the factor Φ which stands for the aggregate saving and investment function of these agents as it relates to or implied growth and development of such economy. Exchange is assumed to involve only goods-for-goods in contrast with what obtain in a modern monetary economy. This theoretical abstraction is meant only as an analytical simplification. By summing the changes in the behaviour of individuals as *optimizing* agents as the economic environment changes, we can derive the movements of national magnitudes. Therefore

$$N_E = \sum_{i=1}^N u_N \cdot \Phi \quad [1],$$

where N_E is the national, psychological expectations of Laluponians, $\sum_{i=1}^N u_N$ is the sum total of the individual utility functions (and as such the social utility function) while Φ designate the aggregate saving and investment function of Laluponians in relation to the growth and development of their nation. It is imperative to stress that the central underlying assumption of this theory is that *self-interest* (which lies at the heart of all economic activity) in individuals as rational optimizing agents in their expectations and aspirations from their government is then mapped in to the national ‘patriotic’ stance of such government in exercising the apparatus of power or sovereignty vis-à-vis public policy towards achieving overall national interests which inevitably has effects on output growth and development in such an economy¹⁴. So many psychological factors are there that either make or mar economic activity in many nations in the course of their economic growth and development. Some includes morale of its labour force and citizens, cultural attitudes, as well as incentives and sanctions through public policy are capable of reinforcing economic development generally. Leaders and those in authority in such nations perceive their ability to correctly read the moods, feelings as well as expectations and aspirations of their citizens and then adequately *mapped* them in to the nation’s psychological function as been *sine qua non* to their political survival and relevance. Citizens in democratic economies revealed their frustrations or reactions to economic policies and governance through the

¹³ Expectations by citizens of a country from their membership of such nations sometimes exceed the possibilities of fulfillment even as much as demands on resources tend to exceed supply. Nevertheless, motivations and incentives inherently implicit in the patriotic stance of many nations would not only add to a nation’s capital stock (both tangible and intangible) through more positive contributions but also help improve growth and development of such countries ultimately.

¹⁴ Patriotism have in recent times play a major role in strategic international geopolitics for instance in the case of Russia which banned foods and agricultural commodities from U.S. and other EU countries that imposed sanctions on it following the crisis involving the Ukrainian government and the rebels in the eastern part of the country. That is a good and classic evidence of psychology playing critical or fundamental role in economic activity and engagements even at the international level. That action by Russia might probably help the entrepreneurs and agricultural firms there to take advantage of this ban to secure market shares and produce those commodities or their substitutes to offset the effects of the ban. How that translates to better per capita income levels however remain to be seen. Patriotism also plays a considerable psychological influence not just on the industrial and manufacturing sectors of advanced economies such as U.S., Japan, Germany but also the national consciousness and ‘national image’ of such nations. Industrial products and their brands such as the Ford, General Motors and General Electric in the United States; Toyota, Sony, Toshiba, Mitsubishi and Honda in Japan; Mercedes Benz in Germany; Reynolds in France; Nokia in Finland; Phillips in the Netherlands; Tata in India; Dangote in Nigeria; Samsung and Daewoo in South Korea etc. These products and brands no doubt inspired a sense of ‘patriotism’ in those countries.

instrumentality of the ballot box and voting rights. Where the macroeconomic policies are good and stable, the electorates ensure the continuity of governments by both re-election and mass public support while where they are otherwise; the citizens vote them out to foster the continuous corporate existence of such democracies. In centrally planned economies however, the scenario is quite different as the issues of governance are controlled by certain set or group of leaders of the communist party in power – the Politburo, the leader sometimes tending to be dictatorial. Nevertheless, satisfactions by citizens with the governance model and macroeconomic policies of any government in democratic economies are most probably revealed by public polls such as those conducted by organizations like the *Gallup* in the United States¹⁵. Good macroeconomic policies would breed a positive atmosphere of optimism (and by extension productive economic engagements) in any economy not only in periods of boom but also in times of recessions though the matrix of economic policy mix is such that one policy direction most often than not produces conflicting outcomes or trade-offs. An example that would suffice is the psychological atmosphere that pervades the post *Great Depression* era of the 1930s, the boom era of the 1990s and the aftermath of the 2007 global economic crisis on the U.S. economy. The irony however is that where economics and politics meet and converge, psychological considerations lie at the heart of whatever outcomes ultimately evolved from such interactions especially in matters involving national economies. This is more true in the formation of nation-states which is never an extinct process as new nations are still been established in recent times.¹⁶ The premium that a country placed on its human capital base or endowment is another interesting dimension and is informed by the level of investment in this vital sector of the economy over time and this has obvious implications¹⁷. Now we can extend our analysis to consider that the psychological image of *Lalupon* (as a nation) is the sum total of the utility functions of the expectations of Laluponians in regard to their government and country. To this end, assuming the country with N number of citizens has its psychological image defined as:

$$U = \sum_{i=1}^N U(E_i), \quad U'(E_i) > 0, U''(E_i) < 0 \quad [2]$$

where E is the level of expectation of Laluponians. Moreover, since the level of expectation

¹⁵ Sometimes, citizens vent their frustrations for instance to income inequality and unfavourable macroeconomic policies and climates through mass protests and demonstrations. In recent times such protests include those by the Tea Party in the States and civil protests by the Occupy Campaign Group at St. Paul's Cathedral, London in the U.K.

¹⁶ The examples include South Sudan which became an independent sovereign state in 2011. Scotland by a marginally but highly significant ten percent margin rejected the possibility of becoming the newest nation on the planet. Economic issues tied to strong psychological considerations lie at the heart of the agitation and attainment of nationhood – presence of rich oil fields is highly linked or connected to the creation of the former aside legitimate grievances of political oppression and repression in the erstwhile old Republic of Sudan. Civil war has ravaged this young or 'infant' nation since December 2013. The same reason suffices for the latter in its quest to attain independence from the United Kingdom especially the rich oil fields in the North Sea. The psychological underpinning of the formation of nations essentially centred on the strong feelings, attachments, expectations as well as a high level or sense of national identity to such developments. Economic arguments and intense psychological emotions did not eventually translate in to political independence for Scotland – the country of nativity of the supposed father of modern economics, Adam Smith.

¹⁷ The rationale in recent times for instance in the exchange of an Israeli soldier for one thousand Palestinian prisoners obviously revealed the premium that different countries placed on their human capital. A country where its human capital represents its very survival and essence is very much understandable like in the case of Israel today. Likewise remarkable is the case of one American soldier exchange for five prominent prisoners detained at Guantanamo base by the United States following the September 11, 2001 attack on the World Trade Centre in New York.

uniquely determines its marginal utility, the level of psychological expectation is equal across and or among all citizens of this hypothetical country, hence: $E_1 = E_2 = \dots = E_N$. This is a fundamental requirement for optimization. Let us extend our argument to a two-country world comprising nations hypothetically referred to as *Lalupon* and *Isokan* (which as designated as N_1 and N_2 respectively) with a distinct psychological image in each nation and beyond¹⁸. *Isokan* has its aggregative psychological image or social utility function defined as:

$$\psi = \sum_{i=1}^N (\varphi) \quad [3],$$

where φ is the national psychological expectations of Laluponians which is N_E in [1]. In other words, the psychological expectation of the latter is a function of the expectation regime that is operative in the former. For theoretical flexibility, trade considerations are only on a bilateral level since we initially assumed a two nations global model. The national psychological expectations function is a function of the various parameters earlier considered e.g. space exploration, nationalism or nationalization, sport and ‘national coercion’, technological research etc. There are two kinds of psychological image atmosphere operative in each particular country, that is, old (*Lalupon*) and new (*Isokan*). At any point in time, β_0 of the global psychological image is old (*Lalupon*’s image) and $\beta_n = \beta - \beta_0$ is the new (*Isokan*’s image) in the context of the two-nation world (where β implied the global psychological image). The motivation or psychology behind growth and development is assumed equal across the borders and frontiers of these nations. The motivation or psychological atmosphere for profound output growth and increase in per capita income levels is however so pervasive in N_1 but lacking in N_2 . This is analogous to country A and B in the hypothetical global economy model considered in Section II. Moreover, it takes one unit of some reinforcing mechanism in *Lalupon* (e.g. sport) to produce one unit increment in its national psychological image. Nevertheless, psychological expectations whether old (*Laluponian*) or new (*Isokanian*) are produced under perfect competition. We normalize the cost of the old psychological image to 1, and also define the cost of creating or producing the new psychological image as C_n - that is, $C_0 = 1$. In order to create a new psychological image for *Isokan* in the eyes of the rest of the world, a kind of rebranding was embarked upon and the cost of such endeavour is given as:

$$C_i(\mu) = \frac{C_i \mu}{(1-\mu)} \quad [4],$$

where $\mu > 0$ is a constant. As we have noted earlier on, we are considering a two-country world (N_1 and N_2) each with a distinct psychological image perceived and expressed in the country and abroad. At time t , there are $N_i(t)$ persons, engaged in productive endeavours in country i ($i = 1, 2$) with psychological effect or implication on economic growth and development. The exogenously given rate of growth of $N_i(t)$ is δ . Real, *per capita* expectation or disposition (in terms of psychological propensity or drive) is a stream, $P(t)$, $t \geq 0$, of units of a single good – national image or ‘pride’. Country i has its national aggregative psychological image (utility function) represented as the present discounted value of a stream of instantaneous psychic utility given as:

¹⁸ This is only true of a global environment with politically separate nations. The possibilities evident from a borderless global economy where there are no separate nations and therefore no distinct nationalism or nationalistic traits can only be imagined. Psychological considerations engendered by economic competition would not exist.

$$\int_0^{\infty} u[P(t)] \cdot e^{-\rho t} \cdot N_i(t) dt \quad [5],$$

where the discount rate, $\rho > 0$. Production per capita of the only one good is divided in to consumption, or per capita expectation, $P(t)$ and national psychological capital (national esteem or pride) accumulation. If we let $E_i(t)$ denote the total stock of country i 's national pride or psychological disposition, and $\dot{E}_i(t)$ as its rate of change infinitesimally, then the nation's total psychological image is $N_i(t)P(t) + \dot{E}_i(t)$. The variable, $\dot{E}_i(t)$ is the net investment in building up the country's psychological image. Production depends on the levels of the sum total of individual utility functions represented by [3] and aggregate saving and investment function of citizens (Φ) as well as on the level $A(t)$ of 'technical progress' (in national psychological rebranding cum ego boosting anyway!), according to:

$$N_i(t)P(t) + \dot{E}_i(t) = A(t) \cdot \delta \cdot \Phi \quad [6],$$

where the exogenously given rate of technical change, \dot{A}/A , is $\beta > 0$. The aggregate saving and investment functions should be thought of here as all productive engagements by citizens of a country that help in building the national pride or esteem of the nation or reinforcing them¹⁹. This dependence reflects the state of technology or knowledge at any given point in time. The national image perceptive allocation problem faced by this nation i in the dual-country global economy is fundamentally to choose an optimal time path, $P(t)$ in terms of per capita expectation. Though we are dealing with an intangible good-*psychological esteem* or *image* in the study, the treatment of these goods and other related parameters in such a theoretical model like this one is to simplify the analysis of the issues and considerations involved. Now, the main postulate in terms of optimal expectation-psychological expectations by citizens of country i that maximize utility [5] subject to the state of knowledge [6] is the *Hamiltonian* H defined by

$$H(E, \mu, P, t) = e^{-\rho t} P(t) N_i(t) + \mu (A(t) E(t) \Phi - N_i P) \quad [7],$$

which is basically the sum of the felicity function and from [6] the *Lagrangian* multiplier times the right hand side of the transition equation. The constraints to the development of a national psyche with implications on growth and development include a nation's historical antecedents, plurality or diversity of cultures or worldviews, corruption, social vices or maladies etc. The primal place of this approach in dynamic optimization is most assured. Now the first order conditions are:

$$H_P = e^{-\rho t} N_i(t) - N_i(t) \mu = 0 \quad [8],$$

as well as :

$$H_\mu = A(t) E(t) \Phi - N_i(t) P(t) = 0 \quad [9],$$

which implies that :

$$N_i(t) P(t) = A(t) E(t) \Phi \quad [10].$$

An optimal expectation must maximize the Hamiltonian H at any time t , provided the Lagrangian $\mu(t)$ is correctly specified. The transversality condition is satisfied as:

$$\lim_{t \rightarrow \infty} e^{-\rho t} \mu(t) E(t) = 0 \quad [11],$$

which is the optimal path. This is a direct application of the Pontryagin's *Maximum Principle*. The implication of [11] is that the value of the national psychological disposition, $E(t)$ must be

¹⁹ This most probably leads to or rather result in specialized human capital accumulation on an economy-wide scale.

asymptotically zero. Hence, at the point where the psychological propensity is buoyantly highest for a country in its development path, the return on its aggregate human capital investment is at its optimal level, *ceteris paribus*. When the returns on human capital investments are optimal, output growth in terms of the productivity levels of effective workers is at its most efficient or maximum level. How that translates in to higher per capita income level for majority of the citizenry is a function of the income distribution system and the mechanisms in place for such in our hypothetical economy.

So many effects or implications emanating from the actions of these psychological forces or influences on economic activity and engagements and hence per capita income levels include a high level of morale among the labour force in each of these countries thereby identifying with the objective of such nation-states, more robust economic performance, high perception of the nation's image in the international community, internal stability and cohesion. It is expedient to note that inasmuch as psychological considerations drive the output growth to some extent in diverse countries, *economifugal* forces or influences make resources to go out of the economy in a sort of exogenous nature. In other words, exogenous forces influence economic activity and technology as expounded by neoclassical growth theory.

The theory so far considered provides an account of how underlying psychological considerations have possibly explained economic behaviour globally and how these has lead to tremendous diversity in per capita income levels across the countries of the world. As the methodology employed involved abstraction and simplification of the issues, whether the model and the theory explored contained complete and well-validated theoretical constructs is not for us to ascertain but we would rather left that to posterity to assess and judged.

V. Concluding Remarks

We have so far examined a theoretical exposition of the underlying psychological basis of economic growth and development of nations within the context of a simple parameterization and modelling framework. However, constructing or developing a comparative metric system in measuring how 'patriotic' a country and its citizens are to productive economic engagements and national issues relative to another and how all of that would account for differences in income levels is a herculean, if not impossible task. Moreso, a rapid convergence in per capita income levels of different economies to a common level globally arising from more intensive psychological dispositions in terms of 'national image or pride' promotion in many countries is probably only a theoretical possibility. Nevertheless, so many issues and factors are involved in variations and changes in real per capita income levels in different countries across the globe that hitherto the motivating force or basis behind them has been ignored or somewhat unexplored. This is what this paper fundamentally identified and addressed in accounting for the pattern for those profound growth and increased per capita income levels of diverse nations of the world over time. Moreover, what is generally observed or inferred from this theory is that psychology (in terms of "national pride") more than any other variable inspired and motivate many growth and development initiatives, for instance space exploration in many countries across the globe and these are closely tied to economic considerations. This is true in many cases as the exploration of space especially the putting the first man in space and on the moon as well as the American ARPA Project which is the precursor to the Internet etc. Though the paper while it appears to hypothesize a sort of psychological model of economic growth and development is merely an attempt in accounting for the growth and development experiences of diverse nations

across the world from the theoretical standpoint of their underlying psychological considerations. Moreover is the fact that the main underlying psychological factors or considerations in most economic activity in both developed and developing economies might not possibly be explained in a few parameters as we have undertaken in the paper. We only hope that we have been able to elicit one of those fundamental issues hitherto unexplored in theoretical economics.

References

Almlund, M., Duckworth, A.L., Heckman, J. and Kautz, T. (2011) Personality Psychology and Economics, *IZA Discussion Paper* No. 5500, Institute for the Study of Labour

Camerer, C. (2006) Behavioural Economics, In: R. Blundell, W.K. Newey and T. Persson (eds.) *Advances in Economics and Econometrics: Theory and Applications, Ninth World Congress*, Volume 2, Cambridge University Press

DellaVigna, S. (2009) Psychology and Economics: Evidence from the Field, *Journal of Economic Literature*, 47(2), pp. 315-372

Fehr, E., and Falk, A. (2002) Psychological Foundations of Incentives, *IZA Discussion Paper* No. 507, Institute for the Study of Labour

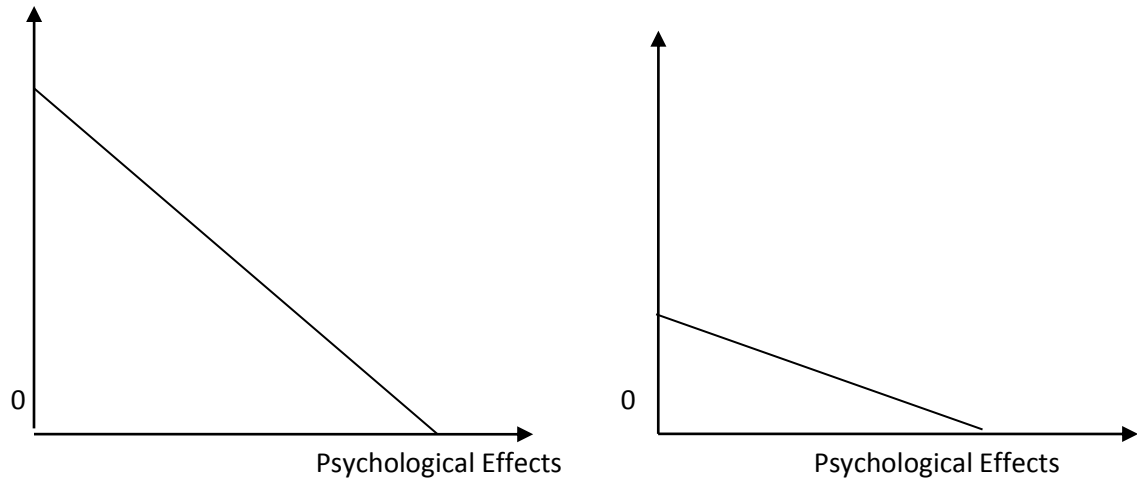
Muramatsu, R., and Avila, F. (2017) The Behavioural Turn in Development Economics: A Tentative Account through the Lens of Economic Methodology, *Brazilian Journal of Political Economy*, Vol. 37, No. 2(147), pp. 363-380

Rabin, M. (1998) Psychology and Economics, *Journal of Economic Literature*, 36(1), pp. 11-46

Rabin, M. (2002) Alfred Marshall Lecture: A Perspective on Psychology and Economics, *European Economic Review*, 46, pp. 657-685

Surkov, S.A.(2014) Psychological Aspects of Economic Behaviour of People, *Universal Journal of Management*, 2(1), pp. 40-47

Figures



a. Expectation Demand curve before Nationalization b. Expectation Demand curve after Nationalization

Fig.1: An Expectation Demand Curve before and after Nationalization.

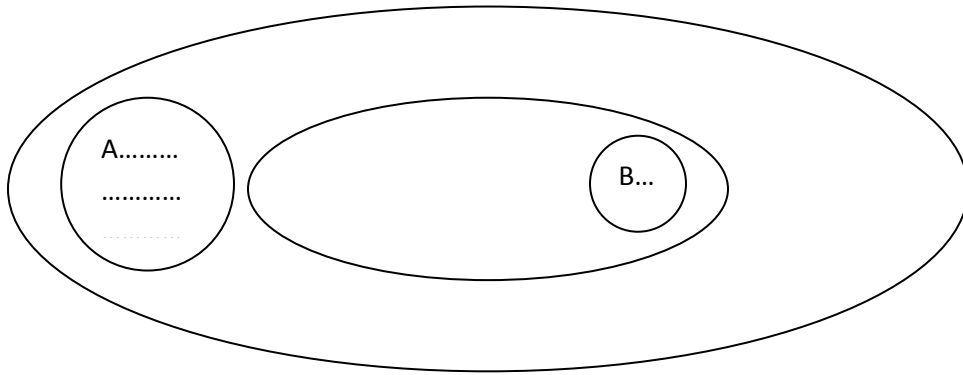


Fig.2: A Hypothetical Global Economy Contour Model