REVIEW OF ECONOMIC AND BUSINESS STUDIES

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THE ESSENCE OF THE AUSTRIAN SCHOOL AND THE CONCEPT OF DYNAMIC EFFICIENCY[*]

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Now let me begin by making a few points on the true origin of the Austrian School of Economics, which should be traced back to the works of the Spanish Scholastics of what is known as the "Siglo de Oro Español" (in english the "Spanish Golden Age"), which ran from the mid 16th century through the 17th century. The great austrian scholar Murray N. Rothbard (one of the brightest followers and pupils of Ludwig von Mises) first developed the thesis that the Austrian School is of spanish origin in 1974. The Nobel Prize winner Friedrich A. Hayek shared this view, particularly after meeting Bruno Leoni, the great italian scholar and author of the book, freedom and the law. The two met in the 1950s, and Leoni convinced Hayek that the intellectual origins of classical economic liberalism lay in Mediterranean Europe and not in Scotland.

I have here a letter from Hayek dated january 7, 1979, in which Hayek writes that Rothbard "demonstrates that the basic principles of the theory of the competitive market were worked out by the spanish scholastics of the 16th century and that economic liberalism was not designed by the calvinists but by the spanish jesuits." Hayek concludes his letter by telling us: "i can assure you from my personal knowledge of the sources that Rothbard's case is extremely strong."

Who were these spanish intellectual ancestors of the modern free market movement? Most of them were scholastics teaching morals and theology at the University of the city of Salamanca, a wonderful medieval city located 150 miles to

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[*] This conference was held in october 2010 at the anniversary of 150 years since the founding of Alexandru Ioan Cuza University from Iași

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the northwest of Madrid, close to the border of my country with Portugal. These scholastics were mainly either dominicans or jesuits, and as we are about to see, they were able to articulate the subjectivist, dynamic, and libertarian tradition which, 250 years later, was to be stressed by Carl Menger and his followers of the Austrian School of free market economics. Let us recall some of their contributions.

Perhaps the first author to be mentioned should be Diego de Covarrubias y Leyva. Covarrubias was born in 1512, the son of a famous architect, and he became bishop of the city of Segovia and minister of King Philip II. If you should visit Spain, I recommend you tour the museum of the great spanish painter El Greco in the city of Toledo. There you will see a stunning portrait of Covarrubias, who, in 1554, set forth better than anyone before him the subjectivist theory of value, which is the foundation of all free market principles. Specifically, Covarrubias concludes that "the value of an article does not depend on its essential nature but on the subjective estimation of men, even if that estimation is foolish." He adds that "in the Indies wheat is dearer than in Spain because men esteem it more highly, though the nature of the wheat is the same in both places."

Another important author is Luis Saravia de la Calle, who was the first spanish scholastic to demonstrate that prices determine costs, not vice versa. Saravia de la Calle also has the special merit of having written his main work in spanish, not in latin. Its title is Instrucción de Mercaderes (Instruction to Merchants), and there we read that "those who measure the just price by the labour, costs, and risk incurred by the person who deals in the merchandise are greatly in error. The just price is found not by counting the cost, but by common estimation."

Saravia de la Calle is also a great critic of fractional-reserve banking. He maintains that receiving interest from a bank is incompatible with the nature of a demand deposit and that, in any case, a fee should be paid to the banker for the custody and safekeeping of the money entrusted to him.

A similar conclusion is reached by another famous spanish scholastic, Martín Azpilcueta. Azpilcueta was also known as Dr. Navarro, because he was born in Navarra, the north-eastern autonomous region of Spain famous for the encierros, a festival held in the region's capital city of Pamplona, where every july people run in front of the bulls at great risk to their lives. Azpilcueta was born the year following the discovery of America (1493), lived to be ninety-four years old, and is especially famous for explaining the quantity theory of money for the first time, in 1556. Azpilcueta observed the effects on spanish prices of the massive inflow of precious metals from America and declared: "experience shows that in France, where there is less money than in Spain, bread, wine, cloth, and labour cost much less; and even

when there was less money in Spain, saleable items and the labour of men were given for much less than after the indies were discovered and covered Spain with gold and silver. The reason is that money is worth more when and where it is scarce than when and where it is abundant."

The spanish scholastics also gained a clear insight into the true nature of market prices and the impossibility of attaining an economic equilibrium. The jesuit cardinal Juan de Lugo, wondering what the equilibrium price was, as early as 1643 reached the conclusion that the equilibrium depends on such a large number of specific circumstances that only God can know it. In latin, he stated: "Pretium iustum mathematicum licet soli deu notum." Another jesuit, Juan de Salas, with regard to the possibility that an authority could come to know specific information on the market, asserted that it is so complex that (in latin) "quas exacte comprehendere et ponderare Dei est non hominum." (in english, "that only God, not men, can understand it exactly.")

Furthermore, the spanish scholastics were the first to introduce the dynamic concept of competition (in latin concurrentium), which is best understood as a process of rivalry among entrepreneurs. For instance, Jerónimo Castillo de Bovadilla (1547-?) Wrote that "prices will be driven down by an abundance of sellers, and by rivalry (emulación) and competition (concurrentia) among them."

Like ludwig von Mises, Friedrich von Hayek, and most members of the Austrian School, who are naturally prone to be classical liberals, the subjectivist Spanish Scholastics tended to defend strong libertarian positions in political matters. For instance, the great founder of international law, the Dominican Francisco de Vitoria, began the spanish scholastic tradition of denouncing the conquest and particularly the enslavement of the indians by the spanish in the New World, thus reviving the idea that natural law is morally superior to the mere might of the state. This natural law tradition was further developed by the great libertarian jesuit Juan de Mariana, who in his book, On the alteration of money ("De monetae mutatione"), published in 1609, condemns as robbery any government debasement of coins. Mariana also maintained in his well-known theory on tyrannies that any individual citizen can justly assassinate a governor who imposes taxes without the people's consent, seizes the property of individuals and squanders it, or prevents a meeting of a democratic parliament. The only doctrine on which I disagree with Mariana is his condemnation of the typical spanish "fiesta" of bullfighting. But being, as I am, the grandson of a famous spanish bullfighter, I concede that I am probably not too impartial on this matter…

Now, let me remind you that in the 16th century, the emperor Charles V, who was the King of Spain, sent his brother Ferdinand I to be the king or better the Archduke of Austria. Etymologically, "Austria" means "eastern part of the Empire," which in those days comprised almost all of continental Europe, with the sole exception of France, an island surrounded by spanish forces. Now you will understand the origin of the intellectual influence the Spanish Scholastics exerted on the Austrian School. This was not pure coincidence or a mere whim of history, but originated from the intimate historical, political, and cultural relations which arose beginning in the 1500s between Spain and Austria and which would continue for several centuries. Italy also played an important role in this connection, acting as an authentic cultural, economic, and financial bridge over which the relations between the two furthest points of the Empire (Spain and Vienna) flowed. So, as you see, there are very strong arguments to support the thesis that, at least at its roots, the Austrian School is a truly Spanish School!

Indeed, I think the greatest merit of the founder of the Austrian School, Carl Menger, was to rediscover and take up this continental catholic tradition of Spanish Scholastic thought, which was almost forgotten and cut short, due to the negative influence of Adam Smith and his followers of the British classical school. To quote Professor Leland Yeager in his "Review" of Rothbard's last book on the history of economic thought: "Adam Smith dropped earlier contributions about subjective value, entrepreneurship and emphasis on real-world markets and pricing and replaced it all with a labour theory of value and a dominant focus on the long run 'natural price' equilibrium, a world where entrepreneurship was assumed out of existence. He mixed up calvinism with economics, as in supporting usury prohibition and distinguishing between productive and unproductive occupations. He lapsed from the laissez-faire of several eighteenth-century french, italian and spanish economists, introducing many waffles and qualifications. His work was unsystematic and plagued by contradictions."

Fortunately, despite the overwhelming intellectual imperialism of the British classical school, the continental, subjectivist, free market tradition was never totally forgotten. Several economists, like Cantillon, Turgot and Say, kept the torch of subjectivism and entrepreneurial analysis burning. Even in Spain, during the years of decline in the 18th and 19th centuries, the old scholastic tradition survived, in spite of the typical inferiority complex toward the british intellectual world at that time. We find proof of this in the fact that another spanish catholic writer solved the "paradox of value" and clearly set forth the theory of marginal utility twenty-seven years earlier than Carl Menger did. His name was Jaime Balmes. Balmes was born in

Catalonia in 1810 and passed away in 1848. During his short life, he became the most important spanish thomist philosopher of his time. A few years before his death, on september 7, 1844, he published an article entitled "true idea of value or thoughts on the origin, nature and variety of prices," in which he solves the paradox of value and clearly sets forth the idea of marginal utility. Balmes asks himself: "why is a precious stone worth more than a piece of bread?" And he answers: "It is not difficult to explain, since the value of a thing is determined by its utility … if the number of means of satisfying a need increases, the need for any one of them in particular decreases; as it is possible to choose among many, none of them is indispensable. For this reason, a necessary relationship exists between an increase or decrease in value, and the shortage or abundance of a thing." In this way, Balmes was able to close the circle of the continental catholic tradition of subjectivism, which could then be completed a few years later by Carl Menger and enhanced by his followers of the Austrian School of Economics.

We can conclude that to a large extent, we owe to these great thinkers of the "Spanish Golden Age" the current revival of free market liberalism and of the Austrian School of Economics all over the world.

It is generally agreed that the 1871 publication of Principles of Economics, by Carl Menger (18401921), gave birth to the Austrian School of Economics. Nevertheless, as we have seen, Menger actually adopted a tradition of thought which originated in continental Europe and can be traced back to the spanish theorists from the school of Salamanca, of the sixteenth and seventeenth centuries.

Menger's primary contributions include the subjective theory of value, the discovery of the law of marginal utility, the theory of the spontaneous emergence of institutions, the conception of the production process as a series of successive temporal stages, and the criticism of historicism in the methodenstreit against schmoller and the rest of the German "socialists of the chair".

Menger's most brilliant pupil, Eugen von Böhm-Bawerk (1851-1914), developed these contributions and applied them to both the theory of interest (which holds that interest is determined by the subjective valuation of time preference, and never by the marginal productivity of capital) and the theory of capital, understood as the estimated value, in terms of free-market prices, of the capital goods which embody the intermediate stages in any production process. Moreover, Böhm-Bawerk demolished the marxist theory of exploitation, as well as Marshall's theory of price determination, which held that utility and costs jointly determine prices. (Marshall was right about utility, but mistaken about costs.)

Ludwig von Mises (1881-1973) was the leading member of the third generation of austrian economists and without a doubt the most important member of all of them. Mises was responsible for the school's most vital practical contributions: the theory of the impossibility of socialism, the theory of economic cycles, the theory of entrepreneurship, the criticism of interventionism, and the systematization of the austrian methodology. He also gave us the best-known treatise on Austrian Economics, Human Action, which has appeared in numerous editions and in all languages (for instance at least 10 editions only in my own country, Spain).

Mises's foremost disciple was Friedrich A. Hayek (1899-1992), winner of the 1974 Nobel Prize in economics. Hayek further developed all of Mises's contributions, demolished keynesian economic theory, and was the key theorist of the spontaneous market order in the twentieth century.

Closer to our time, the chief austrian economists have been Murray N. Rothbard (1926-1995), the author of over twenty books and hundreds of articles on theory and history who provided the driving force behind the theory of anarcho-capitalism; and Israel M. Kirzner (1930-), till his retirement a professor of economics at New York university where he has perfected the austrian theory of entrepreneurship. And nowadays i am particularly proud of the great development of the Austrian School all over the world and specially in my own country, Spain, where, for instance, the first official Master Degree on Austrian Economics directed by me was approved by the authorities three years ago. This Master was adapted to the Bolonia agreements and has full validity in the whole European Union.

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Now let us proceed with the second part of my presentation in which I will try to summarize the essence of the Austrian School.

According to Ludwig von Mises "what distinguishes the Austrian School and will lend it immortal fame is precisely the fact that it created a theory of economic action and not of economic equilibrium or non action".

The neoclassical paradigm has prevailed thus far in economic science, but it is now stagnating, due to its highly unrealistic assumptions, its static nature, and its formal reductionism. The focus of the austrian research program is strikingly different: economists of the Austrian School concentrate their analysis on the dynamic processes of social cooperation which characterize the market. They devote close attention to the central role played in these processes by entrepreneurship and by the different institutions that make life in society possible.

The austrian perspective contrasts starkly with the economic analysis shared, in different versions, by neo-and post-keynesians, on the one hand, and the Chicago School, on the other. Keynesians hold that the economy is in a state of equilibrium plagued by market failures, while the chicago theorists believe it is in a pareto-efficient state of equilibrium, and thus free of market failures. Despite the ideological contradiction between these two versions of equilibrium analysis, austrians see in them the same lack of understanding about the real workings of the market.

The market is an entrepreneurial process of creativity and coordination, a process which, by definition, can never reach any Pareto optimum. However, because the market fosters creativity and coordination, it is dynamically efficient, as long as the following condition is met: institutional state coercion, in the form of interventionism or socialism, must not hinder the free exercise of entrepreneurship nor make it difficult for any human being to freely reap the fruits of his creative action. This condition requires full respect for private property, within the framework of the rule of law, and a government of strictly limited powers.

One of the main contributions of the Austrian School has been the demonstration that it is impossible to organize society based on coercive commands and regulations, as socialists and interventionists constantly attempt to do. The reason this cannot be done is because a planning agency cannot possibly obtain the first-hand market information necessary to achieve coordination with its commands as i explain with detail in my last book published in England and the United States a few months ago by Edward Elgar with the title Socialism, Economic Calculation and Entrepreneurship (Huerta de Soto, 2010), and which i would like to see also translated into Romanian and published in this country.

As a result of this insight, only austrian economists were able to predict the collapse of the economies of the former eastern bloc, as well as the dead-end crisis of the welfare state. These predictions contrast sharply with the inability of general-equilibrium theorists (like Lange, Taylor, Samuelson, Dickinson, and others) to even perceive the insoluble economic-calculation problem socialism poses.

It is unsurprising that they failed to recognize the problem. In their models, they start from the assumption that all the information necessary to solve the corresponding system of simultaneous equations is "already given" and available to the planner at all times. In short, the real problem which the spontaneous order of the market resolves each day, in a context of continual change, creativity, and coordination, is considered already solved from the very beginning in the mathematical models of general-equilibrium theorists.

However, they were not the only ones unable to fully grasp the austrian challenge to the mainstream. Even the equilibrium theorists of the Chicago School (like Knight, Friedman, Stigler, Rosen, and Coase) also failed to grasp it. In fact, a few years ago, at a Mont Pelerin Society General Meeting held in Vienna, the late Sherwin Rosen stated the following: "the collapse of central planning in the past decade has come as a surprise to most of us" (Rosen 1997, 139-152). And Ronald Coase himself said the following words: "Nothing i'd read or known suggested that the collapse was going to occur" (Coase 1997, 45).

The austrian theory of capital, money, and economic cycles is another of the school's key contributions which are the subject of my book Money, Bank Credit And Economic Cycles which has been translated into 13 different languages, the last one, as I have said thanks to Tudor Smirna and Diana Costea, into Romanian and published by the "Alexandru Ioan Cuza University Press" under the title Moneda, creditul bancar si ciclurile economice. The content of my book could be summarized in this way: in the banking system currently in force worldwide under the supervision of central banks, and in a context of nationalized money and legal-tender laws, bankers enjoy the privilege of operating with a fractional reserve (Huerta de Soto, 2010). This privilege regularly leads to the expansionary granting of loans unbacked by an actual increase in voluntary saving. The inexorable result of this credit expansion is the unsustainable "lengthening" of the processes of productive investment, which tend to become disproportionately capital-intensive.

A speculative bubble forms and gives rise to grave, real errors in capital-goods investments. The intensification of the inflationary process through credit expansion will inexorably and spontaneously reverse. This reversal will trigger an economic crisis or recession in which investment mistakes will be exposed, unemployment will climb, and the need to liquidate and reallocate the resources invested in error will arise.

Economic crises are not exogenous, as the Chicago School and real-shocks theorists like Kydland and Prescott think. Nor are they inherent in the market economy, as keynesians and the other market-failure theorists assert. Instead, economic cycles stem from a problem of erroneous institutional design: the existence of a privileged fractional-reserve banking system. The solution lies in the following: the privatization of money and a return to rigid monetary system that humans cannot manipulate like the pure gold standard; the establishment of a 100-percent reserve requirement on demand deposits, as with any other deposit of a fungible good, such as wheat or oil; and the elimination of central banks, which in modern market

economies are the only socialist planning agencies in the monetary sphere that remain operative.

It is not surprising that the only theorists to predict the Great Depression of 1929 were austrians, namely Ludwig von Mises and Friedrich Hayek. They foresaw it as a consequence of the monetary and financial excesses committed after the establishment of the United States Federal Reserve in 1913, and especially during the roaring twenties. (incidentally, during those years, not only Keynes, but also the monetarists led by Fisher, believed the economy had entered a new bonanza period that would never end).

Austrian economists also predicted the stagflation which emerged after the incorrectly named Oil Crisis of 1973 that almost entirely destroyed the keynesian theoretical analysis. Moreover, austrians have repeatedly warned about the credit bubble and "irrational exuberance" characteristic of the again so-called "New Economy" period, which began 15 years ago. (see Huerta de Soto, 2010.)

The development of the theory of entrepreneurship has been another of the Austrian School's main contributions. "entrepreneurship" refers to the human capacity to recognize the opportunities for subjective profit that arise in one's environment and to act accordingly to take advantage of them.

When people act in this way, they set in motion a creative process by which pre-existing maladjustments are coordinated. This process lies at the heart of the spontaneous order of the market, as Hayek and Kirzner have shown.

Intimately related to the above is the dynamic concept of competition, understood as a process of rivalry, creativity and discovery in which entrepreneurs compete with each another to be the first to find and seize profit opportunities. This concept is diametrically opposed to the neoclassical model of "perfect" competition, in which, paradoxically, everyone does the same thing and sells at the same price; in other words, in the neoclassical model of perfect competition, nobody competes.

We should also note that austrians criticize the unjustified application of the methodology used in natural sciences and physics to the field of economics, an error Hayek refers to as "scientism." The Austrian School has developed an aprioristic-deductive methodology which appropriately links the formal realm of theory with the empirical realm of history.

Austrians reject the use of mathematics in economics, since mathematics is a formal language which has emerged in response to the demands of physics and formal logic. In these areas, constancy is assumed, and entrepreneurial creativity and the passage of subjective, non-spatialized time are entirely absent. For the austrians, only the verbal languages that human beings creatively evolve in the course of their

daily entrepreneurial tasks provide a suitable vehicle for scientifically analyzing the real-world facts that pertain to spontaneous market orders, which are never in equilibrium.

In addition, austrian economists regard the prediction of specific economic events as the task of the entrepreneur and not of the economic scientist. At most, economists can make qualitative or theoretical "predictions," "pattern predictions," to use Hayek's terminology, concerning the discoordinating effects of economic interventionism in any of its forms. However, they cannot, as economic scientists, make predictions which apply to precise circumstances of time and place.

In short, for austrians, the fundamental economic problem is not a technical one, of how to maximize an objective, constant, and "known" function subject to constraints which are also considered "known" and constant. On the contrary, the fundamental economic problem is strictly "economic" in the austrian sense: it arises when many ends and means compete with each other, and when knowledge about them is not given nor constant, but dispersed throughout the minds of countless real human beings who are constantly creating it anew.

In this situation, one cannot know all of the existing possibilities and alternatives, much less those that will be created in the future, nor the relative intensity with which each is desired. Therefore, it is not surprising that a growing number of prominent mainstream neoclassical economists, like Mark Blaug, have shown great courage and have ultimately declared their apostasy from the general-equilibrium model and the neoclassical-keynesian synthesis. Blaug concludes: "i have come slowly and extremely reluctantly to the view that they [the Austrian School] are right and that we have all been wrong" (Blaug and de Marchi 1991, 508).

Austrian theorists view the Chicago School's defense of the free market as particularly erroneous: a "perfect" market in the neoclassical sense is a contradiction in terms. The market must be defended not because it is "perfect" or Pareto efficient, but because it is a process of discovery, creativity, and coordination which is never in equilibrium. Furthermore, it is the only possible alternative, and it cannot be improved (but only worsened) through government regulations.

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The term "efficiency" derives etymologically from the latin verb ex facio, which means "to obtain something from." The application to economics of this concept of efficiency as the ability to "obtain something from" predates the Roman world and can even be traced back to ancient Greece, where the term oeconomía was

first used to refer to the efficient management of the family home. The great Xenophon, in his work on Economics, written 380 years before Christ, explains that there are two different ways to increase the family estate, and each is equivalent to a different concept of efficiency.

The first corresponds with the static concept of efficiency and consists of the sound management of the available (or "given") resources, to prevent them from being wasted. According to Xenophon, the best way to achieve this static efficiency is by keeping the home in good order.

However, along with the concept of static efficiency, Xenophon introduces a different concept, that of "dynamic" efficiency, which consists of the attempt to increase one's estate through entrepreneurial creativity; that is, by trade and speculation, more than by the effort to avoid wasting the resources already available. This tradition of clearly distinguishing between the two different concepts of efficiency, the static and the dynamic, survived even until the Middle Ages. For example, Saint Bernardine of Siena wrote that the profit of merchants was justified not only by the sound management of their (already given) resources, but also, and mainly, by the assumption of the risks and dangers (in latin "pericula") which arise from any entrepreneurial speculation (hence, the concept of dynamic efficiency).

Unfortunately, the development of mechanical physics, which began with the Modern Age, had a very negative influence on the evolution of economic thought, especially after the nineteenth century, when the idea of dynamic efficiency was almost entirely forgotten in economics.

Both the austrian Hans Mayer, before the Second World War, and Philip Mirowski, nowadays, have stressed that mainstream neoclassical economics developed as a pure copy of nineteenthcentury mechanical physics: using the same formal method, but replacing the concept of energy with that of utility and applying the same principles of conservation, maximization of the result, and minimization of waste. The author most representative of this very negative trend was Leon Walras, who for instance, in his paper, "Economics and Mechanics," published in 1909, claimed that the mathematical formulae of his book, Elements of Pure Economics, are identical to those of mathematical physics.

In short, the influence of mechanical physics eradicated the creative, speculative, and dynamic dimension which was implicit in the idea of economic efficiency from its very beginning, and all that remained was the reductionist, static aspect, which consists solely of minimizing the waste of (already known or given) economic resources. This change occurred despite the fact that neither resources nor

technology are "given" in real life, but actually do vary continually as a result of entrepreneurial creativity.

The reductionist concept of static efficiency had an immense theoretical and practical influence in the twentieth century. The fabian socialists Sydney and Beatrice Webb provide a good example. This married couple were shocked by the "waste" they believed was produced in the capitalist system, and they founded the London School of Economics in an effort to champion the socialist reform of capitalism. The object of such socialist reform would be to eliminate waste and make the economic system "efficient." The Webbs later made no secret of their warm admiration for the "efficiency" they believed they observed in Soviet Russia, to the point that Beatrice even declared: "I fell in love with soviet communism." Another noted author to be entirely influenced by the static concept of economic efficiency was John Maynard Keynes himself, who, in his introduction to the 1936 german edition of his General Theory, expressly states that his typically keynesian economic-policy proposals "are more easily adapted to the conditions of a totalitarian state." Keynes also highly praised the book, Soviet Communism, which the Webbs had published three years earlier.

Furthermore, in the 1920s and 1930s, the static concept of economic efficiency became the focal point for a whole new discipline, which came to be known as "welfare economics," and which grew from a series of alternative approaches, of which Pareto's is the most well-known.

From a Paretian perspective, an economic system is in a state of efficiency if no one can be made better off without making someone else worse off.

Our main criticism of welfare economics is that it reduces the problem of economic efficiency to a simple technical problem of maximization, in which all the economic data are assumed to be given and constant. However, both assumptions are entirely wrong: the data are continually changing as a result of entrepreneurial creativity. Precisely for that reason, we need to introduce a new concept of dynamic efficiency, understood as the capacity to foster both entrepreneurial creativity as well as coordination. In other words, dynamic efficiency consists of the entrepreneurial capacity to discover profit opportunities as well as the capacity to coordinate any social maladjustments.

In terms of neoclassical economics, the goal of dynamic efficiency should not be to move the system toward the production possibility frontier, but rather to enhance entrepreneurial creativity, and thus to continually "shift" the production possibility curve to the right.

The word "entrepreneurship" derives etymologically from the latin term in prehendo, which means "to discover," "to see," "to realize" something. In this sense, we may define entrepreneurship as the typically human ability to recognize opportunities for subjective profit which appear in the environment and to act accordingly to take advantage of them. Entrepreneurship therefore involves a special alertness, which the Webster's dictionary defines as "the ability to be watchful; vigilant." Also fully applicable to the idea of entrepreneurship is the verb to speculate, which comes from the latin word specula, which refers to the towers from which lookouts could see into the distance to detect anything that approached.

Every entrepreneurial action not only creates and transmits new information, but also coordinates the previously discoordinated behaviour of economic agents. Whenever someone discovers or creates a profit opportunity and buys a certain resource cheap and sells it dear, he harmonizes the previously discoordinated behaviour of the owners of the resource (who were squandering and wasting it) with the behaviour of those in need of that resource. Therefore, creativity and coordination are two sides of the same ("entrepreneurial") coin.

Now, from a dynamic standpoint, an individual, a company, an institution, or an entire economic system will be more efficient the more it promotes entrepreneurial creativity and coordination.

From this dynamic perspective, the truly important goal is not so much to prevent the waste of certain means considered known and "given," as it is to continually discover and create new ends and means.

For a more extensive treatment of this entire matter, I recommend the principal works of Mises, Hayek, Kirzner, and Rothbard on the idea of the market as a dynamic process driven by entrepreneurship and on the notion of competition as a process of discovery and creativity, as well as my book published by Routledge in 2009 and 2010 with the title The Theory of Dynamic Efficiency (Huerta de Soto, 2009).

In my opinion, these "austrian" authors provide us with the most exact concept of dynamic efficiency, which contrasts with the more imperfect concept of dynamic efficiency developed by Joseph A. Schumpeter and Douglas C. North.

North and Schumpeter offer totally opposite perspectives. While Schumpeter exclusively considers the aspect of entrepreneurial creativity and its destructive power (which he calls the process of "creative destruction"), Douglas North concentrates on the other aspect, which he calls "adaptive efficiency," or the coordinating capacity of entrepreneurship. Now we see that the true austrian concept of dynamic efficiency, that developed by Mises, Hayek and Kirzner, combines both

the creative and coordinating dimensions, which Schumpeter and North studied only in a separate, partial, and reductionist manner.

What is the relationship that exists between ethics and the concept of dynamic efficiency which I have just presented? Mainstream neoclassical economic theory rests on the idea that information is objective and given (either in certain or probabilistic terms), and that the issues of utility maximization have absolutely no connection with moral considerations. Furthermore, the dominant static viewpoint led almost to the conclusion that resources are in a sense given and known, and therefore the economic problem of their distribution was deemed separate and distinct from the issue of their production. Granted, if resources are given, it is vitally important to inquire into the best way to allocate among different people both the available means of production and the consumer goods that result from the different production processes.

This whole approach collapses like a stack of cards if we adhere to the dynamic concept of market processes, the theory of entrepreneurship, and the notion of dynamic efficiency I just have explained. From this perspective, every human being has a unique creative capacity that continually enables him to perceive and discover new profit opportunities. Entrepreneurship consists of the typically human ability to create and discover new ends and means, and is the most important characteristic of human nature.

If ends, means, and resources are not "given," but are continually created from nothing as a result of the entrepreneurial action of human beings, clearly the fundamental ethical problem is no longer how to justly distribute "what already exists," but instead how to promote entrepreneurial creativity and coordination.

Consequently, in the field of social ethics, we arrive at the fundamental conclusion that the idea of human beings as creative and coordinating actors implies the axiomatic acceptance of the principle that every human being has a natural right to appropriate all results of his entrepreneurial creativity. That is, the private appropriation of the fruits of entrepreneurial creation and discovery is a tenet of natural law, because if an acting person were not able to claim what he creates or discovers, his capacity to detect profit opportunities would become entirely blocked, and his incentive to act would disappear. Moreover, the principle is universal in the sense that it can be applied to all people at all possible times and in all conceivable places.

To coerce free human action to any degree by impairing people's right to own what they entrepreneurially create is not only dynamically inefficient, since it obstructs their creativity and coordinating capacity, but also fundamentally immoral,

since such coercion prevents human beings from developing that which is by nature most essential in them, i.e. Their innate ability to create and conceive new ends and means and to act to attempt to achieve their own goals and objectives. Precisely for these reasons, socialism, interventionism, and statism are not only dynamically inefficient but also ethically unjust.

It must be taken into account that the force of entrepreneurial creativity also manifests itself in the desire to help poor people and in the systematic search for situations in which others are in need in order to help them. In fact, coercive state intervention, through the typical mechanisms of the socalled welfare state, neutralizes and to a great extent blocks the entrepreneurial effort to help one's neighbors (both close and distant) who are experiencing difficulties. And this is an idea that Pope John Paul II stressed in section 49 of his 1991 encyclical, Centesimus Annus.

Furthermore, according to our analysis, nothing is more (dynamically) efficient than justice (understood in its proper sense). If we perceive the market as a dynamic process, then dynamic efficiency, understood as coordination and creativity, results from the behavior of human beings who follow certain moral laws (mainly regarding the respect for life, private property, and the fulfillment of contracts). The exercise of human action subject to these ethical principles gives rise to a dynamically efficient social process. And it is now easy to see why, from a dynamic standpoint, efficiency is not compatible with different models of equity or justice (as the second fundamental theorem of welfare economics erroneously stated), but instead efficiency arises exclusively from one idea of justice (that based on the respect for private property, entrepreneurship, and as we will see in a moment, the principles of personal morality). Therefore, the contradiction between efficiency and justice is plainly false. What is just cannot be inefficient, and what is efficient cannot be unjust. A dynamic analysis reveals that justice and efficiency are but two sides of the same coin, which also confirms the consistent, integrated order that exists in the spontaneous order of human interactions.

Now let us conclude with some ideas on the relationship between dynamic efficiency and the principles of personal morality, especially in the field of family and sexual relations.

Up to this point, we have looked at social ethics and discussed the key principles which provide the framework that makes dynamic efficiency possible. Outside of that realm lie the most intimate principles of personal morality. The influence of principles of personal morality on dynamic efficiency has rarely been studied, and in any case, they are considered to be separate and distinct from social

ethics. However, I believe this separation to be completely unjustified. In fact, there are moral principles which are of great importance to the dynamic efficiency of any society which are subject to the following apparent paradox: the failure to uphold them on a personal level entails a huge cost in terms of dynamic efficiency, but at the same time, the attempt to impose these moral principles using the force of the state or of private institutions generates even more severe inefficiency from the dynamic point of view. Hence, certain social institutions are needed to transmit and encourage the observance of these personal moral principles which, by their very nature, cannot be imposed by force but are nevertheless of great importance to the dynamic efficiency of every society. It is mainly through religion and the family that human beings, generation after generation, are able to internalize these principles and thus learn to keep them and transmit them to their children. The principles which relate to sexual morality, the creation and preservation of the family institution, the faithfulness between spouses and the care of children, the control of our atavistic instincts, and specifically, the overcoming and restraint of envy, are all of crucial importance to every successful social process of creativity and coordination.

For an illustration of the importance of analyzing personal moral principles in terms of the theory of dynamic efficiency, let us consider for example the behavior spouses should aspire to, with consistent effort, in order to keep their marriages going and preserve the institution of the family, not only for their own benefit, but especially for that of their children. What happens to dynamic efficiency if, for example, husbands abandon their wives and families to live with new, more attractive, younger women? From the start, wives will then be aware of the high risk that precisely when they are getting older and the children are nearly grown, their husbands may divorce them. If such immoral behavior becomes widespread, not only will a larger number of marriages and families be broken up, but even more significantly, the rate at which new marriages and families are started will decline, and women will tend to prolong their single life to ensure their professional careers and independent means of support, all of which will lead to a dramatic drop in the birth rate. In the absence of migratory trends to ease the decrease in the birth rate and the consequent aging of the population, the social process of entrepreneurial creativity and coordination which promotes dynamic efficiency will be impaired. As Hayek taught us, both the progress of civilization and economic and social development require a constantly expanding population capable of sustaining, among a continually increasing number of people, the steady growth in the volume of social knowledge which entrepreneurial creativity generates. Dynamic efficiency depends on people's creativity and capacity for coordination, and other things being equal, it

will tend to increase as the number of human beings increases, which can only happen within a certain framework of moral principles to govern family relationships.

However, as I have already stated, this is a kind of paradox. The entire framework of personal moral principles cannot be imposed by the force of the state: the imposition of moral principles by the force of the government would only give rise to a closed, inquisitorial society that would deprive human beings of the individual freedoms which comprise the foundation of entrepreneurship and dynamic efficiency.

This fact precisely reveals the importance of alternative, non-coercive methods of social guidance which expose people to the most intimate and personal moral principles and encourage their internalization and observance. Religious feelings and principles, which are acquired at an early age within the family, play an indispensable role in this regard (together with the social pressure exerted by other members of the family and the local community). Religious precepts provide direction under which to act, help people control their most atavistic impulses, and serve as a guide in the selection of those human beings of the opposite sex with whom we decide to build a family for the rest of our lives. Other things being equal, the firmer and more enduring personal moral principles are, the greater the dynamic efficiency of a society will tend to be.

Our greatest cause for optimism about the future of the Austrian School as the main intellectual background for this new globalized world of the 21st century, based on entrepreneurship and creativity, is the growing number of young scholars, who in their uncompromising search for scientific truth, are abandoning the keynesian and monetarist theories of the old mainstream, and embracing the Austrian School of Economics all over the world.

For this reason, I would consider it in Romania's national interest to foster knowledge and research in the field of the Austrian School of Economics, so that at the country's universities, this approach steadily replaces the old keynesian, neoclassical and monetarist teachings, which are included like a potpourri in the university text books currently used, most of them of american origin.

Let us hope that this new tide soon also culminates its presence in this wonderful country of Romania. And if my book helps even just a bit to accomplish this important task i will consider that all my effort has been worthwhile.

Thank you very much for your patience and attention.

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HOW IMPORTANT ARE AGGLOMERATION ECONOMIES: A CASE STUDY OF ROMANIAN INDUSTRIAL CLUSTERS

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Abstract: *The present research aims to contribute to the discussion on the importance of agglomeration economies through a case study on Romanian industrial concentrations. The material presents the results of the analysis of industrial geographic groups. Based on the methodology recommended by the EU good practices, we have identified and classified, according to their importance, industrial agglomerations at national scale, by county administrative unit (NUTS 3) and by industrial sectors in 4 digit NACE classification. The analysis leads to a mapping of agglomerations by their geographical position, as well as to a hierarchy of agglomerations according to an evaluation scale with values between 0 (minimum) and 3 (maximum) stars, by indicators of size, specialization and concentration. The analysis of a performance indicator on export is also added to the discussion regarding the sectors' capacity of competitive performance.*

Keywords*: competitiveness, regional development, export performance, industry concentration*

JEL Codes*: L52, L60, M20*

1. INTRODUCTION

The industrial policy has seen content changes according to the way economists justified efficiency gains. In the period after the post-war reconstruction, the focus fell on *industries / companies of strategic importance* that could accelerate the economic revival. In the mid-phase of post-war industrial consolidation,

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corresponding to the 1960s and the 1970s, it was found that the question of costs (of resources, labour or monetary) no longer had the main influence on the possibility of being competitive. It was time for the institutional solution to promote the idea of horizontal themes, of support for strengthening competitiveness and economic development in general. Therefore, the *business environment open to competition*, enforcing property rights, with the contribution of education and innovation etc., has become an essential part of industrial policy. In the recent period, it was observed, however, that a favourable environment for business may or may not be stimulated by economic evolutions specific to geographical clusters: industries and companies agglomerations whose efficiency depends on the *territorial scale of industry development*.

Empirical observations and economic analyses (e.g. Puga and Venables 1996, Henderson et al. 2000, UNIDO 2000) have led to the consolidation of a firm opinion regarding the interdependency between the economic development of a region or country and the existence of competitive enterprises and industries concentrations in certain locations. The applied studies (e.g. Porter 2001, MIER 2009) repeatedly highlight the fact that the direction of influences is not definite: the economic effects of agglomerations may just as well stimulate and hinder the competitive development processes of enterprises and regions.

The European Union is among the pioneers of policy initiatives regarding the implementation of economic agglomeration concepts. The preoccupation for the reduction of disparities within the EU was probably the most powerful trigger, as this theme is given a very special attention in the regional development policy. The new financing package of the cohesion policy for the period 2007-2013 stands out due to the inclusion of territorial development as a distinct option of economic initiative. The acknowledgement of the fact that the population living in cross-border regions reaches 181.7 million or 37.5 % of total EU population ("EU Cohesion Policy"), to name just one of the territorial characteristics of development, has encouraged the channeling of funds towards projects with a direct focus on the local communities' development. A continuous series of initiatives is gradually changing the meaning of growth policies. We can mention here projects such as *Regions of Economic Change* (REC) promoting networks of excellence in the context of sustainable development of regions and cities, *European Groups for Territorial Cooperation* (EGTC) supporting the cross-border, trans-national and inter-regional cooperation and networks, the *European Spatial Planning Observation Network* (ESPON) for the analysis and measures addressing localities networks and the establishment of European networks for industrial cooperation at an increasing pace, under the title of

business groups alliances (*clusters*). Experts in the EU Member States questioned in a European Commission report (Commission, 2002) whether the agglomeration policy were one of the ways to reach the objective of competitive supremacy for the European economy.

The practical difficulty mainly derives from the fact that the policy application field must take into account the local / regional development conditions, without having yet a complete understanding of the terms „regional" and „local". Eurostat defines the „region" as „a tract of land with more or less definitely marked boundaries, which often serves as an administrative unit below the level of the nation state" and acknowledges that „more or less" may characterize the boundaries' degree of definition („Regional statistics"). It is true that the nomenclature of territorial units (NUTS) presently serves as a territorial analysis unit, although this may not be the most appropriate way to approach real local needs. For example, an assessment of the conditions in Romania highlighted that „the regional dimension NUTS II only allows for a limited understanding of development" and that it should be enhanced using further factors, such as urban dimension, access to markets or proximity (MDLPL, 2007: 16).

The present research aims to contribute to the discussion regarding the importance of agglomeration economies through a case study applied to industrial concentrations in Romania. The material is structured into three sections, as follows. The first section approaches the challenges of industrial development from the perspective of the conceptual platform on agglomerations. The second section presents the methodological framework and the results of the industrial geographic groups analysis. Based on the methodology recommended by the EU good practices, we have identified and classified, according to their importance, industrial agglomerations at national scale, by county administrative unit (NUTS 3) and by industrial sectors in 4 digit NACE classification. The analysis lead to a mapping of agglomerations by their geographical position, as well as to a hierarchy of clusters according to an evaluation scale with values between 0 (minimum) and 3 (maximum) stars, by indicators of *size*, *specialization* and *concentration*. The analysis of a *performance indicator* on *export* is also added to the discussion regarding the sectors' capacity of competitive performance.

By applying the methodology recommended by the European practice, we can confirm a number of 444 industrial agglomerations at county level. Quantitative data only shows a descriptive image of the agglomerations, without taking into account the competitive analysis of the industries, the pursuits to improve the economic structure through public investment (e.g. structural funds allocated through SOP IEC)

or the expected results of private investment in the last period (e.g. investments in wind plants, biomass and biofuel plants etc.)

2. CONCEPT AND METHODOLOGY

Production localization, due to positive and negative externalities associated with location, leaves place for debate regarding the optimum geographical scale that allows advantages to be maximized or, furthermore, what analysis unit to use? There are no clear limits of competitive areas because economic spaces arise within variable boundaries defined by an arbitrary combination of factors, such as distance, industry economics, decision centers, value chains etc. Identifying the identity and functionality of such typologies is an analytic exercise at an early stage. Even apparently simple representations, such as the definition of a rural area[1], are subject to interpretations still to be clarified.

The groups of industries represent a community in itself, whose function is primarily economic (industrial and research & development activities). Identifying such an area is relatively easy when the activities belong to the same production chain (e.g. automotive and auto parts industry), but it is more difficult when the influences are felt along a dispersed network of factors. At European level, initiatives of this kind have been facilitated through existing programs of cooperation between the European Commission and the private environment (e.g. www.clusterobservatory.eu, http://www.cluster-research.org/) or through assistance for private sector initiatives provided by various funds (e.g. cohesion, research & development).

The importance of geographical localization suggests that competitive advantage is not exclusively created within the company or even within the industry,

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[1] According to Romanian legislation (Romanian Law No 350/2001 on spatial planning and urbanism and Law No 351/2001 on approving the National Spatial Plan – Section IV – Localities network), the definition of rural areas is done based on basic activities and endowment with public utilities (rural localities are the localities where either the majority of population is occupied in agriculture, forestry or fisheries, or, in terms of endowment with public utilities, do not fulfill the legal obligations to be declared as urban localities, even if the majority of population is occupied in other sectors than those mentioned before). However, for the water sector, it is very important to consider the definition of agglomeration according to the Directive No 91/271 on urban wastewater treatment – 'agglomeration' means an area where the population and/or economic activities are sufficiently concentrated for urban waste water to be collected and conducted to an urban wastewater treatment plant or to a final discharge point. (The information was taken from Ministry of Environment and Sustainable Development, „Sectoral Operational Programme Environment 2007-2013", (Revised Official Proposal), May 2007, http://posmediucraiova.uv.ro/files/SOP-ENV.doc, [21.7.2010], p. 20).

but it is a consequence of the fact that the industry is located in a favourable region for its development, a self-sustaining process. The typology of spatial planning deems industrial agglomerations as an immediate result of economic activity, which have, in turn, a direct impact, favourable or not, on the economic performance. The modern concept has been substantially developed and applied to competition analysis by Michael Porter (1990, 1998) and Michael Enright (2001), adding to an old and prolific intellectual tradition that reunites among others Marshall with *Principles of Economics* (1890), Isard with *Location and Space-Economy* (1956) and Hirschman with *The Strategy of Economic Development* (1958).

Porter defines industrial agglomerations as geographic concentrations of interconnected companies and institutions in a particular field (Porter, 1998:199). These agglomerations include a series of related industries, as well as other entities which are important in terms of competition, such as: clients, specialized suppliers, service providers, companies in related industries and associated institutions (universities, various government agencies, professional training centers and commercial associations). Porter explains these competitive agglomerations as a new spatial form of organization, which is significantly different from the traditional integration of companies on the market. They represent a new way of organizing a value chain. The fact that the companies are clustered together in one region and that the ongoing exchanges among them foster good communication and mutual trust produces advantages in terms of production efficiency and flexibility in drawing up competitive strategies.

The European practice (Commission et al., 2008) indicates three distinct categories of policies supporting competitive industrial clusters. The first category includes "facilitation policies" aiming to create a favourable business environment for growth and innovation, which indirectly stimulates the group dynamics. This type of intervention is the most desired by companies (it was mentioned by 74% of the participants in a survey on this subject) and includes measures such as facilitating administrative procedures, facilitating information flow, getting more finance for carrying out specific projects, and in improving the branding of their region. The second category includes "traditional framework policies", such as policies for industry and SMEs, research and innovation, intervention efficiency at regional level, tax reductions, cross-national cooperation. In this latter domain, it was observed that linguistic barriers and geographical distance are considered to be minor aspects hindering international cooperation (Commission et al., 2008: 50). Finally, the third category of policies consists of "development policies", which mainly focus on creating or strengthening a certain cluster.

The debate regarding government intervention, especially through special policies belonging to the latter category, takes the same form as that on the need for industrial policy in general. The European experience has shown that "this makes it very difficult to establish clear causal links between cluster policies and programmes and their potential impact" (Commission et al. 2008: 36), mainly because most effects are the result of many other external factors. It is also true that many public or private initiatives can be useful when they focus on promoting and transferring successful practices such as the development of new enterprises (start ups), financing innovation, technology transfer, although we can observe that such measures usually fall into the first two policy categories, of horizontal type.

The difficulties in defining group-specific initiatives do not end here; they belong both to the matter of identifying a geographic typology and to the effort of avoiding to assimilate competitive advantage with competitive potential. A relevant example for the first category: in the US, the intervention from the Commerce Department in implementing the Initiative Groups for Innovation stumbled into the formulation of a "regional" action strategy. The collaboration with the private sector was not enough to overcome obstacles such as the absence of precisely determined components of the cooperation process (structures, boundaries, public authority) (Council on competitiveness 2010: 6). The second category includes aspects related to the hypothetical correspondence between innovation and sophisticated competitive advantages and the very existence of an added-value group or industry. The experience so far indicates well-consolidated competitive groups in sectors covering the whole spectrum of industries, from agriculture to services. The innovation and advantages in competition are not specific to a certain sector, but to a certain cooperation mode at industry or region level. As mentioned previously, an agglomeration is the result of both positive and negative externalities, such as industrial sclerosis (the *lock in* effect), spatial congestion or pollution. Therefore, what is eventually important and, to a certain extent, behind of times in governance practice, relates to the existence of programmes for results' evaluation and identification of improvements (Commission et al. 2008: 35).

The approach proposed here makes a distinction between identifying industrial agglomerations and evaluating a group of industries. The two are usually interchangeable in the broad sense suggested by the term *cluster*. The process from the *agglomeration* as a result of economic activity to the grouping of related industries as a result of the competition process, including cooperation, may lead to positive effects for prosperity only to the extent in which competitive advantages become more sophisticated. Industrial agglomerations in full expansion reach a

certain level of competitive development at which they begin to attract new companies, people and ideas, necessary for the support and growth of the structure. This is how specialized suppliers appear, local institutions start to prepare specific training programs, while the government intensifies its regulatory endeavours to assist the development of necessary infrastructure. The process is reversible when the negative externalities of the agglomeration are predominant. This is the reason why the priority of a public intervention is to *evaluate* a competitive potential in order to identify the conditions that need to be created to tip the externalities' balance in favour of positive cumulative factors.

We attempt to highlight the importance of agglomerations in Romania by identifying the agglomerations in the territory starting from the 4 digit NACE classification at county level (NUTS 3) with data from the National Trade Register Office (NTRO). At national economy level, we followed a standard methodology used in EU practice[2] for all Member States. The industrial groups/agglomerations are classified according to an evaluation scale with values ranging from 0 (minimum) to 3 (maximum) stars. The analysis factors:

1. *Size (Size index = M)*

   M = (No. of employees in the analysed group of correlated industries/Total no. of employees in Romania in the activity sector of the analysed group of correlated industries) x 100

   If M > 10%, then the analysed group scores 1 star. Groups with a no. of employees < 1000 receive 0 stars.

2. *Specialization (Specialization index = S)*

   S = (No. of employees in the region in the activity sector of the analysed group of correlated industries/Total no. of employees in the region) / (No. of employees in Romania in the activity sector of the analysed group of correlated industries/Total no. of employees in Romania).

   If S >= 2, then the analysed group receives 1 star.

3. *Concentration (Concentration index = C)*

   C = (No. of employees in the analysed group of correlated industries/Total no. of employees in the region) x 100

   If C > 10%, then the analysed group receives 1 star.

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[2] http://www.clusterobservatory.eu/index.php?id=44&nid.

The analysis is usually enhanced by *performance indicators*. In this case, we used the *Export indicator = E*, where:

4.   E = (Total export value of the region in the analysed group's sector/Total export value of the region) / (Total export value of Romania in the group's sector/Total export value of Romania)

If E > 2, then the export capacity of the group is Strong; if E = [1...2], then the export capacity of the group is Medium; if E < 1, then the export capacity is Weak.

3. HIERARCHY OF INDUSTRIAL CONCENTRATIONS IN ROMANIA

3.1 Findings

By applying the methodology described in the previous subchapter, it is possible to confirm for the first time at county level[3] a number of 444 industrial agglomerations. Of these, 8 agglomerations score 3 stars, 183 agglomerations receive 2 stars, while 253 agglomerations qualify for 1 star.

Several preliminary considerations are relevant before describing the hierarchy presented above. Firstly, given the fact that economic activity in Romania is concentrated in the capital area, a number of 42 two star-agglomerations and 143 three star-agglomerations are generated in Bucharest alone. Additionally, Ilfov county comprises other 10 two star-agglomerations and 3 three star-agglomerations, again due to the capital's proximity. All these 198 agglomerations must be treated distinctly from the rest of the results obtained at national level, taking into account their characteristic of being concentrated in the urban and peri-urban area of a single metropolis. Secondly, it is important to highlight the fact that absolutely all counties have at least 2 agglomerations, reaching up to 15 agglomerations in one county (Prahova). This result is mainly due to the economic structure prior to 1989, which was based on the forced specialization of counties in certain industry or agricultural sectors[4]. We can also observe that only 4 counties (Buzău, Tulcea, Giurgiu and Sălaj) have no two star-agglomerations. For most counties, the agglomerations exceed both the specialization benchmark (S>=2) and the size benchmark (M>10%).

According to the methodology proposed by the European Observatory, 3* agglomerations should basically be relevant not only at local and national level, but

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[3] The European Cluster Observatory (ECO) data base provides information at development region level.

[4] In most cases, 1*-agglomerations are determined by the specialization index with a value over 2 – see the proposed methodology;

also at European level. Table 1 presents the data regarding the 8 three star-agglomerations confirmed by the quantitative analysis.

Table 1   3* *agglomerations in Romania*

Agglomeration sector (NACE classification)	County	No. of employees	Size (M)	Specialization (S)	Concentration (C)
2410 Manufacture of basic iron and steel and of ferro-alloys (OȚEL-GL)	Galați	11.051	43,99%	19,67	12,21%
3011 Building of ships and floating structures (NAVE-TL)	Tulcea	3.658	15,02%	20,51	12,34%
2910 Manufacture of motor vehicles (AUTO-AG)	Argeș	12.701	72,49%	25,23	10,92%
0520 Mining of lignite (CARB-GJ)	Gorj	8.997	96,25%	73,81	17,05%
3511 Production of electricity (VOLT-GJ)	Gorj	8.251	26,39%	20,24	15,64%
2013 Manufacture of other inorganic basic chemicals (CHIM-MH)	Mehedinți	3.949	56,90%	80,41	13,79%
0510 Mining of hard coal (CARB-HU)	Hunedoara	10.758	98,94%	51,43	13,82%
1520 Footwear manufacture (PANTOF-BH)	Bihor	13.794	25,94%	9,86	12,96%

Source: NTRO data according to 2009 balance sheets, authors' calculation

As we can observe, there is a significant variation among the values recorded by the analysis factors, especially in the case of S and M. It is important to highlight that the size of the analysis factors is not necessarily relevant for the respective agglomeration's competitiveness. In the case of the agglomerations identified in the mining sector (GJ and HU), the high values of the size indicator reflect only the natural concentration of the coal resources in the two counties. Similarly, the high values of the specialization indicator (GJ, MH, HU) reflect in fact the weak diversity of the counties' economies and their mono-industrial character.

In order to have a clearer image of the 8 agglomerations, it is relevant to see the performance indicators' analysis, shown in the table 2:

Table 2 *Performance indicators for the 3* agglomerations*

Agglomeration Acronym	Innovation/ Technology (I)	Export (E)[5]	% total national export in the sector	Agglomeration Productivity (Agglomeration turnover / no. of employees in the agglom.)	Productivity at national level (the sector's turnover / no. of employees in the sector)	% total Turnover RO	No. of companies
OTEL-GL	medium-low	7,51	18,88%	324.902	*284.021*	50%	2
NAVE-TL	medium-low	4,46	4,98%	217.886	*180.295*	18%	21
AUTO-AG	medium-high	4,06	39,60%	708.996	*532.919*	96%	2
CARB-GJ	medium-low	0,00	0,00%	110.278	117.817	90%	10
VOLT-GJ	medium-low	NA	NA	238.870	396.222	16%	3
CHIM-MH	medium-high	0,00	0,00%	181.092	173.130	60%	1
CARB-HU	medium-low	0,07	0,09%	65.184	66.037	98%	4
PANTOF-BH	low	9,01	26,78%	59.540	*54.503*	28%	202

Source: NTRO data according to 2009 balance sheets, the authors' calculation according to the methodology described in section 3.1

3.2 Discussion on three star clusters

Half of the eight identified agglomerations lack key features that could strengthen the supposition of cluster existence. The Gorj, Mehedinţi and Hunedoara agglomerations are irrelevant in terms of exports and, moreover, their productivity is below the national average of the respective sectors. Consequently, although the quantitative analysis assigned the maximum number of stars to these agglomerations, they are by no means European-level clusters.

The other four agglomerations meet the pre-conditions to be declared potential clusters, showing strong exports (E>2) and productivity over the national average. They will be briefly analyzed in the following.

1. Agglomeration in the iron and steel sector NACE 2410 (OTEL-GL)

This agglomeration is centered around the Sidex works, owned by the international Arcelor-Mittal group. However, the Galaţi platform also hosts many

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[5] The calculation method for the export performance indicator (E) is detailed in Table A 3.

other enterprises that attempt to capitalize on the proximity to the steel giant. A brief analysis of the value chain indicates the presence of other 13 enterprises that produce metal under various forms (NACE 24 / 1.082 employees) and 193 enterprises in the sector of metal products (NACE 25 / 3.009 employees). For example, there are 100 companies with 1.552 employees in the sector of metal structures (NACE 2511). Without taking into account the service providers in the area (wholesale commerce with metal or metal products), the agglomeration comprises in total 208 enterprises with over 15.000 employees.

2. Agglomeration in the ship building sector NACE 3011 (NAVE-TL)

The agglomeration is located around the Tulcea Shipyard, but also comprises other 20 small-sized enterprises under the main NACE code. What is interesting in this case is not only the local clustering potential, but also its joining to the same sector developments in the neighbour counties. Quantitative data confirmed further 3 two star agglomerations in Brăila (17 enterprises/359 employees), Constanța (199 enterprises / 10.451 employees) and Galați (37 enterprises / 3.718 employees) under the same NACE sector (3011). Therefore, the S-E development region has 4 agglomerations of at least 2* in the same sector, which indicates the opportunity of treating them as a network with common development objectives. In total, the 4 agglomerations consist of 274 enterprises with over 18.000 employees. It is also interesting that, although the agglomeration in Constanța county is larger, the only one to score 3* was the one in Tulcea. However, Constanța did not receive 3* for the only reason that the ship building sector accounts for just 7,2% of the total number of employees in the county (C<10%), which is explained by the great diversity of Constanța's economy. In Tulcea's case, given the much lower economic diversity and level, the naval construction represents 12,3% of the total number of employees in the county. The relevance of the 10% benchmark can be questioned in this case, as it is probably natural that the agglomeration network in this sector should mainly rely on the county of Constanța. On the other hand, there are differences between ship building specializations in Constanța, on one side, and Brăila, Galați and Tulcea, on the other, namely between maritime and fluvial ships. The compatibility between these types of structures must be taken into account when analyzing the homogeneity of the potential cluster.

3. Agglomeration in the automotive industry sector NACE 2910 (AUTO-AG)

The agglomeration is concentrated around the DACIA-RENAULT company in Pitești and, in terms of technology and innovation, it is the most advanced of the

3* agglomerations identified. In this case too, it is relevant to adopt a broader approach, taking into account the value chain around this sector. Data shows, for example, the presence of other two 2* agglomerations in Argeş, operating in related sectors. The first of these is in the manufacture of other parts and accessories for motor vehicles (NACE 2932), grouping 48 enterprises and 4810 employees. The second is in the manufacture of electrical and electronic equipment for motor vehicles (NACE 2931), reuniting 9 enterprises and 9906 employees. In total, there are 58 companies with over 27.000 employees in Argeş only. In terms of national policy, the potential cluster in Argeş should be associated with the significant 2* agglomerations in the counties of Sibiu, Braşov, Arad, Timiş[6] and Dolj in particular. The Dolj agglomeration is particularly important since the takeover of the Daewoo car factory by Ford and due to the substantial technology investments over the last 3 years. It is very probable that once the Craiova factory starts production at normal capacity, the quantitative data may confirm the appearance of a new 3* agglomeration in Dolj. An industrial policy focusing on competitive agglomerations should focus on developing the Argeş-Dolj axis and enhancing collaboration with the other existing agglomerations at national level.

4. Agglomeration in footwear manufacture sector NACE 1520 (PANTOF-BH)

The Bihor agglomeration is impressive due to the great number of active companies under the same sector. The agglomeration consists of 14 large companies reuniting 57% of the employees and a number of 188 SMEs, as shown in the table 3.

Table 3 *The structure of the PANTOF-BH agglomeration*

GENERAL TOTAL	between 0-9 employees	between 10-49 employees	between 50-249 employees	between 250-999 employees	over 999 employees
Number of enterprises agglomeration PANTOF-BH					
202	84	65	39	13	1
Average number of employees PANTOF-BH					
13.794	209	1.668	4.081	6.378	1.458

Source: NTRO data according to 2009 balance sheets, the authors' calculation

The validation of this agglomeration in 2009 is extremely relevant for the domestic industrial policy. Romania lost the advantage it had 5-6 years ago in the textile sector, when it was considered "Europe's tailor", because it did not know how to use effectively the critical mass of companies in order to develop its own

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[6] In the West development region we identified 4 two star agglomerations, two for each of the counties Timiş and Arad, under the NACE sectors 2031 and 2932. Moreover, this region already presents a cluster-type association, named WESTEER.

production and design. The increase in salaries and the economic crisis have caused international textile companies to migrate to the East. However, this is not the case for the footwear and accessories manufacture. This sector is still holding strong, with relevant companies throughout the country. Luxury footwear is strongly represented, indicating high-level manufacture capacity (Luis Vuitton has two factories in Sibiu county, D&G in Arad, Gucci in Sibiu, Veronella in Beiuş, Bihor county). Therefore, the Bihor agglomeration provides a last opportunity for the public policy to support, free from competition distortions, a sector in which Romania can create its own brands at European and world level. The industrial policy in this case must focus on Bihor county in order to assist local companies in the sector, but also on strengthening a national network by coordinating with present investment made by the other counties in this sector.

Three of the four 3* agglomerations previously analysed were confirmed by recent qualitative research[7]. The InovCluster Project, based on a series of working groups established in all the country's regions, confirms the clustering potential for AUTO-AG and NAVE-TL. Similarly, the Romanian Cluster Mapping Report, prepared with the support of GTZ for MECBE, includes the 2 agglomerations above in the list of 55 potential clusters tested through interviews and focus groups organized in all the country's regions[8]. Surprisingly, the OTEL-GL and PANTOF-BH agglomerations were not confirmed by the two mentioned researches.

3.3 Discussion on one star and two stars clusters

The fact that certain 2* agglomerations did not meet the methodological conditions to gain the third star does not mean they should be ignored. As mentioned before, the proposed methodology is not infallible, considering that half of the identified 3* agglomerations have solely a statistical, and not economic, significance. Due to resource reasons, it is not possible to present in this study an individual characterization of the 183 two star-agglomerations validated by the quantitative analysis (see Annex, Table 9).

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[7] During its cooperation with GTZ Germany, MECBE was involved in the "Romanian Cluster Mapping" study (Guth and Coşnită 2009), as Romania's contribution for the European Cluster Observatory (ECO). Based on the findings of this study and those of the InovCluster project, the Ministry has drawn up the first list of the agglomerations in Romania, which was forwarded to the European Commission in order to be included in the ECO database (see Annex). According to ECO practices, these associations are to be assessed, classified by assigning them a number of 0, 1, 2 or 3 stars according to their development stage, and included on the ECO site. At present, a big part of the cluster-type associations in Romania included on the ECO site are not precisely classified due to insufficient available data.

[8] Guth and Coşnită 2009, p. 23, Table 2

However, a few observations are relevant for the present research. Firstly, it is interesting to observe to what extent there are more agglomerations in a given sector at national level, which could determine the need for a policy in favour of an agglomerations network in the respective sector. Secondly, it is important to see if there are several agglomerations from the same sector in a given development region. This could justify a regional policy to stimulate the establishment of a cluster in the respective sector.

The processed data suggests the existence of certain sectors that cross over regional level, defining agglomerations in several areas of the country.

Table 4 *Relevant agglomerations at inter-regional / national level*

NACE Sector	Agglomerations[9]
1610 Wood	9X1*(BC, NT, CS, BI, MM, AB, CV, HR, MS), 1x2*(SV)
3109 Furniture	7X1* (SV, AG, AR, ST, SJ, HR, MS), 1x2* (MM)
1413 Footwear	8X1* (VS, BR, BZ, TL, IL, TR, HR, B), 5x2* (CV, OT, CL, VR, BT)
1414 Underwear	1X1* (HD), 4x2* (VS, BR, AR, CJ)
2932 Parts and accessories for motor vehicles	2X1* (BI, OT), 5x2* (AG, AR, TM, BV, SB)
2931 Electrical and electronic equipment for motor vehicles	4X1* (SB, SM, BI, PH), 3x2* (AG, AR, TM)
3011 Ship building[10]	4X2* (CT, BR, GL, MH), 1x3*(TL)
2410 Iron and steel[11]	4X1* (BZ, CS, CJ, SJ), 1x2* (DB), 1x3*(GL)
2892 Manufacture of construction machinery	1X1* (BR), 3x2*(DB, PH, BI)
0111 Cereals	8X1* (NT, VS, BR, TL, CL, IL, TR, DJ)
1013 Meat products	7X1* (SV, AG, AR, SM, SJ, HR, MS), 1x2* (MM)

Source: NTRO data according to 2009 balance sheets, the authors' calculation

As observed, we can define 11 national-level sectors with agglomerations in at least two distinct development regions in Romania. Of these, 2 sectors correspond to those where 3* agglomerations have been identified (NAVE-TL, OTEL-GL), while sectors 2931 and 2932 are found in the same value chain as the 3* agglomeration in the car industry (AUTO-AG).

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[9] We considered a minimum of 7 cumulated stars (e.g. 3x1*+ 2x2*) and the presence in at least 2 development regions in order to define a nationally relevant agglomeration (the retail commerce codes were excluded).

[10] *Idem*

[11] *Idem*

Another relevant observation is that we can consider the 1610 and 3109 sectors (wood sawmilling + furniture manufacture) to be related. Similarly, the 0111 and 1013 sectors are correlated, although to a less extent (some cereal crops can be used for the raising of animals and, thus, indirectly for the meat production).

In order to see the opportunity for regional agglomerations, table 5 presents 2* and 1* agglomerations under the same sector in each region.

Table 5 *2* and 1* agglomerations of regional relevance*

Development Region	NACE Sector	Regional Agglomerations[12]
N-E	1610 Wood 1413 Wearing apparel	2x1*(BC, NT), 1x2*(SV) 1x1*(VS), 1x2*(BT)
S-E	1413 Wearing Apparel 3011 Ship building[13] 5222 Service activities incidental to water transportation	3x1* (BR, BZ, TL), 1x2*(VR) 3x2* (BR, CT, GL) 2x2* (CT, GL)
South-Muntenia	1413 Wearing Apparel 2892 Manufacture of construction machinery 2815 Bearings, gears, gearing and driving elements 1013 Meat products 0111 Cereals	1x2*(CL), 2x1*(IL, TR) 2x2* (DB, PH) 2x2* (PH, TR) 1x2* (PH), 2x1*(AG, CL) 3x1* (CL, IL, TR)
S-V Oltenia	3020 Railway locomotives and rolling stock	2x2* (MH, OT)
West	2932 Parts and accessories for motor vehicles 2931 Electrical and electronic equipment for motor vehicles 1414 Underwear	2x2* (TM, AR) 2x2* (TM, AR) 1x1* (TM), 1x2* (AR)
N-V	3109 Furniture	2x1* (SM, SJ), 1x2*(MM)
Center	1413 Wearing apparel 2932 Parts and accessories for motor vehicles 2341 Ceramic 1610 Wood	1x1* (HG), 1x2*(CV) 2x2* (BV, SB) 2x2* (AB, MS) 4x1* (AB, CV, HR, MS)

Source: NTRO data according to 2009 balance sheets, the authors' calculation

It can be observed that many of the sectors identified as regional level priorities for the support of competitive agglomerations can be found on the list of sectors that should be approached at national level. Basically, only NACE 5222, 2892, 3020, 2341 sectors can be considered just of regional importance. Regional agglomerations in the NACE 2815 sector (bearings, gears, gearing and driving

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[12] We considered a minimum of 3 cumulated stars (e.g. 1x1*+ 1x2*) in order to define a regionally relevant agglomeration (the retail commerce codes were excluded).

[13] Already mentioned in the 3* agglomerations subsection

elements) should be taken into account under the national policy in favour of auto industry agglomerations.

All other 2* and even 1* agglomerations can be relevant for local development at county level. There is, however, possible that some of them may be important for the regional policy.

4. CONCLUSIONS

The conclusions are significantly limited by the difficult access to industry data and company business strategies. On one hand, this is a direct result of the lack of experience in the dialogue between business environment and economic research; when the information is processed it rarely takes the form of a systematic study and, hence, in most cases the message is presented in its raw form. On the other hand, the present analysis focuses on agglomerations classified according to 2009 statistics. The dynamics of certain sectors is, however, very rapid; for instance, the economic crisis has led to a record number of bankruptcies in the first three quarters of 2010. The present findings nevertheless seem robust in respect to certain characteristics of the Romanian agglomerations, as follows.

First, the 3* agglomerations case suggests that major concentrations of industries are a result of both the industrialization policies of the communists regime, and new developments of market forces. Moreover, in either case economic performance is not necessarily supported by the benefits of agglomerations. This general picture is rich in details that result from the various processes of industry economics and strategy organization, whose importance has been only in part discussed within the scope of this paper.

Second, the addition of export data, and its subsequent processing according to technological level, generally shows a level of medium and low technological performance of Romanian agglomerations. The high level of data aggregation (which is however obtained by making most of the available statistics) does not allow a more accurate view of the competitive potential of clusters. The relevant literature suggests that some industries are active on a relatively higher competitive position (e.g. shipbuilding, electrical equipment), while others benefit from advantages of niche competition (e.g. underwear, footwear).

Third, industries generally do not share close geographical proximity to reinforce their competitive advantages on a mutual basis. With few exceptions (e.g. wood and furniture industries, automobile and auto parts sectors), same cluster

industries are not related and advanced, value added industries based on sophisticated advantages are entirely absent.

It is thus reasonably to conclude that the market forces should be supported by active interventions on behalf of private investors and/or authorities so that the advantage of agglomerations work to their benefit. At the same time, the evidence we have found invites to a cautious attitude towards an industrial policy based on clusters advantages. Unless a rigorous, in-depth assessment of the competitive potential is produced, any intervention will make bad use of available resources and be, at any rate, completely flawed on economic grounds.

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APPENDIX

Table 6A *'Cluster'-type associations in Romania (2010)*

No.	Association name	Sector	Web
1.	AUTOMOTIVEST Regional cluster	Auto	www.adrvest.ro
2	ICT Regional Cluster	Information Technology	www.aries-tm.ro
3	Dacia Renault Cluster	Automotive industry	www.acarom.ro
4	PRO WOOD Regional Wood Cluster	Forestry and wood	www.kofa.ro www.prowood.ro
5	Green energy cluster	Renewable energies	http://greenenergy.org.ro
6	TURINN Cluster	Sustainable and innovative tourism	www.aptmh.tk
7.	Agro-Food Regional Cluster	Agro-food	www.expoarad.eu
8	ELECTROPRECIZIA Electrotechnical Cluster	Electrical engineering	www.electroprecizia.ro
9.	ASTRICO Textiles Cluster	Textiles	www.astricone.eu
10.	Furniture Cluster	Furniture	www.mobex.ro
11.	Agro-Food Cluster Bucharest	Agro-food	www.inma.ro/pactmar/
12.	Tourism Regional Cluster	Tourism	www.bucovinaturism.ro
13	Fashion Clothes Cluster	Textiles-wearing apparel	www.fepaius.ro
14	Agro-food Cluster	Agro-food	www.icc.ro
15	ICT –Regional Competitiveness Pole	Information Technology	www.ipacv.ro
16	Tourism South East	Tourism	www.asociatia-litoral.ro
17	Geothermal Energy Cluster	Geothermal energy	www.nord-vest.ro
18	Tourism Prahova Cluster	Tourism	www.asociatiaturismprahova.ro

Note: Further 7 *cluster* associations will be created by the end of 2010 in the sectors: aviation (2), car industry, renewable energies, logistics, naval, furniture.

Source: Ministry of Economy, Commerce and Business Environment

Table 7A *The correspondence between the economic sectors classifications*

Commodities sector according to the Harmonized System	Products/commodities according to the Harmonized System nomenclature	NACE codes (2 digits)	The section's/products' technology level
I	Live animals; animal products	01 Crop and animal production, hunting and related service activities	Low technology exports
II	Vegetable products	01 Crop and animal production, hunting and related service activities	Low technology exports
III	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes	10 Manufacture of food products	Low technology exports
IV	Prepared foodstuffs; beverages, spirits and vinegar; tobacco and manufactured tobacco substitutes	11 Manufacture of beverages	Low technology exports
V	Mineral products	23 Manufacture of other non-metallic mineral products	Medium-low technology exports
VI	Products of the chemical or allied industries	20 Manufacture of chemicals and chemical products	Medium-high technology exports
VII	Plastics and articles thereof; rubber and articles thereof	22 Manufacture of rubber and plastic products	Medium-low technology exports
VIII	Raw hides and skins, leather, furskins and articles thereof; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silk-worm gut)	15 Manufacture of leather and related products	Low technology exports
IX	Wood and articles of wood; wood charcoal; cork and articles of cork; manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork	16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw or of other plaiting materials	Low technology exports
X	Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard; paper and paperboard and articles thereof	17 Manufacture of paper and paper products	Low technology exports

Commodities sector according to the Harmonized System	Products/commodities according to the Harmonized System nomenclature	NACE codes (2 digits)	The section's/products' technology level
XI	Textiles and textile articles	13 Manufacture of textiles	Low technology exports
XII	Footwear, headgear, umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding crops and articles thereof; prepared feathers and articles made therewith; artificial flowers; articles of human hair	15 Manufacture of leather and related products	Low technology exports
XIII	Articles of stone, plaster, cement, asbestos, mica or similar materials; ceramic products; glass and glassware	23 Manufacture of other non-metallic mineral products	Medium-low technology exports
XV	Base metals and articles of base metal	24 Manufacture of basic metals 25 Manufacture of fabricated metal products, except machinery and equipment	Medium-low technology exports
XVI	Machinery and mechanical appliances; electrical equipment; parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles	27 Manufacture of electrical equipment 28 Manufacture of machinery and equipment n.e.c. 32 Other manufacturing	Medium-high technology exports
XVII	Vehicles, aircraft, vessels and associated transport equipment	28 Manufacture of machinery and equipment n.e.c. 29 Manufacture of motor vehicles, trailers and semi-trailers 30 Manufacture of other transport equipment	High technology exports Medium-high technology exports Medium-low technology exports
XVIII	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; clocks and watches; musical instruments; parts and accessories thereof	26 Manufacture of computer, electronic and optical products 32 Other manufacturing	High technology exports

Commodities sector according to the Harmonized System	Products/commodities according to the Harmonized System nomenclature	NACE codes (2 digits)	The section's/products' technology level
XX	Miscellaneous manufactured articles	32 Other manufacturing, except 325	Low technology exports
99	Other commodities	32 Other manufacturing, except 325	Low technology exports

Explanatory note

The correspondence between the product categories/sections in the *Harmonized System* nomenclature (as mentioned in Law no. 98 / 23 September 1996 for Romania's accession to the International Convention on the Harmonized commodity description and coding system, including its annex, established in Brussels at 14 June 1983) was associated to the Eurostat classification of productive industries according to NACE 2 digit-codes in order to observe the technological intensity of Romanian exports (reported in Harmonized System).

Each commodity section was associated to their respective production industry/industries. In most cases, a section in the Harmonized System corresponds to an industry/industries belonging to the same technological intensity group, so the correspondence was easily made. The only exception is section XVII *Vehicles, aircraft, vessels and associated transport equipment*, which corresponds to industries with different technological intensities (i.e. aircraft with high intensity, motor vehicles with medium-high intensity, the vessels-maritime ships industry with medium-low technological intensity).

Therefore, we included section XVII in a technological category according to the productive specific and the proportion of specific merchandise in each county's exports (for example, section XVII in Bacău county was considered high-technology based on the aircraft industry located there, while the same section was classified as medium-low technology in Constanța county, based on the importance held by the local ship building industry).

Table 8A *The calculation of the export performance indicator (E)*

No.	The 3* agglomeration's sector (NACE)	County	A = XdomJud/XJud	B= XdomRo/Xro	A/B Export (E)	CodX	Xdom ro	Xro	Xdom jud	Xjud
1	2410	Galaţi	75,4%	10,0%	7,51	XV Base metals and articles of base metal	2922857	29116311	551948,71	732353,27
2	3011	Tulcea	74,8%	16,8%	4,46	XVII Vehicles, aircraft, vessels and associated transport equipment	4884203	29116311	243411,91	325439,7
3	2910	Argeş	68,2%	16,8%	4,06	XVII Vehicles, aircraft, vessels and associated transport equipment	4884203	29116311	1934254	2837111,3
4	0520	Gorj	0,0%	6,1%	0,00	V Mineral products	1784134	29116311	0	39071,38
5	3511	Gorj	NA	NA	NA	NA	NA	NA	NA	NA
6	2013	Mehedinţi	0,0%	3,7%	0,00	VI Products of the chemical or allied industries	1069110	29116311	5,73	113978,55
7	0510	Hunedoara	0,4%	6,1%	0,07	V Mineral products	1784134	29116311	1546,73	373277,73
8	1520	Bihor	31,8%	3,5%	9,01	XII Footwear, headgear, umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding crops and articles thereof; prepared feathers and articles made therewith; artificial flowers; articles of human hair	1028368	29116311	275367,45	865509,31

Source: the authors' calculation based on official data regarding exports in 2009 according to the methodology proposed in section 3.1. Note: The correspondence between the HS and the respective NACE codes was made by the authors based on the compatibility between their detailed descriptions.

Abbreviations: Xdom = Total export in the agglomeration's sector; XdomJud = Total county export in the agglomeration's sector; XdomRo = Total Romanian export in the agglomeration's sector; Xro = Total Romanian export; Xjud = Total county export; CodX = The Harmonized System section

Table 9A *The agglomerations' distribution at county level (Bucharest excluded) by 4 digit-NACE codes*

County	3*	2*	1*	3*	2*	1*
BACAU		1012 1920 3030 4676 4752	1392 1610 4211		5	3
BOTOSANI		1413	4711 4941		1	2
IASI		2110 2670 2891 3513	3530 4932		4	2
NEAMT		1439 2420	0111 1610 4719		2	3
SUCEAVA		1051 1610	1520 3109 3530 4520 4719		2	5
VASLUI		1414 2815	0111 1413 1520 4719		2	4
BRAILA		3011 1414	0111 1413 2892		2	3
BUZAU			1061 1413 2410 2511			4
CONSTANTA		1920 3011 3315 3317 4299 4532 5222 5224 5510 7810			10	
GALATI	2410	3011 5222 3832 4110 4672	3530 4399 4673 4690	1	5	4
TULCEA	3011		0111 1013 1413	1		3
VRANCEA		0121 1413 1721			3	
ARGES	2910	2711 2931 2932	1013 1071 3109 4531	1	3	4
CALARASI		1413	0111 1013 4941		1	3
DIMBOVITA		2410 2892 2751	4719 4932 4941 6820		3	4
GIURGIU			4211 8010			2
IALOMITA		4711	0111 1413		1	2
PRAHOVA		0910 1013 1920 2511 2815 2892 2899 3513 4221 4721 4950	0147 2931 4773 7112		11	4
TELEORMAN		2015 2815	0111 1413		2	2
DOLJ	0520 3511	1439 2711 2910 3513	0111 3511 4719	2	4	3
GORJ	2013	2219	2511 8121	1	1	2
MEHEDINTI		3011 3020			2	
OLT		1413 2211 2420 2442 3020	2932		5	1
VALCEA		1061 2014	1071 3530 3811 4321		2	4
ARAD		1414 1419 2732 2931 2932 3020 4619	1392 3109		7	2
CARAS-SEVERIN		2811	1610 2410		1	2
HUNEDOARA	0510	2593	1392 1414 3511 3600	1	1	4

County	3*	2*	1*	3*	2*	1*
TIMIS	1520	1520 2211 2221 2611 2651 2740 2751 2931 2932 6120		1	10	
BIHOR		2229 2620 4772	3530 4941		3	2
BISTRITA		2892 9200	1610 2931 2932 4673		2	4
CLUJ		1414 2630 3513 4211 5520 6201	2410 6419 7311		6	3
MARAMURES		2712 3103 3109	1610 6820		3	2
SATU-MARE		2751	1013 2511 2931 3109		1	4
SALAJ			2410 3109 4941			3
ALBA		0121 2341	0147 1011 1520 1610		2	4
BRASOV		1621 2711 2811 2932 3317 3513 4221 4639	4690		8	1
COVASNA		1413 4754	1610		2	1
HARGHITA		1107 1623	1413 1610 3109		2	3
MURES		2015 2341 3522 8622	1051 1392 1610 3109		4	4
SIBIU		0620 1512 2599 2611 2932 4950 7810 7990	1011 1520 2931 4673		8	4
ILFOV		1107 3811 4631 4639 4646 4759 5110 5224 5229 7219	1061 4531 5630		10	3

Source: author's calculation

THE IMPACT OF PUBLIC AND PRIVATE INVESTMENTS ON THE NAMIBIAN ECONOMY- AN EMPIRICAL ANALYSIS

Ravinder RENA[*]

Abstract: *Public and private investment plays a significant role in extension of opportunities for earning higher incomes as well as the consumption of improved quality goods and services to the people of Namibia. Namibia has a* free market economy *with a strong tradition of* central government *planning to provide infrastructure for private investment. The economy has grown rapidly since the mid-1980s, with the* gross domestic product *per capita increasing more than a hundredfold. This article investigates the impact of public and private investment on Namibia's economic performance during the period 1990-2008. It was also found that the GDP growth declined from 6.8 per cent in 2006 to 5.2 per cent in 2008. The article provides some policy implications based on the results.*

Keywords*: Private Public Investments, Economic growth, Namibia, Education, health, competitiveness.*

JEL Codes: E2, R53, O44

1. INTRODUCTION

Public investment and private investment can play a significant role in the development process of the Namibian economy. Public investment itself is said to play a crucial role on the performance of the private investment. Private investment in addition to providing capital inflows, investment can be a vehicle for obtaining foreign technology, knowledge, managerial skills and other crucial inputs for

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integrating into international competitiveness of firms and the economic performance of Namibia(AfDB and OECD,2009; Rena 2010). The main criticism of government intervention is that it is not as effective as market forces in allocating resources. However, the rationale for intervention is based on the conventional public-goods argument that the private sector fails – or is unable – to provide public goods, internalise externalities and fairly and equitably redistribute income.

The importance of public investments in determining long term economic growth is driven by the fact that it is confined to quasi-public goods such as education,health, research and development, housing, water and sewage, fire services, courts and transport and communication expenditure, whose services are essential since they tend to generate positive spill-over effects for the private sector. Therefore, the composition of public investment matters. The private investment is the most powerful in Namibia today, transforming the Namibian economy through rapid growth and expansion.

The research is mainly focused on the role played by both private and public investment on the Gross Domestic product (GDP) growth of Namibia .We have to look at how effective the government is distributing the resource using the market forces to ensure there is a solution to the economic problem of scarcity unlimited choices and opportunity cost.

The Namibian economy has a large non-tradable sector (government services) and an export oriented primary sector – mainly fisheries, agriculture and mining. The fisheries and mining sectors are mature and capital intensive. Furthermore, they are quota driven, and as a result are unable to improve the unemployment situation in the country. The agricultural sector, which supports more than 60 percent of the population, is drought-stricken. Thus the Namibian economy is susceptible to exogenous shocks such as drought and international business circles.

During the previous research done it indicated the ministry of agriculture and transport are the big spenders for the public investment. Moreover in construction, renovation and improvements in constitute more than 60 % of the budget for the construction and maintenance. Namibia, people grow restive to achieve a higher standard of living, and the intention to emulate the affluence of the western world has called for a critical look at the causes of growth. An issue of continuing interest among economist and policy makers is the extent to which there is a linkage between public investment and economic growth. The effect of public investment, public consumption, and private investment on economic growth is a long-standing issue in development economies, and this has received recent revival of interest in this aspect macroeconomics. The worldwide shift towards a growth strategy underscoring

market forces and private sector leadership led in many countries to a curtaintment of the public sector from production and to a redefinition of its role in the development process under the guiding principle that the public sector should concentrate its resources in area where it support rather than replacing the activity of the private sector. In Namibia the incidence of poverty was put at 54% in 2002 while rural poverty was 63.27% respectively (NPC, 2006). Namibia's main trading partners are The European Union (EU), Japan, Swaziland, and the United States of America (USA) and member states of both the Southern African Custom Union (SACU) and the Southern African Development Community (SADC). Mining contributes about 20% of GDP. Namibia is the fourth-largest exporter of non-fuel minerals in Africa, and the world's fifth largest producer of uranium. Namibia's economy is closely linked to that of South Africa, which is its main trading partner with about 80% of imports coming from South Africa, while exports to South Africa account for about 26% (Schmidt, 2009).

Statement of the problem

Public and private investment plays a significant role in extension of opportunities for earning higher incomes as well as the consumption of improved quality goods and services to the people of Namibia. Namibia has a free market economy with a strong tradition of central government planning to provide infrastructure for private investment. The economy has grown rapidly since the mid-1980s, with the gross domestic product per capita increasing more than a hundredfold.

This article investigates the impact of public and private investment on Namibia's economic performance (GDP growth) over the period 1990-2008, using an autoregressive-distributed lag (ARDL) Error Correction Model (ECM).

The research objectives

The relationship between Investment and economic growth is of interest to the government policy makers, investors, bankers, academics, etcetera. Results from a study of this nature are therefore very important to all the above-mentioned stakeholders. The present study delves into the issue with the following objectives:

1] The objective of this study is to look at the relationship between public investment and economic growth in Namibia, using time series data from 1980 to 2009;

2] Critically examining the role played by both public and private investment in the areas of economic growth examining which of the two is have a significant impact on the economy;

3] to proffer policy recommendations emanating from the relationship.

The research questions

1] What is the impact of both public and private investment on GDP growth?
2] What is the relation between public and private investment?
3] What is the role of public investment and to what extent is it played?
4] What can possibly affect the performance of the public and private investment?

Overview on Namibia

The Namibian economic system is best described as market economy, with the government playing the role on creating a conducive environment for business to boom and contributing to the general economy. In short, the overall government objectives are those of sustaining economic growth, creating job opportunities and eradicating poverty and income generation. The Namibian economy has a large non-tradable sector (government services) and an export oriented primary sector – mainly fisheries, agriculture and mining. The fisheries and mining sectors are mature and capital intensive. Furthermore, they are quota driven, and as a result are unable to improve the unemployment situation in the country. The agricultural sector, which supports more than 60 percent of the population, is drought-stricken. Thus the Namibian economy is susceptible to exogenous shocks such as drought and international business circles. Namibia's main trading partners are The European Union (EU), Japan, Swaziland, and the United States of America (USA) and member states of both the Southern African Custom Union (SACU) and the Southern African Development Community (SADC). Mining contributes about 20% of GDP. Namibia is the fourth-largest exporter of non-fuel minerals in Africa, and the world's fifth largest producer of uranium. Namibia's economy is closely linked to that of South Africa, which is its main trading partner with about 80% of imports (Rena, 2010).

The government reforms

The Namibian Government adopted policies in the 1990s to return commercial activity to the private sector, promote investment, reduce the role of the state in the economy, and improve the administrative and judicial framework. Namibia has the potential to develop, if the government carries out its announced policy reforms, and if the private sector responds appropriately. So far, corruption and favoritism, lack of

long-term political stability, and lack of a transparent budgeting process continue to dampen foreign investor interest in major projects in Namibia.

Reforms since 1995 include eliminating restrictions on agriculture and foreign trade, liquidation of some parastatals, the creation of a realistic exchange rate, increased spending on education, and cutting the government bureaucracy. With the appointed new government, which promised major economic reforms, including financial and judicial reform, rationalization of public expenditures, and improved government revenue collection? Under 1996 and 1998 International Monetary Fund (IMF)/World Bank agreements, Namibia continued fiscal reforms and privatization, and shifted governmental expenditures and internal reforms to the education, health, infrastructure, banking, and justice sectors. However, with the changes in the late 1990s, which increased corruption, economic mismanagement, and excessive government spending, combined to slow the momentum for economic reform. The informal sector continues to be a major contributor to the economy.

In our analysis, the benefits to the economy arise from assuming that public investment is a public good which is available to all producers at zero cost. However, some public services are not pure public goods and as a result are subject to congestion. These are goods which are competing but to some extent, non-excludable in consumption. This applies when public services are used as inputs to production. In this case the quantity of public services available to one individual reduces as more individuals use the service.

The government revised the private investment code to stimulate economic activity in the spirit of free enterprise. The code does not discriminate between foreigners and nationals and allows for repatriation of profits. While the code restricts development of Namibian hydraulic resources to projects in which Namibians have majority shareholdings and management control, it does contain a clause permitting negotiations of more favorable conditions for investors in specific agreements. Foreign investments outside are entitled to more favorable benefits. A national investment commission has been formed to review all investment proposals. The Germany and have signed an investment guarantee agreement that offers political risk insurance to Germany investors through the Overseas Private Investment Corporation (OPIC). In addition, Namibia has inaugurated an arbitration court system, which allows for the quick resolution of commercial disputes.

The services such as highways, the police, the fire service, courts and so on. As a result of congestion, for a given public services an increase in output reduces the public services available to each producer. It is therefore assumed that to increase

the public services available to each user, public investment should increase in relation to an increase in output.

Until late 1990s, private operators managed the production, distribution, and fee-collection operations of water and electricity under performance-based contracts with the Government of Namibia. However, both utilities are plagued by inefficiency and corruption. Foreign private investors in these operations departed the country in frustration.

Spending in other areas, primarily defense, contributed to a significant fiscal deficit. The pursuit of unsound economic policies has resulted in imbalances that are proving hard to correct. The government began a rigorous reform agenda in December 2000 designed to return Namibia to a PRGF with the IMF. Exchange rates have been allowed to float, price controls on gasoline have been loosened, and government spending has been reduced while tax collection has been improved. These reforms have not reduced inflation, which hit 27% in 2004 and 30% in 2006. Currency depreciation is also a concern. Despite the opening in 2005 of a new road, most major roadways connecting the country's trade centers remain in p, slowing the delivery of goods to local markets. Even though there are many problems plaguing Namibian economy, not all foreign investors are reluctant to come to Namibia.

2. HEALTHCARE

Namibia has been reorganizing its health system since independence of 1990. Formally promoted community-based methods of increasing accessibility of drugs and health care services to the population, in part by implementing user fees. The new strategy dramatically increased accessibility through community-based healthcare reform (including community ownership and local budgeting), resulting in more efficient and equitable provision of services. A comprehensive approach strategy was extended to all areas of health care, with subsequent improvement in the health care indicators and improvement in health care efficiency and cost .Namibia public health code is defined by Law No. L/97/021/AN of 19 June 1998 promulgating the Public Health Code. The law provides for the protection and promotion of health and for the rights and duties of the individual, the family, and community throughout the territory of the Namibia.

(%)
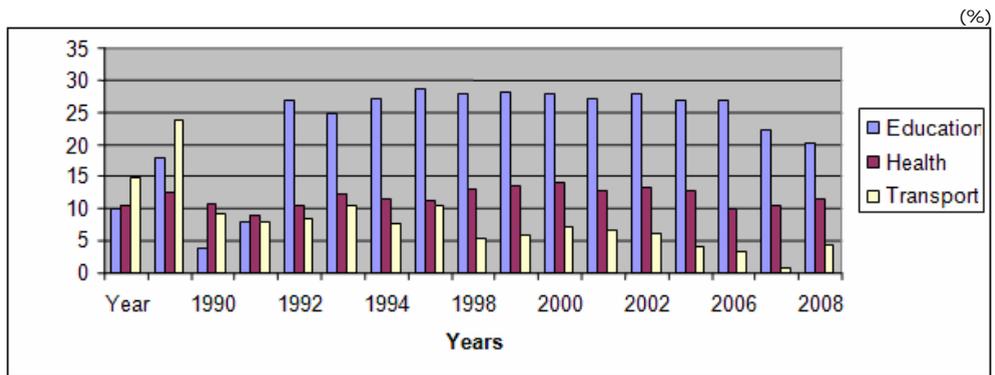
Figure 1 *Composition of Government Expenditures*

HIV/AIDS IN NAMIBIA

The first cases of HIV/AIDS in Namibia were reported in 1987. Though levels of AIDS in Namibia are significantly lower than in a number of other African countries, as of 2005. According to the World Health Organization, in Namibia an estimated 170,000 adults and children were living with HIV/AIDS at the end of 2000. The spread of the HIV/AIDS epidemic in Namibia was attributed to factors such as proximity to high-prevalence countries, a large refugee population, internal displacement and sub regional instability.

Empirical Evidence

Dim trio Patrico University of Malawi (2006) carried a study on the direction and strength of the relationship between public investment and economic growth in Malawi, using time series data from 1975 to 2006. The study examines the unit root problem and co integrating properties of the data. The unit root problem was tested for by using Augmented Dickey Fuller (ADF) and Philip Perron tests. Then the effects of stochastic shocks of each of the endogenous variables are explored using Vector Autoregressive (VAR) model. Also Granger causality test was carried out. The disaggregated analysis of public expenditure was also carried out. Results show that public expenditure impacted positively on economic growth and that there was no link between gross fixed capital formation and GDP. The disaggregated analysis shows that only 47.9% of government expenditure is devoted to capital expenditure while 52.1% share is to current expenditure. Keywords: Public expenditure, VAR model, co integration, Impulse Response Function, Forecast Error Variation Decomposition.

In Africa and in Malawi in particular, people grow restive to achieve a higher standard of living, and the intention to emulate the affluence of the western world has called for a critical look at the causes of growth. An issue of continuing interest among economist and policy makers is the extent to which there is a linkage between public investment and economic growth. The effect of public investment, public consumption, and private investment on economic growth is a long-standing issue in development economies, and this has received recent revival of interest in this aspect macroeconomics. According to Chipanga (2007) the worldwide shift towards a growth strategy underscoring market forces and private sector leadership led in many countries to a curtaintment of the public sector from production and to a redefinition of its role in the development process under the guiding principle that the public sector should concentrate its resources in area where it support rather than replacing the activity of the private sector. In Nigeria the incidence of poverty was put at 54% in 2007 while rural poverty was 63.27% respectively (AfDB and OECD,2009). According to Bonny and Oscar (2007) Malawi experienced a prolonged period of economic stagnation, rising poverty levels and the decline of its public institution.

In previous studies, many authors recognized the fact that public investment can lead to a change in private investment with implication for changes in economic growth. According to Sara (2003) every national economy, whether developed or underdeveloped and whether with or without a comprehensive system of economic planning, requires the intervention of government in its development process. Economists such as Schultz and Becker argued that public investment is based on the conventional public goods argument that the private sector is unable to provide public goods, internationalize, externalize and fairly and equitable redistribute income. According to them, the factors of production are not easily or quickly responsive to the signals of mobility, because of various market imperfections and institutional rigidities. There are serious defects in market information and in the ability to interpret correctly the signals there from. There are structural imperfections and strong discretionary market powers, which distort the signals and create results increasingly at variance with socially desirable goals (Rena,2010).

Earlier studies found public investment to be a significant input and private and public investments to be complementary, rather than substitutes. Using the VAR approach, Sturm (1998) found that infrastructure investment has positively influenced output in the Netherlands, and using the same approach to analyze the dynamic effects of public investment for six industrial countries, Mittnik and Neumann (2001) established that public investment tends to exert a positive influence on GDP. Furthermore, they found no crowding-out effect between public

investment and private investment. Therefore, empirical findings seem to indicate that ceteris paribus, public investment has a positive impact on economic growth.

Certain essential goods and services (national defense, police protection, education, health, environmental control and cultural services) have to be provided communally outside the market system, and financed differently from the signals of market prices. Disadvantaged groups, minorities and under-privileged areas often require direct protection, on the basis that social and moral obligations in those spheres transcend market criteria. There is a large amount of literature available on the method that can be used to measure the relationship between public investment and economic growth. This include the production function approach used in the research work which include Miriam (et al 2005), Shawn 2002, Lloyd (1998), Wuta (2000), Dwayne et al (1996), However, the production function approach is criticized on the basis that treating public investment as a factor input and production function like private capital and labour, violate the standard marginal productivity theory as it assume market-determined per unit cost of infrastructure which is known by individual firms and can be included in the total cost (Festus and Duncan 2003). As a result of this shortcoming, Festus and Duncan (2003) used endogenous growth models approach. Also in literature the new neo-classical growth model of Solow, this includes the work of Chipanga (2007) in which he looked at the impact of domestic public and private investment on economic growth in Namibia. The present study intends to use macroeconomic theory to look at the effects of public investment and growth with use of vector autoregressive model.

DATA SOURCE AND RESEARCH METHODOLOGY

Models approach

The model for this study is based on the belief that government investment on activities such as education, health and transport (infrastructure) will have a considerable effect on macroeconomic performance. This, means that economic growth will not just depend on capital and labour of the aggregate production function but that public investment are complementary to private inputs such that an increase in Government Investment increase the marginal production of each form of capital and labour, thereby suggesting that both public investment and private investment may grow together.

To have this model, it is assumed that the services on which governments tend to invest their revenues are generally considered essential to the good of the community, yet, which the market system is either unable or unwilling, or

undesirable for it to offer. And when the government provides these vital services it will stimulate and help the private sector to impact positively on the economic growth. This is supported by public choice theory of policy intervention.

The research design process involved a lot of interrelated decisions, chief of which was the choice of the research approach. The research design composed of two research approaches, the qualitative and the quantitative research designs to obtain statistical data. By choosing a mixed method approach it creates a study that will not be biased and will also produce a study that is scientific, clear and understandable.

THE QUANTITATIVE APPROACH

According to Huysamen (1997), descriptions of quantitative research typically discern a cycle of successive phases of hypothesis formulation, data collection, analysis and interpretation. Using a deductive approach, quantitative research seeks to establish facts, make predictions, and test hypothesis that have already been stated.Least squares correspond to the maximum likelihood criterion if the experimental errors have a normal distribution. Statistical analysis such as the F distribution and the t distribution and more are analyzed (Gujarati 1995). Regression analysis is available in most statistical software packages. Statistical analysis such as the F distribution and the t distribution will be analyzed. Graphs and chart will also be used. For empirical testing, we follow the econometrics specifications and given the data limitations, hence we consider the following specification.

$$Prigdp = \alpha + \beta_1 \, hltge + \beta_2 \, trtge + \beta_3 \, edtge + U_1 \qquad (1)$$

OR

$$Y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + U \qquad (1)$$

$$Prigdp = \alpha + \beta_1 \, hltge + \beta_2 \, trtge + \beta_3 \, edtge_{(-1)} + U_2 \qquad (2)$$

OR

$$Y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_{t-1} + U \qquad (2)$$

Where:

Prigdp is the ratios of private investment in GDP, hltge is the shares of health expenditure in total government expenditure, trtge is the shares of transport (Infrastructure) expenditure in total government expenditure and edtge is the shares

of education. U_1 and U_2 are the error terms, which are assumed to be white noise error term which represents all the factors that affect private investment but are not taken into account (Gujarati 1995).

Where: Y- Private investment ratios in GDP

α- Is the dependent variable when all the independent variable are zero.

x_1 – Health

x_2 – Transport (infrastructure)

x_3 - Education

x_{t-1} - Lagged variable

U – Error Term

Lagged variable – Past values of the explanatory variable

Error Term – Represents all the factors that affect private investment but are not taken into account.

Data Collection Methods

The article is based on both the primary or secondary data. The Primary data was gathered to address specific research objectives and solve the problem at hand. The researcher employed various primary data collecting instruments which include personal interviews, telephone interviews and questionnaires.

The questionnaires were sent to 22 employees (BON) and the respondents' rate was 91%. To Ministry of trade and finance economist 23 questionnaires were sent and the researcher managed to get a 91% response rate. The interviews response rate was overwhelming and the researcher managed to conduct all the targeted 5 interviews Bon managers(see table 10). The overall response rate for the study was 92% and sufficient enough to justify research findings.

Table 10 *The number of respondents and their response rate*

Target Population	Sample size	No. of Respondents	Response Rate
Employee Of BoN Questionnaire	**22**	**20**	**91%**
Employees of Min of trade Economist Questionnaire	**23**	**21**	**91%**
Interviews BON and Min of trade economist	**5**	**5**	**100%**
Total/ Average	**50**	**46**	**92%**

Source: Primary data

Using judgmental sampling, the researcher selected a group of people in the identified economic disciplines to be the respondents. Appointments with the chosen BON personnel were placed and then face to face interviews were done afterwards. The same applied to the selected Finance Ministry personnel, bankers such as FNB Bank Windhoek and the selected independent economic analysts. The response was

impressive though access to the targeted respondents was limited, and this necessitated the move into telephone interview tactic by the researcher to get more details with the target respondents. The researcher chosen to use the personal interviews because they give direct contact with the respondents hence gives the researcher a chance to note and interpret the interviewee's gestures.

The researcher designed some questions, put them in writing and then distributed them to the targeted respondents in the selected economic disciplines. The researcher designed simple, direct and familiar questions so that no ambiguity in the questions would be met by the respondents and this was paid back by an impressive response rate in this primary data gathering instrument. Questionnaires were chosen for the following reasons:

- It gave the respondents more time to give well-thought answers, consult records and other people before answering, thereby coming up with satisfactory and more informative responses.
- No pressure was put on the respondents as the questionnaire was filled as and when the respondents were free, hence giving a better responses.

The secondary data had collected from many publications such as the books, Journals, magazines, news papers and websites. The data was collected from National Planning Commission Reports and the National Bank of Namibia's reports. Different documents were been reviewed.

DATA ANALYSIS AND PRESENTATION PROCEDURE

Data presentation is done manually and electronically using computer based software, Microsoft Excel and the presentation is in the form of tables, graphs and charts. This is followed by a time series analysis of the presented data in line with basic economic models and empirical evidence, to come up a discussion on the impact of public and private investment on the Namibian economy.

RESULTS AND DISCUSSION

Estimation of the Model

The model specified by the study as mentioned above is the OLS kinking public investment and private investment in the Namibian economy. Determining the extent to which the theoretical literature in the previous sections relates to the findings through the model is very relevant to this economy and mainly its private sector.

The researcher conducted a test to determine whether the independent variables in the regression are significant determinants of the relationship between public and private investment. The researcher conducted the t hypothesis test were the null hypothesis is rejected or accepted depending the explanatory variables. If the null hypothesis is rejected it implies that the explanatory variables are significant in the regression and that there is linear relationship between the dependent variable (private investment) and the independent variable (public investment). Computed t-values for both regression equations in these study shows that the null hypothesis is not rejected for all variables and have concluded that all variables has some degree of significance.

A number of appropriate econometric issues are outlined prior to the estimation of the model and the presentation of the results. This section analysis the effects of public investment on private investment by regressing the ratio of private investment to GDP on a set of public investment variables in Namibia for the period of 1990-2008 Time series data are not stationary. Thus most classical assumptions for econometric estimation and forecasting are violated and results may not be ideal for policy making.

In this study, the researcher conducted a test to determine whether the independent variables in the regression are significant determinants of the relationship between public and private investment. Gujarati (1995) if the null hypothesis is rejected it implies that the explanatory variables are significant in the regression and that there is linear relationship between the dependent variable (private investment) and the independent variable (public investment). Computed t-values for both regression equations in these study shows that the null hypothesis is not rejected for all variables and have concluded that all variables has some degree of significance.

Table 11 *Regression Results*

Dependent Variable	(prigdp) Equation 1	(prigdp) Equation 2
C	24.8866	24.5383
	(4.3571)	(3.9743)
Hegdp	- 0.7190	- 0.7465
	(-1.2481)*	(-0.9925)*
Trgdp	- 0.4243	- 0.4228
	(-.2835)*	(- 2.132)*
Edgdp	0.0926	-----------
	(0.7891)*	-----------
Edgdp	-----------	0.0924

Dependent Variable	(prigdp) Equation 1 -----------	(prigdp) Equation 2 (0.6258)*
R-square	0.5445	0.5458
Adjusted R	0.4394	0.4322
F-statistic	5.1808	4.8061
DW-statistic	1.6804	1.8092

Source: Regression Results 2008

T-ratios are all significant at 5 percent level of significance

*(t-ratios)

Estimating equation 1 directly with Ordinary Least Square (OLS) indicates the relationship that exists between the dependent and independent variable. The signs below the variables indicate the expected signs for the coefficients and the direction of the economic relationship between the dependent and explanatory variable. The negative sign for expenditures in health and transport implies that if they result from financing unproductive activities they will crowd-out private investment. As discussed in the theoretical section above it shows the impact that public investment on private investment.

$$Prigdp = \alpha + \beta_1 \, hltge + \beta_2 \, trtge + \beta_3 \, edtge + U_1 \qquad (1)$$
$$\qquad\qquad (-) \qquad (-) \qquad\quad (+)$$

Furthermore, high F-statistics and R- square indicates joint significance of the explanatory variable and high degree to which variations of the share of private investment in GDP by the variations of the public investment shares in education, health and transport of the total government expenditure and assumes any value from -1.00 or +1.00 inclusive. This shows that about 54% of the variations in the private investment are explained by the public investment. As R^2 can at most be 1, the observed R^2 shows a weak fit. The DW-statistics of equation 1 postulates a strong case of serial correlation. The coefficients of the independent variable postulate that the composition of the public investment in health and transport has negative effects on private investment, while education has positive effects on private investment.

The negative sign for expenditures in health and transport implies that they resulted from financing unproductive activities and leads to the crowding-out of private investment. But in both cases education has a positive impact on private investment.

$$Prigdp = \alpha + \beta_1 \, hltge + \beta_2 \, trtge + \beta_3 \, edtge_{(-1)} + U_2 \qquad (2)$$
$$\qquad\qquad (-) \qquad\quad (-) \qquad (+)$$

F-statistics and R- square indicates joint significance of the explanatory variable and high degree to which variations of the share of private investment in

GDP by the variations of the public investment shares in education, health and transport of the total government expenditure. R^2 shows a good fit and the DW-statistics postulates a strong case of serial correlation.

The data from questionnaires, interviews and secondary sources was arranged to give a more meaningful and defined view in the research problem and objectives. Tables' graphs and pie charts show various trends concerning the research problem. The researcher analyzed the results in tandem with research objectives as shown below.

Table 12 *Summary Results*

Year	transport	Education	Agriculture	Health
92/94	32.47	1	5.34	2.08
94/96	25.07	1.12	5.45	40.59
96/98	15.52	9.77	10.27	56.33
98/00	14.5	10.98	16.11	9.08
00/02	12.22	11.52	17.37	9.03
02./04	18.38	12.72	21.46	9.98
04./06	21.11	12.89	15.19	11.78
06./08	6.36	9.64	8.51	5.48

Source: Insight Namibia and Bank of Namibia (2009)

Private investment analysis

Private investment is having a significant positive effect on GDP in Namibian cases. GDP responds positively to an increase in private investment. We can conclude that for the case, private investment is growth-enhancing. The findings are quite realistic and support the theoretical postulation that private investment is the engine of growth. This does support our theoretical analysis which suggests that private investment has a strong positive effect on GDP.

Public Investment

Despite having the expected positive impact, the effect of public investment on economic growth was found to be statistically insignificant in all three cases. Hence no strong inferences can be made from these findings. We can only conclude that given the available data, public investment and GDP were found to be positively correlated. Though this is puzzling, given the strong theoretical argument for a positive significant effect of public investments on economic growth, our theoretical analysis indicated that not all types of public investment have a strong direct impact on economic growth. The responsiveness of GDP from an increase in public

investment depends on the composition of public investment. Furthermore, other types of public investment might work through a feedback mechanism. This means that public investment has an indirect impact on GDP through other variables, such as public consumption and private investment Namibia
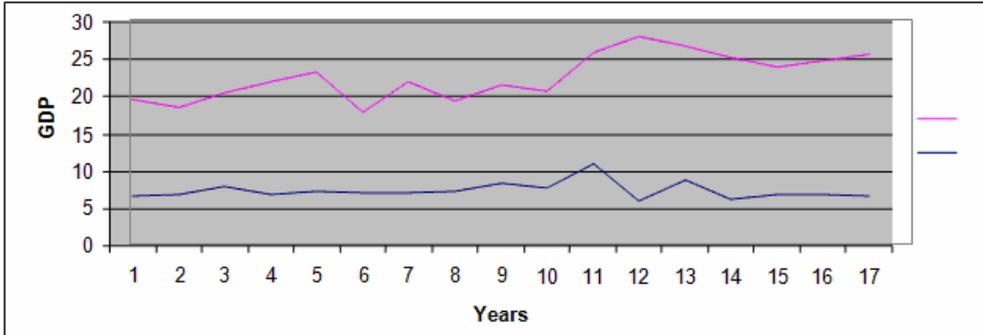
Figure 2 *Private investment (PI) & Public Investment (GI)*
As % of GDP (1990-2008)

Impact on variables Health, Education, and Transport

Another reason for the weak causal effect of public investment on growth could be that a significant proportion of public investment is devoted to non growth-promoting activities, such as defenses procurement. In Namibia, our findings were supported by our disaggregated analyses, which Indicates a substantial investment in building construction. Economic theory suggests that while building construction might have a Keynesian demand-type effect, it might not be a direct impact. It is interesting to note that the effects of public investment on education, health, agriculture and transport, which enjoy relatively large shares of public investment especially in the Namibian case.

Public Investment in Basic Education

Post independence, Namibia inherited an education system characterized by extreme inequality in terms of both provision and quality, with a concentration of resources; that is, only the minority of the population benefited from the resource. As a share of total capital expenditure, investment in education has been increasing from about one percent in 1992/93 financial year to about 13% in 1998/99, before decreasing to about 9% in 2001/02 financial year. However, compared to other sectors in the study, Since 2000/01, education has the highest share of total capital expenditure. More than 70% of public investment in education has been in

construction, renovation and improvements. This indicates that investment in education has been guided by the policy of expanding access to education. The data indicates that public investment in operational equipment and machinery such as photocopiers, overhead projectors, and laboratory equipment and so on, which improve.

Given that our analysis is at an aggregate level, the effect of public investment on economic growth will depend on the types of public investments which take up the largest share of public investment. Therefore, a finding of no significant effect of public investment on economic growth does not refute the hypothesis that public investments have a strong positive effect on economic growth.

Investment in Agriculture: Water and sewages

Agriculture is still the largest employer of the country, supporting more than 60 percent of the total population. In the agricultural sector, government's emphasis is on the development of communal areas, although its contribution to GDP has been decreasing. Water distribution dominated public investment with more than a quarter of public investment in water distribution being allocated to rural water supply. Construction, renovation and improvements received the second largest share. Namibia has a chronic scarcity of water resources, so the availability of fresh, uncontaminated water is crucial both for the health and economic welfare of the nation. To meet the economic developments needs of the population, (Ramirez, 2003) and conform to the theory, which suggests that public consumption is growth retarding. However, Namibia's case indicates a positive relationship, and although not statistically significant, these findings may suggest a demand side effect. From the LPI equation we can see that although statistically insignificant, public investment has the expected positive sign indicating the relationships postulated by economic theory and supported by empirical evidence such as Evaraet (2002), thereby indicating no strong crowding-out effect on Namibia.

This seems to suggest that for the two cases public investment and private investment are complementary to each other. This further means that public investments do not substitute for private investments.

Investment in Health

Selected Social Indicators (2005-8) Namibia GNI per capita, Atlas method Immunization, measles (percent of children ages 12 to 23 months) Improved sanitation facilities, urban (percent of urban population with access) Improved water

source (percent of population with access) Mortality rate, infant (per 1,000 live births) Mortality rate, under 5 (per 1,000)

Namibia has been reorganizing its health system since its independence in 1990. Earlier, the country used to depend on formally promoted community-based methods of increasing accessibility of drugs and health care services to the population, in part by implementing user fees. The new strategy dramatically increased accessibility through community-based healthcare reform (including community ownership and local budgeting), resulting in more efficient and equitable provision of services. However, in post-independent period, the access to health facilities was limited, and for this reason, government prioritized access to and affordability of health facilities to all, under its motto of "Health for All Namibians". The decomposition of public investment in health indicates that investment follows the same trend as education, with the largest share (more than 60%) allocated to construction, renovation and improvements. For the period 1990 – 2000, the number of clinics and health centers increased from 191 to 238 and from 0 to 34, respectively (Republic of Namibia, 2001; NPC, 2006; Schmidt, 2009). Investment in public health may increase life expectancy. Increased life expectancy in turn may have a significant positive impact on private capital accumulation decisions and hence on growth.

CONCLUDING REMARKS

In conclusion, there are other factors such as corruption and recession that have a negative impact on the Economic growth of Namibia. This indeed affects the way the public and private investment perform in general. The study's key objective was to investigate whether in the case of Namibia, public investment and private investment, leads to the increase in growth of the economy and GDP, in GDP. Although public investment was found to have an expected positive sign, it was insignificantly related. It was also found that the GDP growth was declined from 6.8 per cent in 2006 to 5.2 per cent in 2008. The estimated coefficient of the share of public investment in GDP is negatively related to the ratio of private investment to GDP. The coefficient is statistically significant at 5 percent level. This means that ratio of public investment to GDP tend to crowd out private investment during the period under consideration. The results support the argument in the literature that public investment may crowd out private investments. They also give support to the neoclassical approach to the crowding out of private investments by the public investments.

The private investment performance is affected by the government policies and the initiatives of public investment can either hinderer increase the performance of private sector. While the theoretical literature is clear on the impact of public investment on GDP, there is still some ambiguity concerning empirical evidence of the strength of that relationship. Although there is no single answer to the question, this topic still remains important, especially to most developing countries pursuing public investment as a stimulant of GDP.

The wrath of the law should be well expressed on the issue to do with corruption and misuse and management of public funds. This hinders the growth of the economy so the law enforcement authority should act seriously on the corruption and should identify and punish the people involved in the corruption.

Policy Implications

1] Private sector participation in education should be encouraged; 2] Public investment must be increased to complement private investment; 3] Government spending must be increased to create a "big push" in productive activities while spending on education and health, which contributes positively to the "crowding-in" of private sector investment, and hence economic growth, is rationalized; 4] There is a need to look at various options, such as investment policy and competition policy, aimed at encouraging private investments; 5] There is a need to enhance savings in Namibia by decreasing government spending on unproductive activities, so as to increase public savings. These will, eventually, increase public investment; 6] There is a need to reform the tax system in Namibia (taking into account the international and regional competition tax rates) by widening the tax base; 7] Confine public investment to goods that facilitate the smooth functioning of the market such as education, health, water and sewages, and transport and communication; and 8] Public investment should target strictly public goods and services like electricity and water which are non-excludable and non rival.

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THE IMPACT OF MERGERS AND ACQUISITIONS ON BANKING PERFORMANCE

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Abstract: *The purpose of this paper is to analyze the impact of mergers and acquisitions on the performance of the two categories of banks involved in this operation: the bidder bank and the target bank. Our analysis is performed on the case of M&A operations performed during 2001-2009 across Central and Eastern European banking systems. The results showed that the bank acquisitions determine the improvement of the level of technical efficiency of the target banks, and the results of the event study shows the fact that bank acquisitions do not determine significant changes of the market value of the shares of the bidder banks.*

Key words: M&A, *banking*, performance, efficiency
JEL Codes: G21, G30

1. INTRODUCTION

The financial sector is one of the most active industries in regards to mergers and acquisitions (M&A) operations. In the past 3 decades the European financial sector has suffered significant changes, registering an ample consolidation process, and in the context of the current financial crisis the continuation of the restructuring process is anticipated. M&A operations represent an important mechanism in the restructuring of the financial sector. The number of financial institutions has dropped significantly because of the numerous acquisitions or mergers that took place both on

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the national markets, and at international level. Among the first banks interested in cross border M&A operations are the ones that have the headquarters in developed countries, with a high degree of concentration of the banking systems. The result of these operations is the emergence of financial companies of larger size, that offer a wider range of services and that operate simultaneously on several markets.

Within this research we intend to analyze the impact of acquisitions on banking performance of the two categories of credit institutions involved in this process: the bidder bank and the target bank. Our analysis is performed on the case of bank acquisitions performed during 2001-2009 when banks from Central and Eastern Europe were purchased. Our research is motivated by the fact that there is a low number of empirical studies that analyze the impact of M&A operations on the performance of banks in Central and eastern Europe (see Fritsch, 2007 and Havrylchyk and Jurzyk, 2011), most studies mainly the market of banking M&A performed in the Unites States of America and Western Europe, are in the detriment of less developed countries. This fact can be explained by the low availability of the data for long periods of time in emerging economies. Also, an important number of West-European banks expanded their activity to Central and Eastern Europe, and the main method for entering the market is represented by the acquisition of local credit institutions. Following this process, the main question that emerged is if the modification of shareholding determined mutations in the efficiency and profitability of the acquired banks.

In the current research we intend to determine the impact of bank acquisition both on the acquired bank, and on the one that initiated the acquisition process. The impact of the acquisition process on the two categories of institutions will be quantified differently, so for the acquired bank we will analyze the evolution of efficiency after the closing of the acquisition procedure, and for the buying bank we will determine the impact of the acquisition announcement on the market value of its shares.

The rest of the paper is organized as follows. Section 2 reviews the previous literature on the relationship between M&A operations and banks performance. In section 3 we explain the methodology we have used to measure impact of acquisitions on banks and discuss the data and the variable selection. Thereafter, the results of the empirical analysis are presented and discussed in section 4. The main conclusions are presented in section 5.

2. LITERATURE REVIEW

The economic literature that treats the problematic related to M&A operations in the bank field is mainly focused on the banking sector from the United States of America and offers mixed results regarding the impact of M&A operations on the performance of the credit institutions involved or they can not establish a significant connection between the M&A operations and banking performance. Previous studies analyze the impact of these operations on banking performance expressed in the form: profitability rates (Diaz et al. 2004, Knapp et al. 2006, DeLong and DeYoung 2007, Hagendorff and Keasey, 2009), financial rates of cost (Kwan and Wilcox, 2002, Altunbas and Ibáñez, 2004, DeLong and DeYoung 2007), cost efficiency (Huizinga et al. 2001, Altunbas and Marques 2008; Beccalli and Frantz 2009) or profit efficiency (Vander Vennet, 2002, Al-Sharkas et al. 2008).

Hawawaini and Swary (1990), Houston and Ryngaert (1994), Madura and Wiant (1994) built the starting point for the subsequent research concerning M&A operations in the banking field and showed that following an acquisition the efficiency of the credit institution that was acquired increases.

Cornett and Tehranian (1992) showed that the M&A operations in the banking field in the USA between 1982-1987 have had a positive impact on the rate of return on equity and on productivity per employee. Diaz et al. (2004) based on an analysis at the level of credit institution in the European Union during 1993-2000 showed that the M&A operation has a positive impact on long term profitability.

Altumbas and Marques (2004) researched the impact of M&A operations on banking activity from the perspective of the evolution of economic results before and after the transaction and showed that bank mergers determine an increase of bank profitability. Egger and Hahn (2010) who demonstrated that the finalizing of the acquisition process determines a positive impact on bank profitability and a neutral one on efficiency, and Huizinga et al. (2001) showed that the cost efficiency of banks is positively influenced by the acquisition process, and the return on profit is improved only marginally.

Vennet (2002) based on a sample of 422 local credit institutions and 70 cross border acquisitions in Europe over a period during 1988 and 1993 showed that both the local M&A operations and the cross border ones generated the significant improvement of bank efficiency.

Another category of studies analyses the impact of the announcement regarding the merger or acquisition on the market value of the credit institutions involved. DeLong (2003) and Cybo-Ottone and Murgia (2000) showed that the

announcements regarding the merger or acquisition have a positive impact on the market value of the credit institutions involved.

3. METHODOLOGY AND DATA USED

The purpose of the current analysis is to determine the impact of bank acquisitions on the economic results and the market value of the credit institutions. The specificity of the analysis requires us to use the following methods: a) for the target banks we determined in the first stage the technical efficiency of banks, and in the second stage we analyzed the impact of the acquisition process on efficiency; b) for the bidder banks we analyzed the impact of the announcement regarding the acquisition on the market value of the bank's shares using the event study methodology.

In the performed analysis we considered the main bank acquisitions that had as object credit institutions that activate in Central and Eastern Europe during 2001 – 2008. In Table 13 the banks and events used in the performed analysis are presented.

Table 13 *Banks and events used in the analysis*

Bidder Country	Bidder	Target	Target Country	Acquisition Year
Austria	Erste bank	Erste Bank Hungary	Hungary	2004
Austria	Erste bank	Slovenska sporitel'na as	Slovakia	2001
Austria	Erste bank	BCR	Romania	2005
Italy	Unicredit	UniCredit Bank Hungary Zrt	Hungary	2007
Italy	Unicredit	UniCredit Banka Slovenija	Slovenia	2005
Germany	Allianz Bank	Allianz Bank Bulgaria	Bulgaria	2003
France	Credit Agricole	Emporiki Bank – Bulgaria EAD	Bulgaria	2006
Italy	Intesa San Paolo	CIB Bank Ltd-CIB Bank Zrt	Hungary	2007
Italy	Intesa San Paolo	Vseobecna Uverova Banka a.s	Slovakia	2001
Sweden	SEB	SEB Pank	Estonia	2005
USA	Citigroup	Bank Handlowy w Warszawie S.A.	Poland	2001
Portugal	Millennium	Bank Millennium Polonia	Poland	2003
Austria	Raiffeisen	Tatra Banka	Slovakia	2005
Hungary	OTP Bank	OTP Banka Slovensko	Slovakia	2002
Hungary	OTP Bank	OTP banka Hrvatska	Croatia	2005
France	Societe Generale	Kommerki banka	Czech Republic	2001
Greece	Egnatia Marfin	Marfin Bank	Romania	2008
Belgium	Dexia Bank	Dexia banka Slovensko	Slovenia	2001

3.1 Determining the technical efficiency of banks

In the analysis of the efficiency of the banks involved in an M&A operation we will use the DEA Method (Data Envelopment Analysis). The DEA method is a non-parametrical method for linear programming used for creating the efficiency frontier and for evaluating the efficiency of a decisional unit.

In the analysis of the efficiency of banks we started from the hypothesis that banks perform a financial intermediation activity through which a set of inputs is transformed into a set of outputs and that the production function specific to banks is a function characterized by variable returns to scale (Banker, Charnes and Cooper, 1984) which can be written as:

$$
\begin{aligned}
& \min_{\lambda} \; z_0 = \theta \\
& \text{with the condition} \quad : \\
& \sum_{j=1}^{n} \lambda_j y_{rj} \geq y_{r_0}, r = 1,2,..,s \\
& \theta_0 x_{i_0} - \sum_{j=1}^{n} \lambda_j y_{ij} \geq 0, i = 1,2,...,n \\
& \sum_{j=1}^{n} \lambda_j \leq 1 \\
& \lambda_j \geq 0, j = 1,2,...,n
\end{aligned}
\tag{1}
$$

where: θ_0 – technical efficiency to be estimated of the decisional unit;

λ_j – a n-dimensional constant to be estimated;

y_{rj} – volume of the r-type output afferent to unit j;

x_{ij} – volume of the i-type input afferent to unit j;

r –output type;

i –input type;

j – decisional unit

The result of the model (1) represents technical efficiency. The units with the efficiency level $\theta_j < 1$ are relatively inefficient and those with $\theta_j = 1$ ar relatively efficient units and they are positioned on the efficiency frontier.

For the determining of the level of efficiency according to the DEA methodology we used the variables presented in Table 14:

Table 2.

<div align="center">Table 14 Variables used in determining bank efficiency</div>

Variable name	Variable description
Inputs	
Fixed assets	Accounting value of the fixed assets owned by the bank in mil. EUR;
Personnel expenses	Total value of the personnel expenditures in mil. EUR;
Financial capital	Equity + borrowed funds.
Outputs	
Loans;	Total value of the credits granted to clients in mil. EUR;
Financial investments.	Total value of the investments made by the bank in mil. EUR

3.2 Determining the impact of the acquisitions operations on the technical efficiency of banks

In the second stage we analyzed the impact of the acquisition operations on the technical efficiency score at the level of the target banks analyzed during 2001-2008. The model used in the analysis is described in the following equation:

$$DEA = \alpha + \beta_{1it} \times ACI + \beta_{2it} \times EQ\_TA + \beta_{3it} \times LLP + \beta_{4it} \times LIQ + \beta_{5it} \times LIB + \beta_{6it} \times FIN\_INT + \beta_{7it} \times GDP + \beta_{8it} \times IIR + \varepsilon \qquad (2)$$

where: DEA – technical efficiency of the banking activity;

ACI – acquisition index;

EQ_TA – capital structure (Equity/total assets);

LLP – Loan loss provisions for non-performing loans (Loan provisions/ total loans);

LIQ – ratio of the liquid assets in total assets (Liquid assets/ total assets);

LIB – Liberalization rate of the banking sector;

FIN_INT – level of financial intermediation;

GDP – gross domestic product growth;

IR – inflation rate;

α – constant;

ε –standard error.

The ACI variable (acquisition index) is built as a dummy variable that takes a value 0 for the years previous to the acquisition and 1 for the years subsequent to the acquisition.

The data concerning the banks used in the analysis are taken from the Annual reports of the banks during 2001-2009 and from the Fitch IBCA`s BankScope database. The information regarding the macroeconomic variables and the ones specific to the banking systems are taken from the databases of the World Bank, European Central Bank and the European Bank for Reconstruction and Development.

3.3 Determining the impact of the announcement concerning the acquisition on the market value of the bank's shares

The quantification of the effect of the acquisition announcement on the market value of the bank that performs the acquisition was made by using the methodology specific to the event study. Stages of an event study are: defining the event and the event window; measuring the stock's performance during the announcement period; estimating the expected performance of the stock during this announcement period in the absence of the announcement; computing the abnormal return and measuring its statistical and economic significance.

The first step in our analysis is to compute the normal returns for each of the bidder banks, during the period (-252, +5). In order to do that we use this formula:

$$R_{it} = \ln\left(\frac{P_{i,t}}{P_{i,t-1}}\right) \tag{3}$$

where: R_{it} – return of bank i at time t

   $P_{i,t}$ – stock price of bank i at time t;

   $P_{i,t-1}$ – stock price of bank i at time t-1;

   $t = -252, -251, \ldots, -1, 0, 1, \ldots, 5$

The normal returns show the real or the actual returns that were registered for the shares of bidder banks. Its values capture de effect that the event had on the share prices. Our aim is to find the difference between these normal returns and the returns that would have been expected in case that no announcement of acquisition initiation had been made.

We use the market model in order to compute the expected returns. According to market model, the expected return E(Rit) is express as a linear function of the returns on a benchmark portfolio of marketable assets Rmt:

$$E(R_{it}) = \hat{\alpha}_i + \hat{\beta}_i R_{mt} \tag{4}$$

where $\hat{\alpha}_i$ and $\hat{\beta}_i$ are the ordinary least squares estimates obtained from regressing R_{it} on R_{mt} over an estimation period preceding the event (-252; -6).

In the formula above R_{mt} is the return on the market at moment t, and usually it's estimated as the return on a broad-based market index. In Table 15 are presented stock market indexes what are used in our analysis.

Table 15 *Stock indexes used within the econometric event study*

Bidder Country	Bidder	Acquisition Date	Bidder Stock Exchange	Stock index
Austria	Erste bank	03.05.2004	Wienna Stock Exchange	ATX 50
Austria	Erste bank	05.01.2001	Wienna Stock Exchange	ATX 50
Austria	Erste bank	21.12.2005	Wienna Stock Exchange	ATX 50
Italy	Unicredit	01.01.2007	Millan Stock Exchange	ALLIE
Italy	Unicredit	01.01.2005	Millan Stock Exchange	ALLIE
Germany	Allianz Bank	13.10.2003	Frankfurt Stock Exchange	CDAX
France	Credit Agricole	16.08.2006	Euronext Paris	CAC 40
Italy	Intesa San Paolo	06.01.2007	Millan Stock Exchange	ALLIE
Italy	Intesa San Paolo	21.11.2001	Millan Stock Exchange	ALLIE
Sweden	SEB	11.04.2005	Stockholm Stock Exchange	AFGX
USA	Citigroup	01.03.2001	New York Stock Exchange	NYSE
Portugal	Millennium	02.04.2003	Lisbon Stock Exchange	ALLPE
Austria	Raiffeisen	01.05.2005	Wienna Stock Exchange	ATX 50
Hungary	OTP Bank	04.04.2002	Budapest Stock Exchange	HUNAL
Hungary	OTP Bank	02.03.2005	Budapest Stock Exchange	HUNAL
France	Societe Generale	01.10.2001	Euronext Paris	CAC 40
Greece	Egnatia Marfin	01.05.2008	Athens Stock Exchange	ATHEX
Belgium	Dexia Bank	01.01.2001	Euronext Bruxelles	ALLBF

Furthermore, we will obtain the abnormal returns as the difference between the normal returns and the expected returns for each of the bidder banks in our sample..

$$Ab_t = R_t - E(R_t) \tag{5}$$

where: t = -5, -4, …, 0, …, 4, 5

The abnormal returns express the influence that the announcement of acquisition initiations has on the share prices of each bidder banks, in each of the days in our event window. We also used Cumulative Abnormal Return (CAR), because it helped us indicate a pattern in which the stock reacts to the event. CAR has the following formula:

$$CAR_t = \sum_{t=-5}^{+5} Ab_t \tag{6}$$

Following Brown and Warner (1985), we calculate the statistical significance as follows:

$$t = \frac{CAR}{\sqrt{T} * S} \tag{7}$$

where:

$$S = \sqrt{\left(\sum_{t=-252}^{t=-6} (\overline{AR_t} - A\tilde{R})^2 / 246\right)}$$

$$\overline{AR_t} = \frac{1}{N_t} \sum_{j=1}^{N_t} AR_{jt}$$

$$A\tilde{R} = \frac{1}{247} \sum_{t=-252}^{t=-6} \overline{AR_t}$$

The daily data regarding the market price of the shares of the buying banks and the values of the stock indexes used in the analysis are taken from DataStream database.

4. EMPIRICAL RESULTS OF THE ANALYSIS

The starting point of our analysis is represented by the descriptive analysis of the data used in the study.

Table 16 *Descriptive analysis of the variables used in the analysis*

	DEA	DUM	EQ_TA	LLP	LIQ	LIB	FIN_INT	GDP	IR
Mean	0.89	0.61	10.52	31.66	33.69	3.66	49.75	4.50	5.80
Median	1.00	1.00	8.67	9.45	30.44	3.67	49.73	5.02	4.65
Maximum	1.00	1.00	61.20	522.38	81.77	4.00	106.24	11.19	34.47
Minimum	0.53	0.10	4.35	-76.08	3.95	2.67	12.99	-14.08	-0.08
Std. Dev.	0.14	0.49	7.01	68.51	18.81	0.34	17.85	4.12	4.35
Observations	110	110	110	110	110	110	110	110	110

By comparing the average values depending on the provenience state, we observe major differences at the level of technical efficiency of the target banks. The most performing banks are, on average, the banks in the Czech Republic, and the least efficient ones are the banks in Croatia. Also, there can be noticed a positive trend for the analyzed period, on average the technical efficiency of the target banks has increased during 2001 – 2009 with more than 11%.

Table 17 *Evolution of the technical efficiency of the acquired banks*

YEAR	DEA	Country	DEA
2001	0.8587	Bulgaria	0.8961
2002	0.8834	Czech Republic	0.9959
2003	0.8908	Croatia	0.8565
2004	0.8686	Estonia	0.9376
2005	0.9143	Poland	0.921
2006	0.9502	Romania	0.8986
2007	0.9515	Slovakia	0.9024
2008	0.9528	Slovenia	0.9326
2009	0.9731	Hungary	0.9302

The regression analysis of the impact of the acquisition operation on the levels of technical efficiency quantified through the DEA method was performed by using the ordinary least squares method (OLS). In view of testing the robustness of the analysis we used the step-by-step method, more precisely we inserted in stages each category of independent variables.

Table 18 *Pearson correlation coefficients of the variables of the model*

	DEA	ACI	EQ_TA	LLP	LIQ	LIB	FIN_INT	GDP	IR
DEA	1.000	0.093	-0.025	0.133	-0.234	-0.035	0.271	-0.200	-0.188
ACI		1.000	-0.341	0.191	-0.107	0.304	0.399	-0.130	-0.309
EQ_TA			1.000	-0.093	0.022	-0.122	-0.415	0.035	0.237
LLP				1.000	-0.211	0.126	0.268	-0.514	-0.008
LIQ					1.000	0.070	-0.568	0.191	0.201
LIB						1.000	-0.033	-0.063	-0.103
FIN_INT							1.000	-0.443	-0.355
GDP								1.000	0.093
IR									1.000

The correlation coefficients presented in Table 18 show us that there is no multi-colinearity between the variables used in the regression analysis.

Table 19 *Determining factors of the technical efficiency*

Dependent variable Technical efficiency			
Model	**1**	**2**	**3**
C	0.856151***	0.791204***	1.046577***
	(0.016599)	(0.048056)	(0.318275)
ACI	0.050206**	0.080352***	0.082274*
	(0.021817)	(0.027661)	(0.043081)
EQ_TA		-0.002065	-0.001134
		(0.002225)	(0.002580)
LLP		0.000378**	0.000207
		(0.000189)	(0.000260)
LIQ		0.001779**	0.001097
		(0.000880)	(0.001358)
LIB			-0.049499
			(0.001934)
FIN_INT			-5.11E-05
			(0.000314)
GDP			-0.002283
			(0.005546)
IR			-0.007927**
			(0.003845)
R-squared		0.325637	0.420131	0.494106
Adjusted R-squared	0.240753	0.323487	0.310720
S.E. of regression	0.118608	0.112721	0.116612
Sum squared resid	2.011702	1.448477	1.087875
Log likelihood	125.6098	113.1931	97.81073

Dependent variable Technical efficiency			
Model	1	2	3
F-statistic	3.836228	4.347171	2.694344
Prob(F-statistic)	0.000003	0.000000	0.000263
Method	OLS	OLS	OLS

Note: Standard deviations are presented between brackets.
*, **, *** indicates significance levels at 10%, 5% and 1%

From the analysis of the t-statistic test and of the probability associated to it, which shows us if the considered coefficients are significant from a statistical point of view, from the alternative models considered results that the bank acquisition operations have a positive impact on the technical efficiency of the target banks. Thus the acquisition of banks determines an increase of the technical efficiency of those banks.

Table 20 *The impact of the announcement regarding the acquisition on the daily rates of return of the shares of the buying banks*

Day relative to event	AAR	T-stat	Cumulative Abnormal Returns	AR significant? 5%	AR significant? 10%
-5	-0.38%	-0.0849	-0.38%	no	no
-4	-0.16%	-0.0359	-0.54%	no	no
-3	0.24%	0.0541	-0.30%	no	no
-2	-0.06%	-0.0127	-0.36%	no	no
-1	-0.40%	-0.0892	-0.76%	no	no
0	0.21%	0.0473	-0.55%	no	no
1	-0.17%	-0.0370	-0.71%	no	no
2	0.48%	0.1078	-0.23%	no	no
3	-0.42%	-0.0939	-0.65%	no	no
4	0.04%	0.0094	-0.61%	no	no
5	0.20%	0.0445	-0.41%	no	no

The analysis of the impact of the announcement regarding the acquisition on the market value of the shares of the buying banks by using an event study shows the fact that in each of the 18 cases the initial hypothesis that there are no abnormal rates of return of the shares cannot be rejected, so the acquisitions do not determine significant changes of the market value of the bidder banks.

5. CONCLUSIONS

The performance of the bank activity constitutes a very important element in the analysis of the financial systems, especially of the developing countries, at the level of which the banking system represents the main component of the financial

system and which has known in the past years major mutations at the level of the shareholding structure as a result of privatization, of the entry of foreign banks and of the increase of competition determined by the liberalization of the market and the legislative changes. The financial sector has suffered significant mutations in the past decade, at a global level the financial markets being strongly influenced by internationalization and concentration, phenomenon that lead to the diversification of the bank products portfolio, the traditional activities of attracting deposits and grating credits occupying a second place.

Currently the banking systems in Central and Eastern Europe are dominated by the presence of some bank groups such as Société Générale, Unicredit Group, KBC, Erste, Raiffeisen, IntesaSanPaolo, OTP, SwedBank, CitiGroup, SEB, NBG, Commerzbank, ING and Nordea which entered these markets, especially, by acquiring local banks. The value of the cross border M&A in the banking sector in Central and Eastern Europe has increase significantly during 1990-2007.

In our research we studied the impact of the bank acquisitions on the economic results and the market value of the credit institutions involved in these operations. In this sense we analyzed the impact of the acquisition process on efficiency for the target banks and the impact of the announcement regarding the acquisition on the market value of the shares of the bidder banks.

The results of the performed analysis showed that the bank acquisitions determine the improvement of the level of technical efficiency of the target banks, and the results of the event study shows the fact that bank acquisitions do not determine significant changes of the market value of the shares of the bidder banks. Thus we can say that bank acquisitions have an ampler impact on the target banks.

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US AND THAI ADVERTISING:
A CROSS CULTURAL ANALYSIS

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Abstract: *With the Internet, international marketing has taken on a whole new meaning; however, the decision to standardize or adapt advertising messages remains a perplexing one for marketers around the world. Therefore, the purpose of this study was to determine the degree of standardized advertising in print advertisement across different cultures.*

Content analysis was used to measure the degree of standardization in print advertisement for self-image projective products. The sample consisted of 63 advertisements from Elle magazine (U.S. and Thai editions) in specific categories of product including perfume, women's apparel, cosmetics, jewelry and accessories.

Results affirm the assertion that no one global strategy fits all nations and all product categories equally. Brand managers should standardize where possible, and customize when necessary to manifest a more local taste and meaning and continue to exercise vigilance in their communication strategies in foreign markets to ensure the best results for their brands.

Keywords: *standardization, advertising, international, culture, localization, marketing*

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1. INTRODUCTION

Due to the growth of the Internet, international marketing has taken on a whole new meaning. However, the decision to standardize or adapt advertising messages remains a perplexing one for marketers around the world. Some experts

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argue that the existence of globalization has homogenized people's tastes while others believe that globalization has highlighted the differences between cultures (Melewar & Vemmervik, 2004).

Globalization theorists suggest that increased trade and improved communication technologies are bringing about increased levels of global integration between cultures (Giddens, 1990; Tomlinson, 1997). Standardized global advertising plays an integral part in the growth of global marketing (Culter & Javalgi, 1992; Kaynak, 1989; Plummer, 1986); however, for multinational companies, successfully adopting a global marketing strategy necessitates the evaluation of the effectiveness of a standardized campaign (Melewar & Vemmervik, 2004; Samiee, Jeong, Pae & Tai, 2003).

After over four decades of debate, the issue of advertising standardization versus adaptation has not resulted in a clear conclusion (Melewar & Vemmervik, 2004). A number of deficiencies are apparent in the literature that lacks a succinct definition of a standardized advertisement and, the fact that, standardization and adaptation schools take such extreme positions (Melewar & Vemmervik, 2004). Previous research indicated that the practice of total standardization was the exception rather than the rule in global advertising (Harris & Attour, 2003). As a result, many models were developed to obtain information regarding advertising standardization practices in different markets worldwide (Harris & Attour, 2003).

Yet, those from these two schools failed to recognize that there is a middle ground that is far more successful in reaching international markets often called "glocalization" (Melewar & Vemmervik, 2004). This strategy recognizes differences in cultures yet provides a foundation for cost savings in international advertising (Melewar & Vemmervik, 2004; Watson, Lysonski, Gillan & Raymore, 2002). Glocalization is a combination of standardization and adaptation and has been employed by multinational companies with substantial success (Roland, 1995).

Given the relatively unsettled state of this debate, the purpose of this study was to determine the degree of advertising standardization in print advertisements across different cultures. Specifically, the study explored detailed and precise comparisons between print advertisements for perfumes and cosmetics in different global markets for the same brands. Furthermore, the study was intended to provide information about international advertising practices that would enable marketers to better advertise self image projective products in different cultures.

Specifically, the objectives of the study were:

1. To determine whether print advertisements in Thailand and the United States are standardized cross culturally, in practice;

2. To obtain detailed and precise comparisons between print advertisements of self-image projective products employed in Thai and American magazines; and,

3. To determine the degree of advertising standardization in print advertisements of self-image projective products in Thailand and the United States.

2. METHODOLOGY

Whitelock and Chung (1989) used content analysis to measure cross-cultural standardization of print advertisements. The benefit of print advertising is that they can be evaluated over time as was the purpose of the present study. According to Whitelock and Chung (1989, p. 298), "This had advantage of ensuring that the advertisements compared were intended for recognizable, measurable and similar target markets in different cultures." As mentioned previously, Seitz and Johar (1993) also employed Whitelock and Chung's (1989) methodology in their analysis of perfumes, cosmetics and apparel advertising in women's magazines. Hence, in the present study Whitelock and Chung's (1989) instrument was used in the comparison of advertisements of apparel, perfumes, cosmetics, jewelry and accessories in women's magazines.

2.1 Instrument

The modified Model for Testing Advertising Standardization developed by Whitelock and Chung (1989) was used for analyzing print advertisements in Thai and U.S. magazines. The instrument assessed, examined, and analyzed the differences in pictures, size, color, general layout, caption slogan, and explanatory text of the advertisements. Advertisements in *Elle* magazine of women's apparel, cosmetics, perfumes, jewelry and accessories were used in determining the differences and similarities between American and Thai cultures.

The Model for Testing Advertising standardization proposed by Whitelock and Chung (1989) was used. A score was given for each difference in the picture, size, color, general layout, caption, and explanatory text.

1. Picture – first and the most important was comparing the picture in the two magazines. If the picture in the two magazines was different, the advertisement was considered totally non-standardization and given a maximum score of ten.

2. Size – the difference in size of the advertisement was given a score of one.

3. Color – the difference in color was given a score of one.

4. General layout – the difference in general layout was given a score of one.

5. Caption – there were three cases if the advertisement had a different caption. If the caption was different, but the language was the same, a score of one was given. If the caption was different with the language appropriate to the country, a score of two was given. If the caption was written in the language appropriate to the country and the meaning was different, a score of three was given.

6. Explanatory text – as with the caption, the same guidelines pertained to the explanatory text. If the explanatory text was different, but the language was the same, a score of one was given. If the explanatory text was translated in the country's own language, a score of two would be given. If the explanatory text was translated and the meaning was different, a score of three would be given.

The highest score for differences in the size, color, general layout, caption and explanatory text was nine. Finally, the degree of standardization of the advertisement came from subtracting the sum of the scores from the number ten.

The Degree of Standardization equaled 10 minus the sum of the scores; hence, the value of ten was a case of total standardization. On the other hand, a value of zero was a case of no standardization at all.

2.2 Population and Sample

Publications from both the United States of America and Thailand were used covering the same 12 months period from February 2006 through January 2007. In the United States, *Cosmopolitan, Glamour, Vogue* and *Elle* are popular and influential magazines that focus primarily on fashion and beauty and are aimed at women in their 20s and 30s (Frith, Cheng, and Ping, 2004). In Thailand, the editions of *Cleo* topped the list, followed by *Elle*, while *Lisa* and *Cosmopolitan* shared third place in circulation figures (Amnatcharoenrit, 2004). As a result, *Elle* magazine was considered the most appropriate magazine for the study since it was popular in both countries and had local editions in each country.

The sample consisted of 63 advertisements from *Elle* magazine from the U.S. and Thai editions that were subsequently compared. Moreover, all 63 advertisements were in specific product categories including perfumes and cosmetics. The products were chosen because they focused on similar needs for beauty among a shared audience (Whitelock & Chung, 1989). Moreover, high touch products such as perfumes and cosmetics are relatively culture free, so ads for these products can be more easily standardized (de Mooij, 1998). Those brands chosen for the study were

based on the number of months that the advertisements appeared in each country's local editions.

3. RESULTS AND DISCUSSION

For Perfumes – There were 10 different perfume brands that appeared in both Thai and U.S. editions of Elle magazine. Table 21 shows that the standardization scores for advertisements among perfumes ranged between seven and ten with a mean score of 8.9. Differences were found in the size, text, layout, color and caption.

Table 21 *Standardization Scores for Perfumes*

Brand	Variables for comparison											
	Picture	Size	Color	Layout	Caption	Translated	Meaning	Text	Translated	Meaning	Total	Degree of Standardization
Armani Code from Armani		1									1	9
Euphoria from Calvin Klein		1									1	9
Hypnose from Lancome											0	10
Burberry Men				1							1	9
Burberry Women											0	10
Lacoste			1		1						2	8
Pure White from Estee Lauder								1	1		2	8
Youth Dew from Estee Lauder		1		1				1			3	7
Prada			1								1	9
Vera Wang											0	10
Total	0	3	2	2	1	0	0	2	1	0		

Advertisements for Armani Code and Euphoria from Calvin Klein were featured in two page spreads in U.S. editions, but appeared in one page in Thai editions. Hence, the score for these advertisements was nine. In U.S. editions, samples were attached to the advertisements, so readers were able to experience the perfume. Advertisements for Lancome's Hypnose were totally standardized in each country's edition, therefore the score was 10 (Table 22).

There were two perfume advertisements from Burberry, one for their men's fragrance and one for women's. Advertisements for Burberry for men were different in the layout with the background pictures different in both Thai and U.S. editions. The resulting score was nine. Advertisements for Burberry for women were totally standardized for each country's edition, therefore the score was 10.

Advertisements for Lacoste perfume were highly standardized. Differences were found in the caption and color. Captions were written in English in both editions; however, the text was different. The words forming the captions differ to some extent. Also, the background color was slightly different with the blue shade appearing warmer in U.S. editions. The score for the advertisements was eight.

Two perfumes from Estee Lauder were advertised in both Thai and U.S. editions. Advertisements for Pure White were different in regards to the caption. In the Thai ads, the caption was translated in the country's own language; hence, the score was eight. Another perfume from Estee Lauder was Youth Dew. In the advertisements, differences were found in the size, layout and caption. First, the advertisement appeared across four pages in U.S. editions, but in two page spreads in Thai editions. Due to differences in the size, the layout of the advertisement also varied. In Thai editions, the product was presented in the same page with the model while the product was presented on a different page in U.S. editions. Moreover, the explanatory text was added giving all store locations in the country in Thai editions. The final score was seven for this comparison, the lowest in this product category.

As with other perfume advertisements, advertisements for Prada were highly standardized with a score of nine. The only difference was found in the color. The color of the product was purple in Thai editions but yellow in U.S. ones. Advertisements for Vera Wang perfume were totally standardized and, thus, given the score of 10.

For cosmetics, nine advertisements were chosen for comparisons. There were three products from Clinique, three from Lancome, one from Estee Lauder, one from Chanel and one from Christian Dior. Table 22 shows the mean standardization scores for these brands. The data in this table shows very different results than was noted for perfumes. Most of these brands were different in the two ads on a number of variables thus resulting in a mean standardization score of 4.67.

Table 22 *Standardization Scores for Cosmetics*

Brand	Picture	Size	Color	Layout	Caption	Translated	Meaning	Text	Translated	Meaning	Total	Degree of Standardization
Clinique 3-step		1		1				1	1		4	6
Clinique Mascara					1			1	1	1	4	6
Clinique Foundation		1		1	1	1		1	1		6	4

Brand	Variables for comparison											
	Picture	Size	Color	Layout	Caption	Translated	Meaning	Text	Translated	Meaning	Total	Degree of Standardization
Lancome Le Rouge		1		1	1	1		1	1		6	4
Lancome Mascara		1	1	1	1	1	1	1	1		8	2
Lancome Renergie			1	1	1	1		1	1		6	4
Chanel Rouge Allure			1	1	1	1					4	6
Estee Azuree			1					1			2	8
Dior Capture		1		1	1	1	1	1	1	1	8	2
Total	0	5	4	7	7	6	2	8	7	2		

Three products from Clinique were cited: the 3-step skin regime, their mascara and foundation. Advertisements for Clinique's 3-step (Cleanse, Exfoliate, Moisturize) were different in the size, layout and text. Advertisements appeared in two page spreads for U.S. editions, but in one page for Thai ones. As a result, the layout also varied. For U.S. editions, some detailed pictures were added in the foreground such as bubbles alongside the products and in the background with dabs of the skin cream. For Thai editions, the explanatory text was on the same page with the products. Moreover, in Thai editions, the explanatory text was translated, but had the same meaning. The resulting score was six.

Advertisements for Clinique's mascara were different in the explanatory text and caption. In Thai editions, the text was translated in the country's own language and it had a different meaning. Additionally, the caption was different, but it was not translated into Thai. The degree of standardization resulted in a score of six for the advertisements.

Advertisements for Clinique foundation were highly localized. Differences were found in the size, layout, caption and explanatory text. The advertisements varied in the size from one (Thai) to two (U.S.) page spreads. Due to the difference in the size, the layout was affected. The caption and explanatory text were on the same page with the product in Thai editions. Moreover, the caption and text were also different. Both were translated into country's language of Thai, but the meaning was the same. The resulting score for the advertisements was four.

There were three advertisements for Lancome for comparison. Advertisements for Lancome "La Rouge Absolu" lipstick were different in the size, layout, caption and text. The advertisements were two page spreads in Thai editions, but one page

for U.S. versions. The picture and layout were the same; however, the picture covered two pages in Thai editions. The layout varied with additional products (three lipsticks in different colors) presented in U.S. editions. The caption and explanatory text were translated for Thai editions, but the meaning remained the same. The resulting score was four.

For Lancome "L'extreme" mascara, differences were found in the size, color, layout, caption and explanatory text. Advertisements were on one page for U.S. editions, but in two pages for Thai editions. Further, the picture color was different. The picture appeared in blue in Thai editions, but in black in U.S. editions. Because of the page difference the layout varied. The picture was the same in both editions. However, the picture in Thai editions, the mascara was placed in the water to illustrate that it was waterproof. As well, the caption was translated in the country's own language and had a different meaning. Yet the text was also translated in Thai editions, but it had the same meaning as U.S. editions. The standardization score for this comparison was two.

Advertisements for Lancome "Renergie" skincare were quite different from other advertisements. The advertised products were in different formulations. In Thai editions, the product was lotion whereas U.S. editions featured a cream. Differences were also found in the layout, color, caption and explanatory text. The background color varied for the two countries, in white for U.S. editions while in purple for Thai editions. As well, the background graphic was in different pattern. Further, the caption and explanatory text were translated in the country's own language; however, the meaning was the same. The score for advertisements was four.

Advertisements for Chanel "Rouge Allure" lipstick varied regarding the layout, color and caption. In U.S. editions, the picture of advertisements showed the whole lipstick. On the other hand, in Thai editions only the lipstick portion was shown. As well, the color of the lipstick varied with a brighter red featured for Thai editions. The caption was translated into Thai, but the meaning was the same as the U.S. advertisements. The degree of standardization totaled six.

Advertisements for Estee Lauder "Azuree" lipstick were highly standardized. Differences were found in the color and explanatory text. The advertisements in both editions had the same picture; however, the color of the picture was different. For U.S. editions, the background color was dark blue and the model's skin color appeared darker. On the other hand, the same advertisement was featured in Thai editions, but the background color was light blue, and the model's skin color was lighter. The explanatory text was also different; however, they were both written in

English. For Thai editions, additional text was added to advertisements providing all store locations in the country. The total score was eight.

Advertisements for Christian Dior "Capture" skincare were highly localized. Differences were found in the size, layout, caption and explanatory text. The size varied from one page advertisements in U.S. editions to two page spreads in Thai editions. The difference in the size of advertisements affected the layout of advertisements. The product, caption and text were on the same page with the model for U.S. editions while these elements were on different pages for Thai editions. Moreover, the caption and text were different. For Thai editions, both were translated in the country's own language and had different meaning. The score for this advertising comparison was two.

4. DISCUSSION AND IMPLICATIONS

The results of this study show that advertisements for perfumes were highly standardized (8.9) while cosmetics were highly localized (4.9). These results were concurrent with the previous findings by Seitz and Johar (1993), whereby, perfume advertisements were more highly standardized than cosmetics.

Regarding differences within the product category, results indicated that about 70% of cosmetics advertisements differed in the caption and explanatory text. Moreover, most of these ads were translated in the country's own language. This could be due to the nature of the products. Cosmetics and skin–care products do not speak for themselves and require explanation to communicate their attributes to consumers. When advertising cosmetics, marketers must provide information about the products' benefits to readers that vary culturally.

Perfume advertisements were highly standardized. However, most advertisements for perfumes in U.S. editions were bigger in size than those in Thai editions. Moreover, it was common for U.S. editions to provide samples of perfumes attached to the advertisements. This enabled readers to experience the fragrance and encouraged trial.

Today, many companies market their products and brands to global consumers, so advertisers must be concerned with presenting a global brand image. According to past research and findings from the present study, self image projective product advertisements may be more easily standardized because they focus on universal needs for beauty and love among consumers (Murcotte, 1986, de Mooij, 1998). Moreover, fashion products such as perfumes and cosmetics have culturally transcendent meanings (at least for the segments identified) and, hence, qualify for

standardized advertising consideration (Domzal & Kernan, 1993). For example, it is possible for advertisers to employ global advertising using the standardization strategy for perfumes because the brand name is primary importance. Thus, explanation text and caption are not needed. Perfumes however, differ from skin-care products because, as mentioned above, they speak for themselves and do not need any explanation to communicate their attributes to consumers (Whitelock & Chung, 1989).

Moreover, studies show that it is possible for advertisers to use a global language (English) for the multinational advertising. According to Paek and Pan (2004), the likelihood of employing global language in copy and western models in advertisements in Thailand was relatively high. The reason is that the target market is usually well educated, upscale, accepts Western models, and is comfortable with English when choosing a western magazine (Paek & Pan, 2004). Moreover, advertising agencies in Thailand are likely to be owned by western multinationals but employ local staff (Punyapiroje et al., 2002).

Advertisers are not always aware of the differences in product categories. The use of standardized approaches differs across product categories. Advertisers must be sensitive when creating advertisements for apparel since fashion represents women's desire for love and beauty; however, their interpretation is not the same across cultures. Advertisers should consider a different advertising strategy with apparel because it is not a reflection of universal themes but more of individual desires (Seitz & Johar, 1993). Advertisers might standardize advertisements using the same models and layout, but also localize them using apparel styles familiar to that market.

With respect to cosmetics, advertisers are able to employ highly standardized advertisements to maintain a unified brand image. However, some modifications to captions and explanatory texts are necessary. Brand and product name were the most common ways to standardized, but headline, body copy and slogan were often localized because language and differences in nuance (Nelson & Paek, 2003). Advertisers must consider customizing these attributes in the local language since consumer needs differ in each country.

This study affirms the assertion that no one global strategy fits all nations and all product categories equally. These findings show brand managers standardizing where possible, and customizing when necessary to manifest a more local taste and meaning. Therefore, marketers must continue to exercise vigilance in their communication strategies in foreign markets to ensure the best results for their brands. As with international advertising, the internet and the employment of social media presents an opportunity for brands to communicate with their target market.

Findings suggest that for some product categories a single site or a single "facebook" page would suffice to build brand equity and engage consumers. However, for cosmetics brand managers should consider the unique needs of consumers in each country by providing language options along with varying product offerings and pricing options.

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RELIGION, FREEDOMS AND WEALTH

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Abstract: *In the specific literature, religious diversity has received important attention. The present study contributes to the literature of economics of religion by examining the impact of religious freedom and other specific variables of freedom (like economic freedom, political freedom and civil liberties) on the Gross Domestic Product per capita PPP. Following Alon and Chase (2005), in the sections that follow we develop a rationale as to whether the selected variables of freedom, including the religious one, should affect Gross Domestic Product per capita PPP and, then, discuss the results and their importance.*

Keywords: *Religious freedom, Economic freedom, Political rights, Civil liberties, GDP per capita*

JEL Codes: *Z1, O11.*

INTRODUCTION

A question arises naturally and directly, in the conditions under which religion transcends all social, economic and geographic barriers, decisively influences the human action and its associated institutions. We define, therefore, the economy as "individual rationality", an attempt to reach the highest level of satisfaction and usefulness for a given amount of knowledge. Today, religion can and should still be relevant and present in people's lives and their communities. The role of religion in the globalist era is not and must not be minimized as individuals, by their very nature, seek answers and balance that only religion can offer.

In this article we have focused on particular aspects of religion in society, especially on religious freedom, trying to figure out whether or not the degrees of pluralism and freedom affect the individual economic performance. The results

would tell us different results that will lead us to confirm two competing theories in such field. The first, maybe the most known one, comes from Max Weber (1930) and it was called the secularization paradigm, which streeses that higher the economic growth process, the lower religious rates would be recorded in a society and stronger the government's role would be. The other controversial theory belongs to Adam Smith: it postulates that when "a society becomes more religiously diverse, the different religions compete and the consumer/believer gets a better religion product, thereby stimulating more interest in religion as the belief systems are made more and more appealing."(Dolansky, Alon 2008)

In this direction, we can argue an explicit point of view based on both competing theories. In many societies, we are witnesses of a recrudescence of religious pluralism as an important source of societal differentiation (Warner, 1993) and a reflex act of religious freedom. This means that in full postmodernist era or even post-postmodernist one, when societies tend to be more multicultural, the secularization of religion conducted to a even more liberal religious market which allowed new denominational entrances to strongly compete for new adherents. (Voas, Olson and Crockett 2002). Also, a paradox appears especially in Europe, where the number of countries with governments favor religion is high. (Branas-Garza, Solano 2007)

We use indexes of freedom (religious, political and civil) because it should be clear that economic freedom is not the same with political freedom or civil liberty. In this sense, political freedom is about the way in which governments and other representatives are chosen in a specific country, especially through the allowance of the eligible individuals to express in a free way their choose to vote a legal party and a coalition, to compete for a public stage, to join a political party or everything it is necessary to fund a democratic structure of power. Civil liberty is concerned about the fundamental rights, protected by law, of all individuals against the tyranny of the government or other interference to free assembly in associational and organizational structures, freedoms of speech, press, religious belief and the rule of law.

THE EPISTEMOLOGY OF RELIGION AND FREEDOM

Iannaccone (1994) stressed that religion could be conducted in a private way, but it is merely a good produced collectively. Recent theories emphasize religion as an important component of social capital (Sacerdote, Glaeser 2001; Gruber 2005).

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That is why religion is not just a superstition or an element "derivative of something else", but has profound implications for a community's economic structure. Such a thesis can be sustained by at least one main reason. One very important one is based on the assumption, brilliant demonstrated in the specific literature (Sombart 1911, Weber 1930, Laumann 1969, Inglehart, Baker 2000) that religion (and its traditions) have historically shaped the national culture of different societies and even the social expectations. That is why, Lavoie and Chamlee-Wright (2000) emphasized that religion has its basis in culture.

Other prominent researchers such as Huntington (1996); Landes (1999); Barro and McCleary (2003); Jan Luiten van Zanden (2009); Niall Ferguson (2011), even Hofstede (1980, 1988, 1991), have suggested that culture, in which religion is the basic component, is an important input or at least it can explain the economic growth along history.

In respect to religious freedom and pluralism, there are two main competing theories regarding this topic. Some theories consider that religious fractionalization (even with high religious freedom index, but not in a general way) has a negative impact towards the complex process of economic growth because, from a social capital point of view, religiously fragmented societies have lower stocks of social capital, which lead to less-trusting societies. The alternative approach theorizes another perspective by which the greater the diversity in the form of a "melting pot" a society may encourages, the more it can stimulate the economic development (Rupasingha, Chilton 2009). Adam Smith stated that established churches may conduct to lower levels of religious participation and it may contribute to negative or poor economic performance.

Johnson and Lenartowicz (1998) have shown that, trying to draw a pattern between cultural values, economic freedom and growth, the importance of some cultural variables like Uncertainty Avoidance and Individual Autonomy was undeniable. What it was really interesting and, also, intriguing in this model, seemed to be the necessity of the economic freedom variable as the bridge-component in order to find a strong relationship between cultural values and economic growth.

In another approach, Easterly and Levine (1997), trying to explain the diversity and heterogeneity of public policies, found that this complex view have profound cultural determinants, not only the technical ones. In this direction, the higher the ethnic diversity, a social element in close relation with religion, the slower the economic growth would be, especially in terms of low education, political freedom, unefficient financial system and foreign exchange markets, high government deficits and poor infrastructure. These authors stressed that high ethnic

fragmentation is equivalent with rent-seeking behavior and a reduction of consensus for public goods, the result being the lack of economic performance over long-run periods of time.

A MODEL OF FREEDOMS AND GROWTH

In our paper, the variables we consider for correlation are these, using the methodology of Alon and Chase (2005) and trying to determine the impact of different types of freedoms on individual prosperity for a cluster of 38 countries:

- Religious freedom;
- Economic freedom;
- Political rights (index);
- Civil liberties (index);
- GDP per capita in terms of PPP (Purchasing Power Parity).

In the most scientific literature and in this paper too, all selected variables were logarithmically transformed in order to reduce heteroscedasticity and to convert the regression coefficients into elasticity measures. Religious freedom, Political rights and Civil liberties indexes were inverted (1/X), so a positive number of regression coefficient means a direct relationship between the freedom variables and the dependent variable.[1]

For a sample of 38 countries (Argentina, Austria, Belarus, Belgium, Brazil, Bulgaria, Colombia, Chile, Egypt, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Indonesia, Iran, Ireland, Japan, Latvia, Lithuania, Malaysia, Mexico, Moldova, Morocco, Netherlands, Norway, Poland, Romania, Russia, Saudi Arabia, South Korea, Spain, Sweden, Ukraine, UK, USA), we used EarthTrends Institute's measure of Religious freedom, Political rights index and Civil liberties index. All these liberty variables were expressed with a value from 1 to 7, the lowest means the highest degree of freedom in a specific pattern. Another important feature is about the aggregate indexes we used. For exemple, the Economic freedom index is composed by 10 sub-indexes like business freedom, trade freedom, fiscal freedom, monetary freedom, investment freedom, financial freedom, property rights, freedom from corruption and labor freedom. Also, data on GDP per capita PPP were obtained from International Monetary Fund.

The dependent variable in all the regressions is GDP per capita in PPP. Table 23 shows the correlation matrix for our freedom's variables. As we can see, between

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[1] Ilan Alon, Gregory Chase, Religious Freedom and Economic Prosperity, Cato Journal, Vol. 25, No. 2, Spring/Summer, 2005, pp. 400

the dependent variable and the freedom's variables there is a strong correlation. The highest value is recorded for the correlation between GDP per capita PPP and Civil liberties index (0,884094). The lowest correlation is between Religious freedom and Political rights index (0,591333). Also, we can understand that between Religious freedom, Economic freedom, Political rights index and Civil liberties index there is strong correlations which mean that these freedoms are highly interconnected. There is a strong affinity between GDP per capita PPP and Religious freedom (0,662181), Economic Freedom (0,644283), Political rights index (0,725647) and Civil liberties index (0,698597), which demonstrates a highly related relationship between freedoms and wealth per capita in terms of PPP.

Table 23 *Correlation Matrix (Pearson correlation coefficients)*

Variables	Religious freedom	Economic freedom	Political rights index	Civil liberties index	GDP per capita PPP
Religious freedom	1				
Economic freedom	0.609512	1			
Political rights index	*0.591333*	0.713762	1		
Civil liberties index	0.638624	0.699202	0.884094	1	
GDP per capita PPP	0.662181	0.644283	0.725647	0.698597	1

Source: Output obtained in SPSS 17

Further, following Alon and Chase (2005), we present the results for five alternate model specifications between Religious freedom, Economic freedom, Political rights, Civil liberties and GDP per capita in terms of PPP. As we can see, in all regressions the F Sig. is significant, which demonstrates that all models (A, B, C, D and E) have important explanatory features. Also, in table 24, the increased evolution of adjusted R-squared emphasizes an improvement of the model by the new explanatory factors along model A to model E, from 35% in the first case to 46% when we take into account the last model E.

Table 24 *Regression Models*

	Model A	Model B	Model C	Model D	Model E
Intercept	-2.33356 (-0.88)	10.595*** (53.06)	2.957 (0.880)	5.802 (1.587)	5.726 (1.579)
Economic freedom	2.908*** (4.57)		1.759** (2.277)	1.072 (1.264)	1.094 (1.302)
Religious freedom		0.817*** (4.626)	0.508** (2.358)	0.245 (0.948)	0.313 (1.320)
Political freedom				0.156 (0.449)	0.346* (1.756)

	Model A	Model B	Model C	Model D	Model E
Civil liberties				0.264 (0.675)	
Adj. R^2	0.35	0.36	0.42	0.45	0.46
F Sig.	5.58E-05	4.69E-05	2.54E-05	8.28E-05	2.71E-05

Source: Output obtained in SPSS 17

Following the interpretation of results by Alon and Chase (2005), we will discuss the output from table 24 and their importance for our research.

Model A, a simple regression model, displays a comparison between ln GDP per capita in terms of PPP, as a dependent variable and ln (natural logarithm) Economic freedom, as an independent one. The coefficient has a positive sign (2,908) and is statistically significant (F Sig. is less than 0,01). This means that the growth of GDP by 2.9 percent is caused by the increase of the variable Economic freedom by 1 percent.

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-2.334	2.654		-.879	.385
	log_Econ_freed	2.908	.637	.606	4.568	.000

a. Dependent Variable: log_GDP

Source: Output obtained in SPSS 17

Model B, a simple regression model, stresses another link between ln GDP per capita in terms of PPP, as a dependent variable and ln Religious freedom, as an independent one. Also in this case the coefficient has a positive sign (0,817), highly significant (F Sig. is less than 0,01). This means that the growth of Religious freedom by 1 percent determines the growth of GDP by almost 0.82 percent.

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	10.595	.200		53.062	.000
	log_Relig_freed	.817	.177	.611	4.626	.000

a. Dependent Variable: GDP_PPP

Source: Output obtained in SPSS 17

Model C is a multiple regression model that combines two main independent freedom variables, ln economic freedom and ln religious freedom, which may influence the dependent one, ln GDP per capita in terms of PPP. Both variables have a statistically significant influence in the model, the proof being the positive signs. This new combination increases the adjusted R-squared from 35-36 percent to 42 percent in this case, which is a proper demonstration that, taken together, these two

variables can explain better the wealth per capita. All other variables being constant, the growth of GDP per capita in terms of PPP by 1,76 percent is caused by the increase of Economic freedom by 1 percent. In the same conditions, GDP per capita PPP increases by 0,5 percent in the case of a growth of Religious freedom by 1 percent.

Coefficients[a]

Model		B	Std. Error	Beta	t	Sig.
		Unstandardized Coefficients		Standardized Coefficients		
1	(Constant)	2.957	3.360		.880	.385
	log_Relig_freed	.508	.215	.380	2.358	.024
	log_Econ_freed	1.759	.773	.366	2.277	.029

a. Dependent Variable: GDP_PPP

Source: Output obtained in SPSS 17

Model D is another multiple regression model which is composed by of all the freedom variables we have tested. While the adjusted R-squared increases to 45 percent, the variables are not statistically significant (the Sig. values are greater than 0.05). Also, the values of VIF for Civil rights are 8,456 and for Political rights are 7,414, very high, which may mean a problem with multicollinearity.

In model E, we have removed the variable Civil liberties in order to correct the problem with multicollinearity. Economic freedom and religious freedom are insignificant, while Political freedom is at 10 percent level (Alon, Chase 2005).

Coefficients[a]

Model		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
1	(Constant)	5.802	3.656		1.587	.122		
	log_Relig_freed	.245	.259	.183	.948	.350	.400	2.499
	log_Econ_freed	1.072	.848	.223	1.264	.215	.480	2.085
	log_Political	.156	.346	.150	.449	.656	.135	7.414
	log_Civil	.264	.392	.240	.675	.505	.118	8.456

a. Dependent Variable: log_GDP

Source: Output obtained in SPSS 17

As we can see in table 24, the size of the coefficients for our variables is very useful statistic information. First, the elasticity of religious freedom varies from 0,508 in model C to 0,817 in model B, while the average of this variable is 0.47. This means that 1 percent increase of religious freedom means 0,47 percent growth of GDP per capita PPP. Second, the impact of the economic freedom is within minimal limit of 1,072 in model D and maximal one of 2,908 in model A. On average, the coefficient for this variable is 1,70, which means that 1 percent increase of economic freedom determines the growth of GDP per capita in terms of PPP by 1.70 percent.

The same analysis is insignificant for Political rights and Civil liberties variables. In conclusion, the economic freedom variable is about 3.6 times higher than religious freedom in terms of individual wealth impact over time.

CONCLUSIONS

In this article we have focused on particular aspects of religion in society, especially on religious freedom, trying to figure out whether or not the degrees of pluralism and freedom affect the individual economic performance.

Trying to determine the impact of different types of freedoms on individual prosperity for a cluster of 38 selected countries, we have made, following Alon and Chase (2005), five alternate model specifications between Religious freedom, Economic freedom, Political rights, Civil liberties and GDP per capita in terms of PPP.

As we can see in table 24, the size of the coefficients for our variables (Economic freedom, Religious freedom, Political freedom and Civil liberties, GDP per capita PPP) is very useful statistic information.

This article advances the idea that greater freedom (especially the religious one) and liberty, the more individual wealth will be stimulated. Analyzing and interpreting them, we can conclude that the economic freedom variable is about 3.6 times higher than religious freedom in terms of individual wealth impact over time. But, what it seems extremely interesting and even intriguing for many is that religious freedom, as cultural bias towards different religious structures and institutions, is an important factor which stimulates the individual wealth.

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INTERNATIONAL REMITTANCES AND INCOME INEQUALITY IN AFRICA[']

John C. ANYANWU[*]

Abstract: *This paper investigates the impact of migrant remittances on income inequality in African countries, using a panel of five eight-year non-overlapping windows for the period 1960-2006. The results suggest that, first, international migrant remittances have a significant positive impact on income inequality in African countries. After instrumenting for the possible endogeneity of remittances, a 10 percent increase in remittances as a percentage of GDP will lead, on average, to a 0.013 percent increase in income inequality in Africa. Second, initial per capita GDP strongly increases income inequality. Third, inflation rate appears to be the strongest factor fueling income inequality in the Continent. Fourth, education significantly reduces income inequality. Fifth, the North African dummy and remittances inflows to North Africa largely reduce income inequality in the sub-region while doing the opposite in Sub-Saharan Africa. The policy implications of these results are discussed.*

Keywords*: International Remittances, Income Inequality, Africa.*

JEL Codes*: D31, D36, F24.*

1. INTRODUCTION

Substantial slowdown in the progress towards reducing income inequality in Africa is expected as a consequence of the global economic crisis. Indeed, the multiple crises of high food and energy prices first, and the most recent global

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economic crisis subsequently, have created significant setbacks. Lower government revenue and income per capita will also lead to lower public and private spending on social services, adversely affecting income distribution. In the African Continent, as in other developing countries, the erosion of employment gains accumulated over the period of strong growth in the past few years has gathered further pace, both in terms of the number of jobs lost and the increase in vulnerable employment. In particular, the collapse of commodity prices forced a number of international mining companies to close, underpinning significant job losses for example in the Democratic Republic of the Congo, Zambia, and South Africa. In the Continent, the labor market picture is further compounded by the decline or delay of new construction projects due to credit crunch and international capital withdrawals, causing negative feed-through effects on the manufacturing and service sectors. Thus, unemployment and underemployment are forecast to increase throughout the developing countries in 2009, with any trend reversal depending on a sustained recovery in the developed economies (UNDESA, 2009a).

In the face of the financial and economic crisis, would international remittances prove to be potent in reducing income inequality, leading to a more egalitarian distribution of income that is necessary for the "take-off" of an equitable growth process? This is the core focus of this paper. The purpose of the paper, therefore, is to examine the impact of international remittances on income inequality in African countries. In the past, a number of studies have examined the effect of international remittances on inequality in specific village or country settings, but we are not aware of any studies which explicitly examine the impact of this phenomenon on income inequality in Africa as a whole (Sub-Saharan Africa (SSA) and North Africa combined). Few studies with marginal reference to SSA use SSA dummies and/or interaction of same with the remittances variable. Two factors seem to be responsible. The first is a lack of income inequality data; it is quite difficult to estimate accurate and meaningful income distribution in a number of African countries as in other developing countries. The second factor relates to the nature of data on international remittances. Available data on international remittances do not include the large (and unknown) sum of remittance monies which are transmitted through private, unofficial channels. As a result of these data problems, a host of key policy questions remain unanswered. Exactly what is the impact of international remittances on income inequality in Africa?

This paper presents empirical evidence of the link between international remittances and income inequality (Gini coefficient) in African countries (Sub-Saharan and North Africa) in the light of the financial crisis. This is done by means

of panel regressions estimated by a two-step (IV) efficient generalized method of moments (GMM) estimation method, using five eight-year non-overlapping windows for the period 1960-2006.

The paper is structured as follows. Section II examines income inequality and inflow and characteristics of international remittances to African countries. Section III provides a brief literature review of the income inequality impact of international remittances. Section IV presents the model and data while section VI discusses the empirical results. Section VII concludes with policy implications.

2. OVERVIEW OF INCOME INEQUALITY AND INTERNATIONAL REMITTANCES TO AFRICA

2.1 Income Inequality in Africa

The rise in economic growth in the last decade in Africa has not translated into an improvement in the distribution of income. As UNDESA (2007) had shown, the share of national consumption going to the poorest quintile of Sub-Saharan African population in 2004 remained unchanged from its 1990 level of 3.4 percent while in North Africa it increased very marginally from 6.2 percent to 6.3 percent. Figure 3 and table 25 show the degree of income inequality as measured by the Gini coefficient for survey countries with latest available data. For the 45 countries in the figure and table, the Gini index ranges from a low of 32.1 in Egypt to a high of 64.3 in Comoros (on a scale of 0 to 100). The data also show that the Southern African sub-region has the least egalitarian income distribution in Africa. Eight countries from the sub-region – Botswana, Namibia, Angola, South Africa, Lesotho, Swaziland, Zambia, and Zimbabwe – rank in the top ten of the most unequal countries in the Continent. Ironically, most of these countries are mineral-producing states where the economic crisis has led to the closure of a number of mines, resulting in large job losses and hence the prospect of worsening the income inequality situation.

Progress towards reducing income inequality in Africa is thus now threatened by sluggish – or even negative – economic growth, diminished resources, fewer trade opportunities for the developing countries, and possible reductions in aid flows from donor nations consequent on the financial and economic crises. The financial and economic crises and high prices for primary commodities have eroded labor markets around the world. The ILO projects that the global unemployment rate in 2009 could reach between 6.3 percent and 7.1 percent. The reduction in employment and income

opportunities no doubt will lead to a considerable slowdown in progress towards reducing income inequality in the Continent.

Unemployment and precarious employment are on the rise, as lower export earnings and government revenue are affecting all economic activity. In addition, economies with large subsistence agriculture sectors that would seemingly insulate them from a global economic downturn are being hit hard, as their cash economies are heavily dependent on a few exports, including niche export industries, such as textiles, cut flowers, vegetables, and tourism.

Indeed, the deepening of the global financial crisis entails a heavy toll on employment worldwide. A rapid rise in the unemployment has been witnessed since 2008 and is expected to worsen in 2009-2010. Initial projections put the rise in unemployment at 50 million over the next two years, but as the situation continues to deteriorate, this number could easily double (ILO, 2009). Lessons from past financial crises indicate that it typically takes four to five years for unemployment rates to return to pre-crisis levels after economic recovery has set in. This is because massive increases in long-term unemployment and greater labor market "informalization"— exacerbated by return migrants and large-scale reverse migration from urban to rural areas—are very difficult to reverse. Thus, higher unemployment rates may persist for some time. If this trend takes root, the negative effects of the crisis will be long-lasting. In Zambia, for example, the mining sector lost 27 percent of its jobs in 2008. Also, each job in the formal sector is reported to support another 20 jobs in services and the wider informal economy (Green, 2009). The potential implications for poverty and inequality are indeed huge.

Worldwide, the number of people living in extreme poverty in 2009 is expected to be 55 million to 90 million higher than anticipated before the global economic crisis, though the impact will vary across regions and countries. In sub-Saharan Africa and Southern Asia, both the number of poor and the poverty rate are expected to increase further in some of the more vulnerable and low-growth economies.

It has been estimated that the crisis could keep 12 to 16 million more people in poverty in Africa (UNDESA, 2009b). However, these estimates underestimate the true poverty impact of the crisis as the distributional consequences of the crisis are not adequately accounted for. Workers at the lower end of the job ladder, including youth and female workers, are more likely to lose their jobs or suffer income losses. In addition, workers are already visibly shifting out of dynamic export-oriented sectors, and either becoming unemployed or displaced to lower productivity activities (including moving back from urban to rural areas).

Estimates by Chen and Ravallion (2009) indicate that the 'triple F' crisis: financial collapse, combined with the food and fuel price crises, would have increased the number of poor by between 53 and 64 million people in 2009, based on estimates of those on less than $2 a day and $1.25 respectively. Also, DFID has estimated that an additional 90 million people will be living on less than $1.25 a day by the end of 2010 (McCord and Vandemoortele, 2009). Unfortunately, there had been a minimal social protection response to the crisis. Thus the combined effects of worsening poverty as a result of the financial crisis, and a weak social protection response set the scene, not only for severe and growing poverty and inequality in the medium and long term, but also for stifled growth when the upturn comes.

Signs of a recovery begun to appear in Africa and economic prospects for many mineral- and oil-exporters look brighter than they were in early 2009, in particular as world market prices of oil, minerals and metals have rebounded notably from the second quarter of the year. While economic conditions vary considerably, almost all African economies still have a long way to go for a return to the high rates of growth achieved during 2002-2007. Huge economic difficulties remain in the two largest sub-Saharan African economies. In Nigeria, the banking system is under severe distress leading to a generalized liquidity crunch and sharp increases in the interbank lending rates during September 2009. In South Africa, manufacturing activity and labor demand remain depressed. To worsen then situation, hunger levels are soaring in East Africa where seven countries have been experiencing a severe and persistent five-year drought.

Tackling the problem of income inequality is important because inequality negatively affects progress toward the Millennium Development Goals (MDGs) and poverty reduction generally; it results in inefficient resource allocation, wasted productive potential and impaired institutional development.
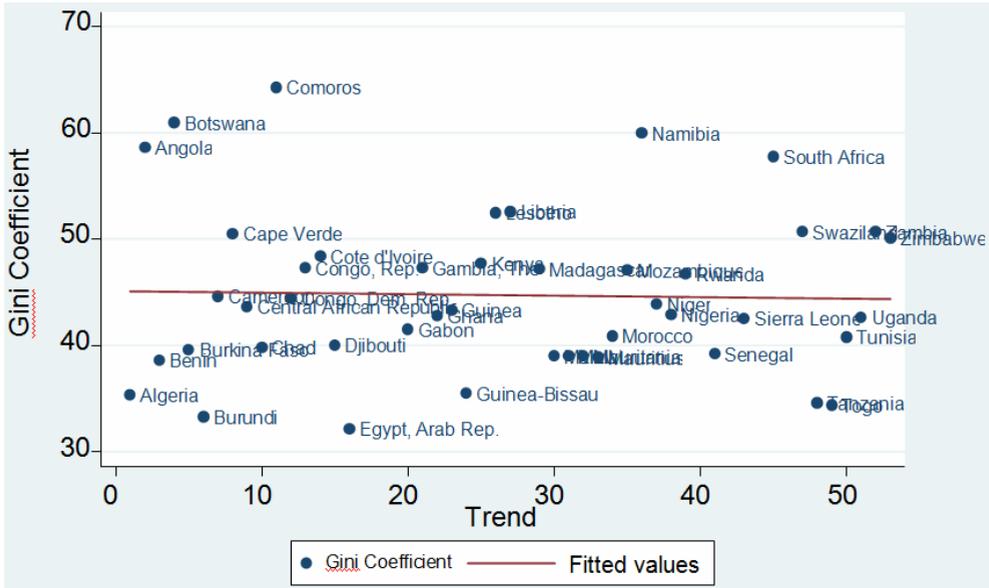
Figure 3 *Scatter Plot of Income Inequality in African Countries*

Source: Author using data from African Development Bank (2009).

Table 25 *Distribution of Gini Coefficients for Selected African Economies*

Range	Countries
30-39	Senegal,, Mauritania, Malawi, Mauritius, Benin, Chad, Burkina Faso, Burundi, Tanzania, Algeria, Togo, Egypt, Mali, Guinea-Bissau
40-44	Congo (DRC), Central African Republic, Ghana, Guinea, Niger, Nigeria, Sierra Leone, Uganda, Gabon, Morocco, Tunisia, Djibouti
45-49	Cameroon, Cote d'Ivoire, Congo Rep, Gambia, Kenya, Madagascar, Mozambique, Rwanda
50-55	Lesotho, Swaziland, Zambia, Zimbabwe, Liberia, Cape Verde
56-60	Namibia, Angola, South Africa
Above 60	Comoros, Botswana

Source: Author from AfDB (2009) data.

2.2 Recent Trends in International Remittances to Africa

Before the advent of the financial and economic crises, international remittances flowing into developing countries had been attracting increasing attention because of their rising volume and their impact on recipient countries (see review in Anyanwu and Erhijakpor, 2009a, 2010). However, the crises had reversed the rising trend. It has been estimated that in 2008, international remittances going to developing countries totaled US$337.8 billion out of the global amount of US$443.5

billion. However, in 2009, the estimations show a fall in global remittances to US$420.1 billion (a 5.3% fall) while the flows to developing countries fell to US$317.2 billion (a 6.1% decline). Though those flows are under-reported, a high proportion of the reported flows went to Africa. Between 2000 and 2008, remittances to the Continent increased by about 263.7 percent, from US$11.2 billion to over US$40.8 billion. Due to the financial and economic crises, the flows to Africa had been projected to fall to nearly US$38.2 billion in 2009 or a 6.3% decline from its 2008 level (Table 26).

As table 26 and figure 4 show, in 2008, East Asia and the Pacific region remains the largest recipient of recorded remittances, followed by South Asia, Latin America and the Caribbean (LAC) region, Europe and Central Asia, Africa (courtesy of favorable North African inflows), and the Middle East, in that order. This reversed the domination by Latin America and the Caribbean (LAC) region in earlier years. In addition, for the first time in many years, remittance inflows to Sub-Saharan Africa dominated those to North Africa (Figure 5). For example, in 2008, flows to North Africa were US$19.7 billion as against US$21.1 billion to Sub-Saharan Africa.
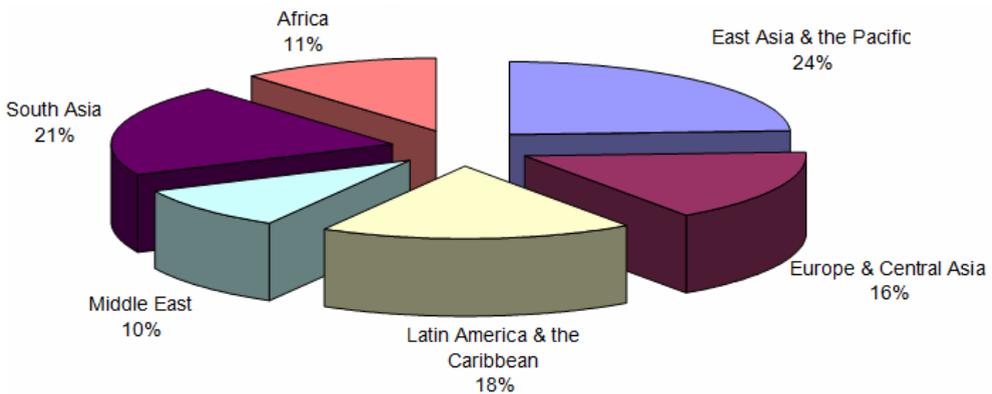
Figure 4 *International Remittances Recipients By Region in 2008 (%)*

Table 26 *Global Flows of International Migrant Remittances (US$ million)*

Region	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009e	% Change (2006-2007)	% Change (2007-2008)	% Change (2008-2009)
All developing countries	82,537	93,122	112,609	140,420	164,370	198,932	235,403	289,376	337,761	317,237	22.9	16.7	-6.1
East Asia and Pacific	15,675	18,757	27,468	32,695	40,336	50,460	57,598	71,309	86,115	84,785	23.8	20.8	-1.5
Europe and Central Asia	12,143	11,647	12,844	14,418	20,955	30,089	37,341	50,777	57,801	49,279	36.0	13.8	-14.7
Latin America and Caribbean	19,987	24,229	27,918	36,609	43,330	50,122	59,199	63,239	64,717	58,481	6.8	2.3	-9.6
Middle-East and North Africa	12,898	14,653	15,211	20,361	23,034	24,958	26,112	31,364	34,696	32,212	20.1	10.6	-7.2
South Asia	17,212	19,173	24,137	30,366	28,694	33,924	42,523	54,041	73,293	71,955	27.1	35.6	-1.8
Sub-Saharan Africa	4,623	4,663	5,030	5,970	8,021	9,379	12,629	18,646	21,139	20,525	47.6	13.4	-2.9
Africa	11,231	12,442	12,948	15,578	19,509	22,479	26,575	36,913	40,842	38,145	38.90	10.64	-6.3
NB: e= Estimated													

Source: Author's Calculations from World Bank (2009).
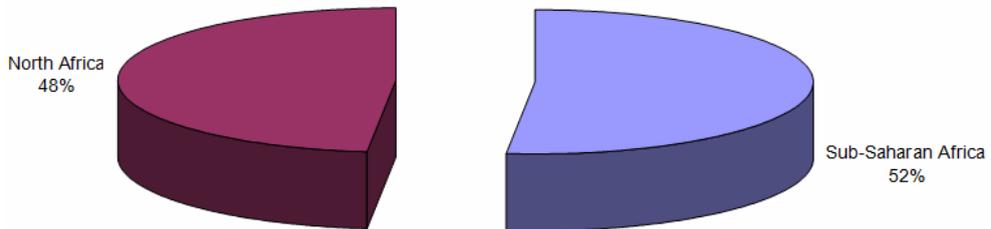
Figure 5 *Africa: Regional Share of International Remittances Receipts in 2008 (%)*

As Figure 6 shows, the top 10 recipients of international remittances in 2008 (in dollar terms) include Nigeria, Egypt, Morocco, Sudan, Algeria, Tunisia, Kenya, Senegal, South Africa and Uganda. As a share of GDP, however, remittances to many of these countries were much smaller in 2008. In contrast, the top recipients in terms of the share of remittances in GDP included smaller economies such as Lesotho and Togo, where remittances exceeded ten percent of the GDP (Figure 7).

3. REVIEW OF RECENT LITERATURE

3.1 Linking the Financial Crisis and Remittances to Household Welfare, Including Income Inequality: A Framework

Figure 8 shows the transmission mechanism of the financial crisis to inequality and poverty. The very first observation of the current crisis is a considerable slowdown or negative growth in the developed economies. Such a slowdown leads to reductions in trade with, and remittances and capital flows to, African countries. In addition, the crisis may cause an external shock to the financial markets in the Continent, especially the few that are more integrated with the global financial system. All these are detrimental to economic growth in Africa. Reduced growth in the Continent, in turn, implies less government revenue and drops in household income. As a consequence, income inequality and poverty incidence rise and the social sectors as a whole are adversely affected.
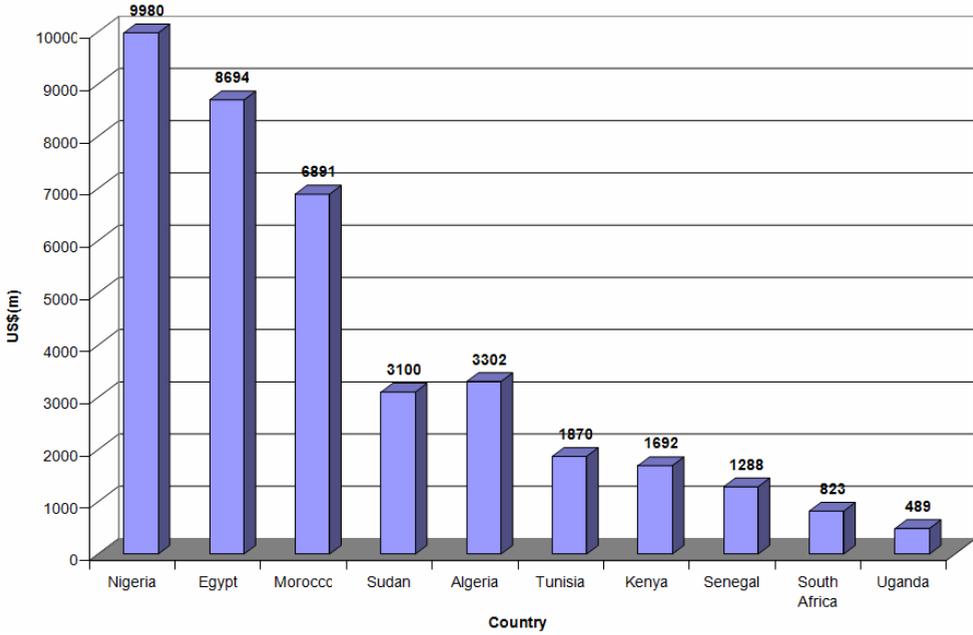
Figure 6 *Top Ten International Remittances Recipient Countries in 2008 (US$ million)*
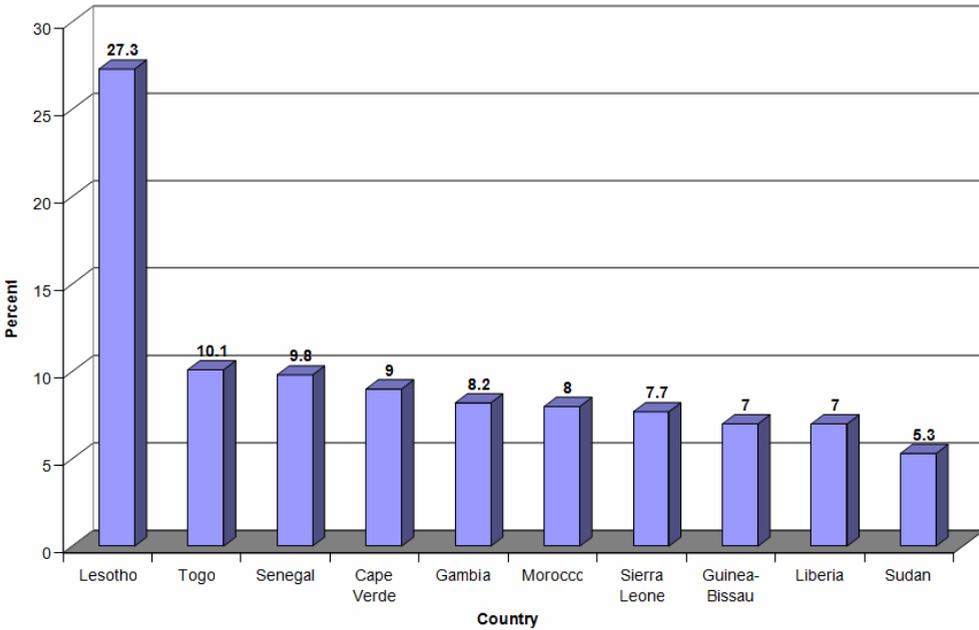
Figure 7 *Top Ten International Remittances Recipient Countries in Africa in 2008 (as % of GDP)*
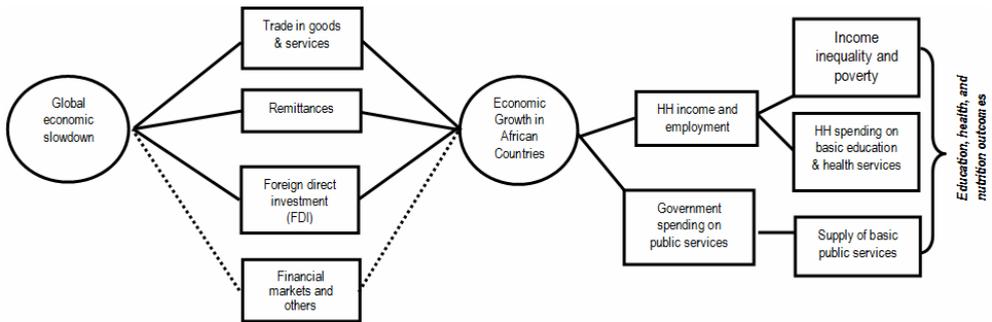
Figure 8 *Transmission mechanism of the current crisis to inequality and other social outcomes*

Source: Adapted from Wan and Francisco (2009).

Also, as the McCord and Vandemoortele (2009) had stated, the financial crisis exacerbates poverty and inequality and undermine progress towards the MDGs. Income inequality and poverty can also be transferred through five key transmission channels that link macro-level shocks to poor people (see also McCord and Vandemoortele, 2009; and Lustig and Walton, 2009): employment; prices; public and private transfers; assets; and access to goods and services. However, how shocks are transmitted through these channels determines who is affected, how deeply, and for how long.

With respect to remittances, in the literature, there are two contrasting views regarding the effects of international remittances on the economy of the labor-sending country: the optimistic view and the pessimistic view. The first one views remittances as mechanisms for economic development while the latter, on the other hand, perceives remittances as an "illness" that weakens the economy (Cattaneo, 2005). Following Capistrano and Sta Maria (2007), the beneficial and detrimental effects of migration and overseas remittances can be classified using three perspectives: at the macro or national level, at the community level and at the household level. At the macro/national level, one of the most significant benefits of the inflows of remittances to a country is that they increase the foreign exchange earnings of the labor exporting country (Ratha, 2003; Pernia, 2006).

In addition, workers' remittances exert a positive impact on the balance of payments of many developing countries as well as promote economic growth, through their direct effects on savings and investment (human and physical capital) and indirect effects through consumption (Cattaneo, 2005; World Bank, 2008) (see Figure 8). Studies such as those of Hanson and Woodruff (2003) and Cox-Edwards

and Ureta (2003) have found evidence for "forward" linkages between remittances and human capital formation in Latin America. Also, Ratha (2003) had suggested that remittances that raise the consumption levels of rural households might have substantial multiplier effects because they are more likely to be spent on domestically produced goods. However, as for countries with low GDP remittance receipts can distort the functions of formal capital markets and also destabilize exchange rate regimes through the creation of parallel currency markets (Chimhowu, Piesse and Pinder, 2003).

International remittances can also indirectly promote community development through spillover mechanisms. First, increased consumption of migrant households can generate multiplier effects. If recipient families increase their household consumption on local goods and services, this will benefit other members of the community through the increase in demand which stimulates local production, thereby promoting job creation and local development. Second, remittances are also found to prop up formation of small-scale enterprises, thereby, promoting community development. International remittances ease credit constraints by providing working capital for the recipients to engage in entrepreneurial activities. This results in job creation and enhancement of the development of the remittance-receiving community (Woodruff and Zenteno, 2001). Third, remittances, especially through migrant associations, may also contribute to the creation of new social assets and services and community physical infrastructures such as schools, health centers, roads and other community projects (Ghosh, 2006; Sorensen and Pedersen, 2002). Lastly, and on the negative side, international remittances are found to increase income inequality, especially for the rural dwellers (see, for example Ravanilla and Robleza, 2003; Agunias, 2006; Capistrano and Sta Maria, 2007).

At the household level, international remittances increase family incomes, thus raising consumption of both durable and non-durable goods and/or savings. Indeed, in Africa, remittances are part of a private welfare system that transfers purchasing power from relatively richer to relatively poorer members of a family. They reduce poverty, smooth consumption, affect labor supply, provide working capital, and have multiplier effects through increased household spending. For the most part, remittances seem to be used to finance consumption or investment in human capital, such as education, health, and better nutrition (Lopez-Cordova, 2004; Hildebrant and McKenzie, 2005; Adams, Cuecuecha and Page, 2008).

Remittances may also serve as capital for starting businesses. Thus, international remittances generally raise the immediate standard of living of their recipient families. However, this will only hold true for all households if families

engage in wise expenditures. Therefore, the benefits that will be derived from these remittances will depend on how and where the families spend them. Indeed, although remittances provide households with considerable benefits, there are also substantial economic and social costs associated with it. On the economic side, international remittances, as pointed out by Bridi (2005), do promote idleness on the part of the recipients. Chami et al (2005) argued that migration and associated remittances may create a moral hazard problem, inducing disincentives to work among migrant household members (see also Azam and Gubert, 2006). On the social side, Rodriguez (2000) had argued that remittances have, quite apart from increased family tensions within households but also with migrants.

3.2. Empirical Literature on the Impact of International Remittances on Income Inequality

The empirical literature has shown that international remittances have mixed impact on income inequality at origin (Rapoport and Docquier, 2005). For example, Stark, Taylor and Yitzhaki (1986 and 1988) analyzed household data from two Mexican villages, one with a relatively recent Mexico-to-U.S. migration experience, and one with a longer history of migration. They found that the income distribution impact of international remittances strongly depends on the village's migration history, which in fact captures the magnitude of migration costs. They also showed that income dispersion reduced when migrants' remittances were considered in both villages, but more so in the second village, characterized by a longer migration tradition. From these results, the authors concluded that "the effect of remittances on inequalities over time depends critically upon how migration-facilitating information and contacts become diffused through the village population. If contacts and information are not household specific, that is, if there is a tendency for them to spread across household units, then receipt of remittances by households at the lower end of the income distribution is likely to occur. According to them, this would erode and possibly reverse any initially unfavorable effects of remittances on income inequality. Along similar research lines, Milanovic (1987) also tested for the possibility of such a "trickle down" effect using panel data from the 1973, 1978, and 1983 Yugoslavian household surveys. He found no empirical support for this hypothesis; rather, his results showed that international remittances tend to raise inequality. However, their effects differed over the periods and social categories considered – in fact, it was mainly for agricultural households that an inequality-enhancing effect was found.

Noting that migrant workers would otherwise be working and earning income at home, Adams (1989) predicted what income would have been without remittances in a sample of three villages in Egypt. His results show that the inclusion of international remittances worsens inequality. On the other hand, in another study of four districts in Pakistan, Adams (1992) concluded that international remittances have neutral impact on the rural income distribution. Also, Taylor (1992) and Taylor and Wyatt (1996), using a sample of 55 households from one part of Michoacan in Mexico, found that that international remittances reduce inequality. This was so because international remittances translated into greater increases in income for rural households with illiquid assets. Thus, by allowing poorer households access to credit, international remittances also finance the accumulation of productive assets, increasing future income. Such indirect effects of international remittances equalize incomes, apart from the direct immediate increase in income. The author concluded that international remittances can indeed ease credit constraints for liquidity constrained households, thus reducing income inequality. Further, Barham and Boucher (1998), using data from three neighborhoods in Bluefields, Nicaragua, found that when international remittances are treated as exogenous they would lead reduce income inequality, but when treated as a substitute for home earnings, they increase income inequality.

According to Stahl (1982) and Lipton (1980) migration is likely to increase rural inequality because only relatively better-off households were able to finance a member's search for better employment in urban areas or abroad. Likewise World Bank (2007) found that migration patterns in East, European and former Soviet Union countries are such that richer households receive greater remittances than do poorer household.

In addition, McKenzie and Rapoport (2004), using two survey data sets from Mexico found that at high levels of migration prevalence, migration leads to a reduction in inequality, with asset inequality declining more than consumption or income inequality; while, for the communities with a more diverse migration experience, migration increases inequality at lower levels of migration stock and then reduces inequality as one approaches the higher levels of migration.

Taylor et al (2005), utilizing data from the Mexico National Rural Household Survey, explored the impacts of remittances on rural inequality and poverty. Their findings suggest that remittances from international migrants become more equalizing (or less unequalizing) as the prevalence of migration increases.

Also, using a 2005/06 household survey to analyze the impact of internal remittances (from Ghana) and international remittances (from African and other

countries) on poverty and inequality in Ghana, Adams (Jr), Cuecuecha, and Page (2008) found that both types of remittances increase income inequality in Ghana. In particular, for households with internal remittances, the inclusion of remittances causes income inequality to rise by 4 percent, and for households with international remittances, the inclusion of remittances causes income inequality to increase by 17.4 percent.

However, Koechin and Leon (2006), found that as migrant communities form a close networks in a foreign country, the cost of migration falls and remittances no longer reinforce inequalities in the recipient country. Other localized studies have concluded that remittances tend to improve the welfare of poorer rural households (Stark and Taylor 1989; Adams, 1991).

In relation to inequality, McKenzie (2006) studied Mexican data, using a sample of 214 municipalities with a population less than 100,000. As suggested by the migration literature, he noted that during the early stages of migration, inequality in a community increases, but this effect is reversed as migration opportunities become available to a wider section of the population. The impact of migration was large with a one-standard deviation increase in migration prevalence being associated with a 0.5 standard deviation improvement in the Gini coefficient.

Also, Yang and Martinez (2006) examined the effects of remittances upon poverty and inequality indicators in the Philippines. The authors use a set of linked household surveys and a sample of 26,121 households. They exploited a unique natural experiment, the major exchange rate shocks during the Asian crises, which provided them with an instrument that isolated the net impact of remittance flows on the outcome variables. The study found that the effect on the inequality indicator was not statistically significant.

Acosta et al (2007) conducted a cross-country analysis to explore how remittances are contributing to poverty in the Latin America and the Caribbean. The study used a different econometric approach which allows them to estimate the separate effects of remittances on two determinants of poverty: the average income growth and the degree of income inequality. The results have suggested that remittances exert a positive and significant effect on income growth and cause a slight reduction in inequality. In another recent study by Acosta, Calderon, Fajnzylber, and Lopez (2008), based on ten Latin American countries, the authors found that international remittances have negative, albeit relatively small, inequality-reducing effects, even after imputations for the potential home earnings of migrants.

In another recent study, Wouterse (2009) used data from four villages in Burkina Faso to compare the marginal effects of remittances from intercontinental

and intra-African migration on inequality, poverty, and social welfare and found that intra-African remittances reduce inequality while intercontinental remittances have the opposite effect. In the same vein, Gubert, Lassourd and Mesplé-Somps (2009), using a 2006 household survey in Mali, showed that remittances reduce poverty rates by 5 percent to 11 percent and income inequality by about 5 percent. In another recent study, Giannetti, Federici, and Raitano (2009) found that, apart from Slovenia, where income inequality increased, the inclusion of income from remittances reduced income inequality. However, the magnitude of the reduction of income inequality is very small, possibly because of the low share of recipient households. At any rate also in Hungary (where the share is 12.8 percent) the income inequality decreasing effect of remittances is very low.

In the rest of the paper, we investigate the direct income inequality-reducing impact of international remittances in the face of the financial crisis, using five eight-year non-overlapping windows for the period 1960-2006.

4. THE MODEL AND DATA: IMPACT OF REMITTANCES ON INCOME INEQUALITY IN AFRICA

The methodology employed is a modified version of that presented in Ernst and Escudero (2008) and Rancière et al. (2007) and the empirical works of Clarke et al (2006), Meschi and Vivarelli (2009), and Anyanwu and Erhijakpor (2009b, 2010). To capture the effects of financial crisis, existing studies have often used *ad hoc* assessments of crises and their lengths based on idiosyncratic interpretation of the data. In this study, instead, we follow a new methodology and use the skewness of the growth of real bank credit to the private sector as a *de facto* measure of systemic-risk or leading financial crisis indicator in the domestic African economy. The three moments (the mean, the standard deviation (volatility), and the skewness) of leading indicator are used to measure the effect of the financial crisis.

The purpose of this paper therefore is to present empirical evidence of the link between international remittances and income inequality (Gini coefficient) in African countries (Sub-Saharan and North Africa) in the light of the financial crisis. This is done by means of panel regressions estimated by a two-step (IV) efficient generalized method of moments (GMM) estimation method, using five eight-year non-overlapping windows for the period 1960-2006.

The following equation has been estimated:

$$g_{it} = \alpha_i + \beta_1(\mathrm{Re}\,m_{it}) + \beta_2(MBkCr_{it}) + \beta_3(VolBkCr_{it}) + \beta_4(SkBkCr_{it})$$
$$+ \beta_5(X_{it}) + \varepsilon_{it}\,(i = 1,...., N; t = 1,....., T),...............(1)$$

Where g is the gini coefficient in country i at time t; α_i is a fixed effect reflecting time differences between countries; β_1 is the elasticity of income inequality with respect to international remittances as a percent of GDP; β_2 is the elasticity of income inequality with respect to mean bank credit growth (MbkCr); β_3 is the elasticity of income inequality with respect to volatility of bank credit growth (VolBkCr); β_4 is the elasticity of income inequality with respect to the skewness of bank credit growth (SkBkCr); and X is the control variables, including initial per-capita GDP (in logs), the initial ratio of secondary schooling, the inflation rate, the ratio of government consumption as a percentage of GDP and a measure of trade openness (X+M / GDP). Regional dummies are also included and interacted with international remittances as percent of GDP. The variables are in logs. Table 27 provides detailed descriptions of the raw dataset while table 28 presents the variable definitions and data sources.

Before proceeding to the regression analyses, it is instructive to present bivariate relationships between key variables using simple scatter plots. Figures 7 show clear and unambiguously positive relationship between international remittances and income inequality in Africa.

Table 27 *Descriptive Statistics of Regression Variables*

Variable	Observations	Mean	Median	Standard Deviation	Range
Gini coefficient	71	45.07	43.45	8.92	45.43
International Remittances	147	6.22	1.34	23.69	257.42
Initial secondary schooling	96	31.46	23.69	23.83	105.31
Initial GDP per capita	226	811.34	366.51	1127.72	6770.93
Real credit growth	184	7.72	6.77	12.29	97.54
Government consumption	232	16.26	14.84	7.24	51.08
Inflation rate	192	41.36	7.87	289.99	3722.11
Trade openness	235	67.84	58.8	35.09	231.13

Note: These are raw data.

Source: Authors' Calculations.

Table 28 *Definitions and sources of variable used in the regression analysis*

Variable	Definition	Source
Gini coefficients	Measure of income inequality	PovcalNet database (available at http://iresearch.worldbank.org/PovcalNet/jsp/index.jsp and World Development Indicator (2007)

Variable	Definition	Source
International remittances as % of GDP	International remittances-GDP ratio	World Development Indicator (2007)
Initial GDP per capita	Initial value of ratio of total GDP to total population (in logs). GDP is in 2000 constant US$	World Development Indicators (2007)
Initial secondary schooling	Ratio of total secondary enrolment to the population	World Development Indicators (2007)
Real credit growth	Annual growth rate of real domestic bank credit claims on the private sector	IMF's IFS – line 22: Claims on Private Sector. Domestic bank credit claims are deflated with end of the year CPI index
Government consumption	General government final consumption expenditure as a % of GDP. Expressed in logs	World Development indicator (2007)
Inflation rate	Annual % change in CPI	World Development Indicators (2007)
Trade openness	Trade (Exports + Imports) as a % of GDP	World Development Indicators (2009)

Initial data source before additions and transformations – Ernst and Escudero, as used in their 2008 paper.
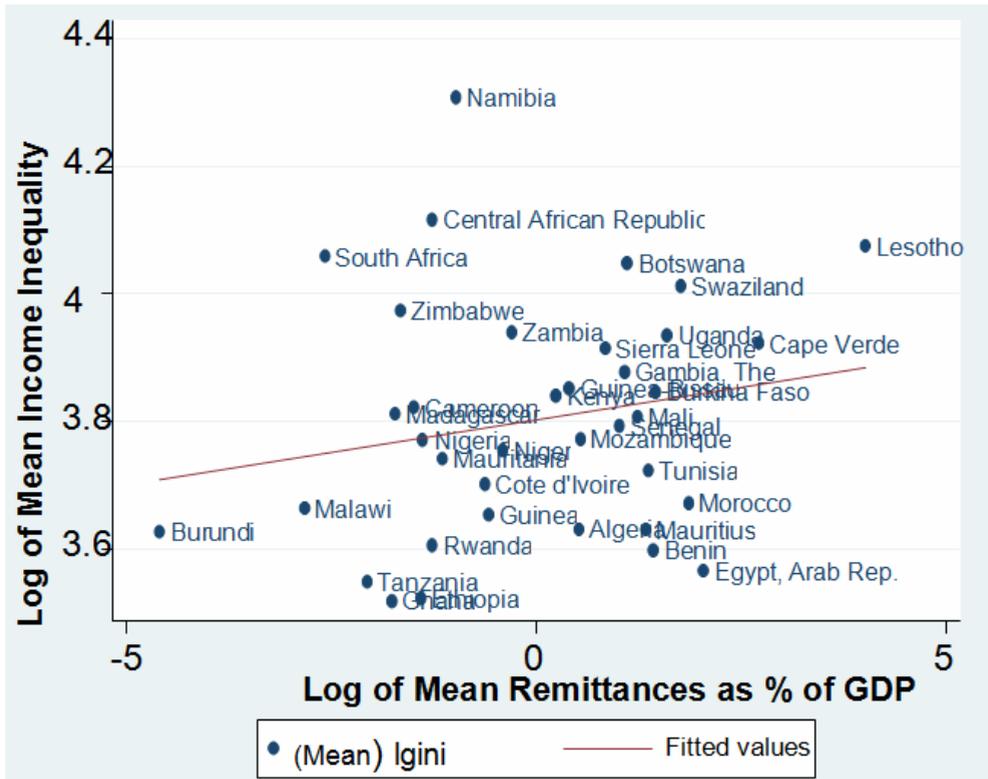
Figure 9 *Scatter Plot of Log of Mean Income Inequality and Log of Mean Remittances as % of GDP*

Source: Author using estimation data.

5. EMPIRICAL RESULTS

5.1 OLS Results

Table 29 shows the results when Equation (1) is estimated using Ordinary Least Squares (OLS). The log transformation of all the variables allows us to interpret the coefficients as elasticities. Sub-regional dummies (North Africa and Sub-Saharan Africa) were introduced to control for fixed effects. The remittance variable has a positive and statistically significant impact on income inequality in Africa. The estimates suggest that, on average, a 10 percent increase in official international remittances as a percentage of GDP will lead to between 0.02 and 0.044 percent increase in income inequality in the Continent. The results show that there is

negative partial correlation between the mean of real bank credit growth and Africa's income inequality and this is consistent with the literature. The results indicate also show that the volatility of real credit growth nor its skewness has significant effect on income inequality in Africa, indicating that the financial crisis has no direct relationship with income inequality in the Continent.

With respect to the control variables, our results show that initial level of per capita GDP, inflation rates and government consumption have significant positive effects on Africa's income inequality. Also, the dummy variable for the North Africa has a strong negative effect on Africa's income inequality – and strongly positive for Sub-Saharan Africa. It is important to note, however, that the finding that higher remittances would lead to higher income inequality in Africa does not hold for all regions of the Continent. Indeed, the interaction term between remittances and the North African dummy shows a strong statistically negative coefficient, indicating that a 10 percent increase in remittances would lead to about 1.6 percent reduction in income inequality in North Africa.

5.2 IV-GMM Results

However, one possible problem with Equation (1) is that it assumes that all of the right-hand side variables in the model—including international remittances— are exogenous to income inequality. However, it is possible that international remittances may be endogenous to income inequality. Reverse causality may be taking place: international remittances may be increasing income inequality, but income inequality may also be affecting the level of international remittances being received.

Without accounting for this reverse causality, all of the estimated coefficients in table 29 may be biased. One way of accounting for possible endogenous regressors is to pursue an instrumental variables approach. Therefore, to deal with this problem, we follow Catrinescu et al (2006), Aggarwal et al (2006), and Anyanwu and Erhijakpor (2010) in estimating the equations instrumentalizing the remittances variable with its first and second lagged levels, using a the two-step (IV) efficient generalized method of moments (GMM) estimation method.

Table 29 *Ordinary Least Squares (OLS) Estimates of the Effects of International Remittances on Income Inequality in Africa*

Variable	(1)	(2)
International Remittances	.044 (3.00***)	0.042 (2.74***)
Bank credit growth	-.459	-.407

Variable	(1)	(2)
	(-1.86*)	(-1.59*)
Bank credit variance	.003	.001
	(.06)	(.02)
Bank credit skewness	.009	-.012
	(0.00)	(-.01)
Initial level of GDP per capita	.084	.075
	(2.31**)	(1.99**)
Initial secondary schooling	-.042	-.045
	(-.94)	(-.98)
Inflation rate	.573	.533
	(1.97*)	(1.76*)
Government consumption	.186	.178
	(2.18**)	(2.00**)
Trade openness	-.082	-.065
	(-1.35)	(-1.04)
North Africa	-.304	
	(-4.05***)	
Remittances*North Africa		-.163
		(-3.46***)
Constant	2.673	2.737
	(0.29)	(0.28)
R-Squared	0.4862	0.4450
Adjusted R-Squared	0.3667	0.3159
F-Statistic	4.07	3.45
Prob>0	.000	.00
N	54	54

Note: ***= 1% significant level; **=5% significant level; *=10% significant level.

Source: Authors' Estimations.

Table 30 shows the first-stage results from the IV-GMM estimations. We conduct and report two tests to show the validity of our instruments. First, we present the F-statistic for weak instruments. This is a test of the significance of our instruments in predicting remittances. The F-statistics is above the critical value, at 1 percent significance, indicating that our estimates do not suffer from a weak instruments problem. Second, we report the Hansen J test of overidenditfying restrictions. The joint null hypothesis in this case is that the instruments are uncorrelated with the error term and that excluded instruments are correctly excluded from the estimated equation. Again, these tests confirm the validity of our instruments.

Table 30 *First-Stage IV-GMM Estimates for International Remittances to Africa*

Variable	Coefficient	Coefficient
Instruments		
First Lag of Inflow of International Remittances (ratio of GDP)	.777 (3.63***)	.775 (3.58***)
Second Lag of Inflow of International Remittances (ratio of GDP)	-.030 (-.17)	-.027 (-.15)
Included exogenous variables	-3.308	-3.48
Bank credit growth	(-1.42)	(-1.51)
	-.266	-.266
Bank credit variance	(-.85)	(-.85)
	19.673	19.729
Bank credit skewness	(1.55)	(1.54)
	-.559	-.543
Initial level of GDP per capita	(-1.55)	(-1.51)
	.346	.366
Initial secondary schooling	(0.97)	(1.03)
	3.448	3.460
Inflation rate	(1.46)	(1.46)
	-.022	-.025
Government consumption	(-.04)	(-.05)
	.352	.326
Trade openness	(.89)	(.83)
	.278	
North Africa	(.58)	
		.130
Remittances*North Africa		(.48)
	-89.487	-89.057
Constant	(-1.73*)	(-1.70*)
N	39	39
Shea Partial R-Squared	0.6857	0.6857
F-Statistics of excluded instruments	29.45***	29.45***
P-value	0.0000	0.0000

Note: ***= 1% significant level; **=5% significant level; *=10% significant level.

Source: Authors' Estimations.

Table 31 present the second-stage IV-GMM results. As for the impact of remittances, we continue to find that they have a positive and significant impact on income inequality in Africa. These results confirm that the positive impact of remittances on income inequality in Africa is not due to endogeneity biases.

Table 31 *IV-GMM Estimates of the Effect of International Remittances on Income Inequality in Africa*

Variable	(1)	(2)
Instrumented Endogenous Variable		
Inflow of International Remittances (ratio of GDP)	.079	0.76
	(4.70***)	(4.60***)
Exogenous Regressors		
Bank credit growth	.153	.357
	(.49)	(1.08)
Bank credit variance	.040	.029
	(1.19)	(.76)
Bank credit skewness	-.446	-.073
	(-.29)	(-.05)
Initial level of GDP per capita	.206	.190
	(5.99***)	(4.84***)
Initial secondary schooling	-.147	-.167
	(-4.66***)	(-4.72***)
Inflation rate	.640	.668
	(2.13**)	(2.21**)
Government consumption	-.046	-.031
	(-.82)	(-.52)
Trade openness	-.013	-.010
	(-.25)	(-.17)
North Africa	-.337	
	(-5.84***)	
Remittances*North Africa		-.184
		(-6.41***)
Constant	1.405	-1.350
	(.23)	(-.21)
Centered R-Squared	0.5992	0.5900
Hansen J Statistic	1.197	0.606
p-Value	0.27388	0.43648
Pagan-Hall Statistic	15.533	17.855
p-Value	1.0000	1.0000
N	39	39

Note: ***= 1% significant level; **=5% significant level; *=10% significant level.

Source: Authors' Estimations.

The IV-GMM results suggest that, on average, a 10 percent increase in official remittances will lead to between 0.076 percent and 0.079 percent increase in income inequality (Table 31), while the OLS estimates suggest that a similar increase in official remittances will lead to between 0.042 percent and 0.044 percent increase in income inequality (Table 29). Indeed, comparing the OLS and IV-GMM estimates

for international remittances (Table 29 and Table 31), we find that the coefficients for the instrumented international remittances variable in table 31 are more positive for income inequality – but all at equal level of 1 percent significance. Considered as a whole, the IV-GMM results suggest that after instrumenting for the possible endogeneity of international remittances, this variable still has a positive and statistically significant impact upon income inequality in Africa. Evaluated at the sample mean, an increase in $1 in instrumented official international remittances (from $6.22 to $7.22) will lead to a 0.013 percent $[(7.22/6.22 – 1)*(+0.079)]$ increase in income inequality.

Financial sector development as represented by private credit as percent of GDP is insignificant, just as in Clarke et al (2006). Again, financial crisis does not appear to have a direct effect on income inequality in Africa. And as in the OLS results, initial level of per capita GDP and inflation rates continue to be significant determinants of income inequality in Africa, conforming to the findings of Ernst and Escudero (2008) and Roine, Vlachos and Waldenström 2009). Initial per capita GDP has a positive and significant coefficient of between 0.190 and 0.206. Inflation rate continues to exact the largest significant positive impact on income inequality, the coefficients ranging between 0.640 and 0.668, indicating the uncertainty represented by inflation. Bittencourt. (2009) has found similar results for Brazil. Another interesting result is that initial secondary education significantly reduces income inequality in Africa, with coefficients of between -0.147 and -0.167. This is in conformity with the findings of Calderon and Serven (2004). Government expenditure and trade openness turned out to have insignificant negative effects. Also, the dummy variable for North Africa is more strongly negative than in the OLS results – and strongly positive for sub-Saharan Africa – on income inequality. In particular, the interaction term between remittances and the North African dummy shows a strong statistically negative coefficient, indicating that a 10 percent increase in remittances would lead to about 1.84 percent reduction in income inequality in North Africa. This agrees with the results of Odedokun and Round (2004).

6. CONCLUSIONS AND POLICY IMPLICATIONS

This paper has used a new five eight-year non-overlapping data for the period 1960-2006 for Africa to examine the impact of international remittances on income inequality in Africa. Some key findings and policy implications emerge. First, international remittances have a strong, statistically significant impact on increasing income inequality in Africa. After instrumenting for the possible endogeneity of

international remittances, a 10 percent increase in official international remittances as a percentage of GDP will lead, on average, to a 0.013 percent increase in income inequality in the Continent. Indeed, the results provide strong, robust evidence of the inequality-increasing impact of international remittances to Africa. Two, initial per capita GDP strongly increases income inequality in Africa. Third, inflation rate appears to be the strongest factor fueling income inequality in the Continent. Fourth, education as proxied by initial secondary schooling significantly reduces income inequality in Africa. Fifth, the North African dummy and remittances inflows to North Africa largely reduce income inequality in the sub-region while doing the opposite in Sub-Saharan Africa.

Our findings point to some key policy recommendations. In particular, remittances-receiving countries of Africa need to develop a strategy to maximize the benefits of remittances while minimizing their negative repercussions. Indeed, a key concern from our findings relates to the inequality-reinforcing impact of migrant remittances. The question therefore arises: Why do international remittances generally increase inequality? The fact that households receiving international remittances are well-off to begin with, coupled with the very large improvements in expenditure that come with the receipt of international remittances, means that the receipt of international remittances raises income inequality. International migration like the adoption of a new production technology entails costs and risks. Given this fact, pioneer migrants tend to come from households at the upper-middle or top of the sending-area's income distribution (e.g., Portes and Rumbaut, 1990; Lipton, 1980), and the income they send home in the form of remittances is therefore likely to widen income inequalities in migrant-source areas. Indeed, as Adams, Cuecuecha and Page (2008) have noted, international remittances have a more negative impact on income distribution because households receiving international remittances are not poor in the first place, and with the receipt of remittances they tend to improve their expenditure status much more dramatically than households receiving internal remittances or those not receiving any remittances. We therefore propose that African governments design complementary policies to mitigate the adverse income distribution consequences of remittances. Such mitigation policies may range from setting up or improving safety nets, to better labor-market policies and institutions, and to investing in access roads to improve access by the poor to markets. In addition, well-designed additional policy interventions, especially those that improve education and infrastructure and address other "behind the border" investment climate reforms, can mitigate the adverse inequity changes that may result from international migrant transfers. And given the severe budgetary constraints faced by

African governments, international organizations would have to play a pivotal role in this direction (ILO, 2004).

Our estimations show that inflation had a regressive and significant positive impact on income inequality. The implication of this result is that sound macroeconomic policies, which keep inflation low and stable in the long run, should be a necessary first step of any policy package to be implemented to alleviate inequality in African countries. Such stable macroeconomic environment would have to be achieved through the implementation of sound monetary and fiscal policies and/or a much better institutional framework.

Our results also indicate a strong positive relation between initial GDP per capita and income inequality in African countries, suggesting that the past decade's high income benefitted the rich more than proportionately than the poor. A likely reason for this pro-rich outcome is simply that, top incomes are (and have been) more closely related to actual performance than incomes on average.

Indeed, the literature has identified a number of possible policy instruments to deal with inequality, including, conditional cash transfers, guaranteed employment schemes, labour market training, greater access to health, nutrition and education through increased social investments, affirmative action, and land and property rights reforms, especially to benefit rural dwellers (particularly women). Evidence has shown that conditional cash transfers and expenditures (for education, for example) are effective levers of redistribution (see Levy, 2006; Kanbur, 2008). Improving access to education, for example, can reduce inequality both by increasing individual productivity and by facilitating the movement of poor people from low-paying jobs in agriculture to higher-paying jobs in industry and services. More importantly, public spending on education (as well as on other human capacity), when targeted toward the poor, can produce a double dividend, reducing inequality and poverty in the short run and increasing the chances for poor children to access formal jobs and thus break free from the intergenerational poverty trap. Increasing educational levels (and its quality) should be accompanied by a strong investment climate to ensure that productive jobs are created for the newly educated.

Greater access to education will help to reduce income inequality in African countries. Thus, bottlenecks in the supply of educated and skilled labor may condemn African countries to high levels of income inequality. This calls for active social intervention, including targeted and high-quality education and training policies addressed to increasing the supply of skilled labor. Actions to equalize opportunities in formal education need to ensure that all children acquire at least a basic level of skills necessary to participate in society and in today's global economy.

As the World Bank (2007b) had argued, greater access should be complemented by supply-side policies (to raise quality) and demand-side policies (to correct for the possibility that parents may under-invest in the education of their children for various reasons). Supply side policies would include increasing teachers' incentives, enhancing the basic quality of schools' physical infrastructure, and researching and implementing teaching methods to increase the learning performance of students who do not do well when left to their own devices. On the other hand, demand side policies would include scholarships conditional on attendance, bringing in excluded groups and to bring up those left behind through remedial education, and developing the accountability of schools and teachers to students, parents, and the broader to help ensure effective service provider behavior (World Bank, 2007b).

Other policy reforms should include a mixture of the following: Measures that guarantee that those being laid off in the course of the current financial and economic crises are properly protected against substantial losses of disposable income, including the use of unemployment benefits; during the crisis period, African governments should ensure that workers are not summarily laid off by encouraging social dialogue and ensuring that labor rules are respected and that the crisis does not become an excuse for government agencies and firms to fire workers; and since unemployment benefits, social protection and employment protection are part of the core ILO labor conventions that member states have ratified, it is imperative that these conventions are being upheld, in spite the adverse economic developments that countries are going through due to the crisis. Indeed, the crisis provides a unique opportunity for the majority of African countries that are still lacking proper social insurance systems to enact innovative policies and strengthen labor legislation.

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COST-EFFECTIVE USE OF AGRICULTURAL LAND: A CASE STUDY

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Abstract: *The article gives an evaluation of modern efficiency of land exploitation and explains the mathematical link between the production cost and the crop yield. It introduces a number of formulas which allow computing profitability per 1 quintal of production and per 1 hectare of land as well as profitability growth due to growth of the crop yield. The article also introduces the methods of computing marginal profit and the crop yield which provide the desired level of profitability.*

Keywords: *efficiency of land exploitation, cost of production, agricultural crop yield, net profit, marginal profit, profitability coefficient.*

JEL Codes*: Q14, M41*

Land is the most important wealth of society, which is why increasing its productive power is an important national task. Increasing soil fertility is one of the main problems of agriculture, and of each landholder. This aspect is very important for the Republic of Moldova, which has a high population density and essentially, a full development of the land fund, which on January 1, 2009, amounted 3384.6 thousand hectares, including agricultural land – 2503.6 thousand hectares, or nearly ¾ of the country, arable land has 72.7% in the structure of farmland, perennial plantations -12,1%. As a result of privatization of land, in the property of state remained 26.4% of farmland, of which 14,6% arable land and 12,4% – orchards and

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vineyards, so, the state owns almost every seventh hectare of arable land and every eighth hectare of perennial plants. So, for every 10 hectares of agricultural land, more than 7 hectares are privately owned [3, s.331].

Analysis of the dynamics of the agricultural land in Moldova for the period 1940-2009 shows a significant reduction in the use of land as the principal mean of production in agriculture. Thus, during this period the area of land used in the industry has decreased from 2864 thousands of hectares in 1940, to 2504 in 2007, which means 360 thousand hectares or 12,6% less.

The area of cultivated land in 1950, when there was completed the mass collectivization, was 2112 thousands hectares and the area of pastures and hay fields exceeded 691 thousand hectares, so that on three hectares of land in the processing, there was one hectare of pasture and hay fields. After 30 years, the area of arable land and perennial crops has grown up to 199.5 thousand hectares and the area of pastures and grasslands declined by 403.4 thousand hectares. Subsequently, on the count of plowing of pastures increased the area of farmland in agriculture. A substantial proportion of marginal grazing land often located on slopes of 4-6 ° are increasingly being used for grain, fodder, grapes and other crops.

In order to implement the plans for production and sale of state agricultural products, in the period of 1950-1975 in the villages, before the introduction of intensive technologies of cultivation of agricultural crops, there have been widely used the extensive factors of the industry. Introduction in the active agricultural use of the low productivity of hillside land in these years has aggravated the already intractable problem of soil erosion in the country.

It should be noted that nowadays, in the country, the mutually beneficial marketing links between producers, processors and retail chains – are not present, as it is in the developed countries with market economy. The producers of agricultural goods, as a rule, do not have the necessary information about consumers of its products, market prices, competitors, the state of domestic and world market of certain products and their development trends. And this leads to the fact that rural producers can not plan production and the structure of production in the medium term, for 3-5 years. They are annually forced to change the structure of sown areas, which has adversely affects on the efficiency of the basic mean of production – the land.

Thus, on average, over the past 3 years in comparison with the annual indicators of pre-reform period (1986-1990) the yield of winter wheat was reduced by more than 1,5 times, sunflower – more than 1,6 times, corn – almost 1.7-fold

(Table 32). We note here that the area sown to winter wheat, maize and sunflower reached on average over the past three years, nearly ¾ of the acreage.

Table 32 *Annual average productivity of land resources of the Republic of Moldova 1951-2008 (quintals/ha)*

Years	Cereals	including		Sunflower
		Winter wheat	Corn	
1951-1955	12,3	11,8	14,0	10,1
1956-1960	18,0	16,4	20,6	13,4
1961-1965	22,1	15,5	30,7	15,6
1966-1970	25,7	20,6	33,8	16,4
1971-1975	32,0	33,1	35,7	17,4
1976-1980	33,1	35,3	35,4	16,4
1981-1985	33,1	34,5	36,5	18,2
1986-1990	34,2	36,5	39,6	19,6
1991-1995	30,4	32,5	33,1	13,7
1996-2000	25,2	24,5	30,3	12,1
2001-2005	24,5	24,0	27,9	12,1
2006-2008	22,1	23,4	23,4	12,1

Source: National Bureau of Statistics of the Republic of Moldova

Let's mention a few reasons of the sharp decline in land productivity. According to the analytical data obtained by V. V. Dokuchaev, the Moldova soil (more than 100 years ago) contained more than 5% of humus. In subsequent years, the natural fertility of the soil of the republic was constantly decreasing. Now, the humus content reached the level of 3,1% on average for the whole arable land. By the end of the twentieth century, there are left only about 60% of the original natural soil fertility [2, p. 44].

There was significantly reduced the level of use of chemicals in the cereal production, technical, vegetable and other crops. If in 1980-1990 the removal of the basic elements of plant nutrition has been offset by the introduction of mineral and organic elements by 60%, now there are only 10%. Over the past 15 years, the organic fertilizers utilization decreased from 9.7 million tons to 0.07 million tons, or 140 times, of the mineral fertilizers – 27 times from 217.2 to 11.3 thousand tons. The water use for irrigation has decreased up to 100 cu. m per hectare, which is 4 times lower than one irrigation [2, p.41].

The reasons for such a sharp drop of the level of cropping intensity are not only the reduction of organic and mineral fertilizers, inadequate and incomplete logistical support, which reduces the adaptation of industry to adverse weather conditions, but not less importantly, the widespread reduction of the quality of the

manufacturing operations, resulting in addition above-mentioned reasons, excessive fragmentation of land. And without that, not a very big size of the land quota (on average, per owner, it is 1,3 hectares and the average size of the land of a peasant (farmer's) does not exceed 1.8 hectares) is concentrated in three or more locations (for non-irrigated lands and irrigation, on arable land and perennial plantations). The last one had a negative consequence as well, which resulted in total violation of crop rotation, and of the normal alternation of cultivation.

Complete independence of land users has also led to a significant change in the structure of acreages towards a sharp decline in the proportion of peas and perennial grasses, that contribute to build soil fertility, and increase the acreage of sunflower as a highly profitable crop, but most noticeably draining soil. That is, we have come to such a structure of crops, which are inconsistent with the recommendations of the science and practice.

It is impossible not to draw attention to the fact that at the present time, science brought on all crops, sunflower, sugar beet, vegetables high-yielding varieties and hybrids. However, they require, as a rule, a higher agrafon, a rigorous process discipline, what now we don't have in reality. Returning to the primitive old technologies on modern varieties and hybrids is a self-deception, a road to nowhere, as it is proved by the productivity in the recent years. Perhaps the things are going better in the production of winter grain crops, because the available varieties are better adapted to our harsh reality.

The careful study of the influence of all factors of production on the efficiency of use of agricultural land have revealed the mathematical relationship between the cost and productivity of products. To do this, all costs associated with production and sale, as you know, are fixed and variable. The later, in contrast to the quasi-permanent, are characterized by the fact that their value depends on the volume of production. These are mainly the costs associated with harvesting and marketing of production.

The unit cost (Z) can be expressed by [1,p.156]:

$$Z = ATC = \frac{FC}{q} + AVC \text{ , } lei/quintal \tag{1}$$

where: FC – quasi-fixed costs per 1 ha, lei;

AVC – variable costs per 1 quintal products, lei;

q – yield, quintal/ha.

Knowing the value of fixed and variable costs and the estimated selling price, you can accurately predict the minimal crop yields (q_{min}), below which comes the loss ratio.

We use the formula: [1,p.156]:

$$q_{min} = \frac{FC}{p - AVC}, \quad quintal/ha \qquad (2)$$

where: p – estimated selling price of the product, lei/quintal

If the agriculturist can not ensure the crop yields above current minimum level for a given technology, we should examine issues of technology change in the direction of intensification – the growth of land productivity or to abandon its cultivation. However, we should not forget that any changes in technology require new calculations of fixed and variable costs and of the level of productivity.

As it is well known the profit per one quintal of production (P) is determined by the difference between the sale price and the cost (z):

$$P = p - z \qquad (3)$$

Since the cost depends on the size of conventionally fixed and variable costs and the yield (formula 1), so [1,c.161]:

$$P = p - \left(\frac{FC}{q} + AVC \right)$$

$$P = p - AVC - \frac{FC}{q}, \quad lei/quintal \qquad (4)$$

Profit per one hectare (P_{land}) can be defined as the production of yield and the profit per one quintal, [1,p.161]:

$$P_{land} = q \cdot P$$

$$P_{land} = q\,(p - AVC) - FC, \quad lei/ha \qquad (5)$$

The experience of many agricultural enterprises, that are strictly carrying out the requirements of technology of cultivation, shows that only by improving the quality of the manufacturing operations for the cultivation and harvesting, and other factors not related to changes in the quantities of conventionally fixed and variable costs (other conditions being equal), can be achieved a greater yield per a unit area and, a great profit as well.

At the base case:

$$P^b_{land} = q_b\,(p - AVC) - FC,$$

At the new case:

$$P^n_{land} = q_n\,(p - AVC) - FC,$$

Then the profit growth will be [1, p.161]:

$$\Delta P_{land} = P^n_{land} - P^b_{land} = q_n\,(p - AVC) - FC, - q_b\,(p - AVC) + FC,$$

$$\Delta P_{land} = (p - AVC)\cdot(q_n - q_b),\ lei/ha \tag{6}$$

Using the 4th formula, the increase of the profit per 1 quintal of product caused by the increase in quality of work will be (developed by the author):

$$\Delta P = P_n - P_b = p - AVC - \frac{FC}{q_n} - p + AVC + \frac{FC}{q_b} = FC\left(\frac{1}{q_b} - \frac{1}{q_n}\right),$$

$$\Delta P = FC\left(\frac{1}{q_b} - \frac{1}{q_n}\right),\ lei/quintal \tag{7}$$

The marginal profit or the increase of the profit due to the rise of yields for 1 quintal/ ha, can be determined by the formula:

$$\Delta P = \frac{FC}{q_b^2 + q_b},\ lei/quintal \tag{8}$$

$$\Delta P = FC\left(\frac{1}{q_b} - \frac{1}{q_n}\right) = FC\left(\frac{1}{q_b} - \frac{1}{q_{b+1}}\right) = \frac{FC}{q_b^2 + q_b}$$

Carrying out the similar transformations, we obtain the dependence on which we can calculate the profit decrease with a decrease in the yield of 1 quintal / ha:

$$\Delta P = \frac{FC}{q_b^2 - q_b},\ lei/quintal \tag{9}$$

In order to present an example, we use real rates of production and sale of sunflower by LLC "Erie Carmen" Cahul district for 2009.

Initial data: FC = 2334 lei/ha; AVC = 60,46 lei/quintal; p = 216,8 lei/quintal; q = 10,9 quintal/ha.

The graphic dependence of the marginal profit on the level of productivity is shown in the figure 10 below.
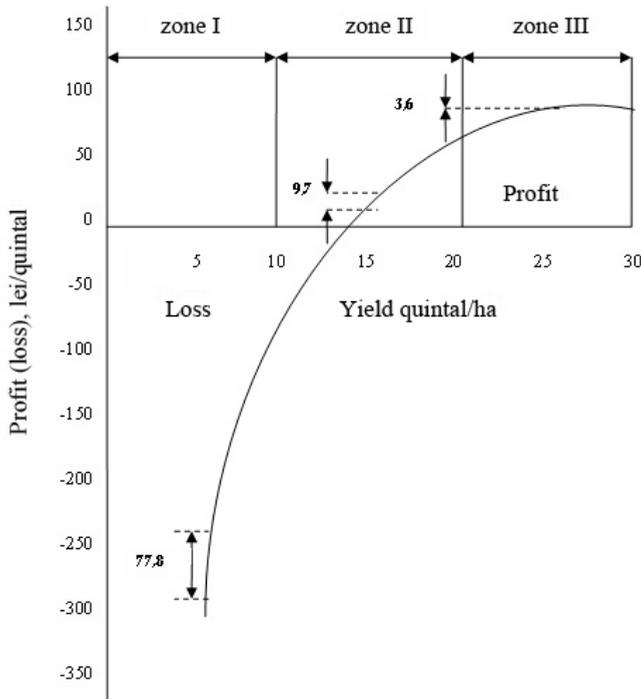
Figure 10 *Indicators of marginal profit, depending on the level of sunflower yield in OOO "Erie Carmen" Cahul district in 2009*

The critical level of productivity below which production and sales of sunflower bring loss, will be in accordance with the formula 2:

$$q_{min} = \frac{2334}{216,8 - 60,46} = 14,9 \quad \text{quintal/ha}$$

Based on the formula 8 we calculate the earnings growth per unit of the sold product with yield of 5 and 6 quintal/ha, 15 and 16 quintal/ha, 25 and 26 quintal/ha. The reduction of losses from the sale of additional quintal of seed by the increasing of yield from 5 to 6 quintal/ha will be:

$$\Delta P = \frac{2334}{5^2 + 5} = 77,8 \ lei/quintal$$

Similarly, we find that profit growth:

$$\Delta P = \frac{2334}{15^2 + 15} = 9,7 \ lei/quintal$$

$$\Delta P = \frac{2334}{25^2 + 25} = 3{,}6 \ \textit{lei/quintal}$$

It is important to note that a high economic effect can be achieved by the increase of the yield by 1 quintal/ha in the range of low-production of the fields. The cost curve, thus, can be divided into 3 zones. The first is limited by the yield to 10 quintal/ ha, the second – 10-20 quintal/ ha, the third – more than 20 quintal/ ha. The first zone is characterized by high elasticity (high economic returns), with an increase in yield by 1 quintal / ha, the second zone – temperate, the third zone – a low elasticity. In such a way, the agricultural enterprises located in the zone of low yields, have real reserves of growth of production efficiency. As per one lei of additional cost they can get higher economic results compared to farms located in the middle and the high zone of yields.

It is important to note that in agriculture, in contrast to other industries, due to the properties of the agriculture, there is a fairly high proportion of quasi-fixed costs in the cost structure of products. For example, for the production of grain and sunflower these costs reach 78-85%. Consequently, it is very important from an economic point of view that the costs associated with tillage, planting, caring for plants to assure the maximum yield per a unit area.

An important task for the farmers is to restore the soil fertility and on this basis to provide the same level of productivity of agricultural lands. The existing reserves of the untapped black soil from Moldova confirm the statistics: the yield of the winter wheat in the whole country was brought to the level of 40.1 (1989) and 40.3 quintal / ha (1993), maize – 50.2 in (1989) and 48.1 quintal / ha (1991), sunflower – 21,2 (1988) and 21,8 quintal / ha (1989), grapes – 94.5 (1982) and 74.6 quintal / ha (1984).

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RELEVANCE OF UTILITY MAXIMIZATION IN STUDENT UNIVERSITY CHOICE – A CONSUMPTION-BASED MODEL FOR HIGHER EDUCATION

Eric S. SCHWARTZ[*]

Abstract: *This paper applies a model of utility-maximization to better understand the university choice process. Student decision-making for university choice is conceptualized as a purchase decision process through which students weigh the costs of colleges or universities they choose against their perceived benefits of attending these institutions. The key issues are the impact of consumer's preferences, income, tuition, and costs in college decision-making. From this perspective, the paper describes the relationship between utility maximization and educational demand, effects of tuition increases, tuition discounting, and financial aid subsidies on university choice. A decision-making scheme for educational consumption is used in order to identify the stages of the university choice process and to predict the behavior of consumers in the higher education marketplace. The analysis points to the need to better inform students about the cost of postsecondary education which is a highly relevant aspect in the university choice process.*

Keywords: *College choice, consumer behavior, higher education, human capital, student-choice model*

JEL Codes: *A12, D01, D11*

1. INTRODUCTION

Although economics theory have been applied to explain rational choices in higher education, there has been little emphasis placed on consumption behavior to examine student schooling decisions (Dawes & Brown, 2004; DesJardins & Toutkoushian, 2005; Jimenez & Salas-Velasco, 2000; Menon, 2004; Paulsen &

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Toutkoushian, 2006; Vrontis, Thrassou, & Melanthiou, 2007). Research on student university choice has used Nobel-Prize Laureate in Economics Gary Becker's approach to human capital investments to examine student decisions regarding postsecondary education.[1] According to this theory people accumulate their human capital over their lifetime. Becker (1962, 1993) argues that education and training are the most valuable investments in human capital and examines the relations between earnings, rates of return to human capital investments, and the production of human capital. He also suggests that high school graduates pursue postsecondary education to respond rationally to the benefits and costs of human capital investments (Becker, 1993).

From this approach, an individual's decision about whether to enroll in a particular postsecondary institution should be examined with the standard model of utility maximization to better understand educational incentives. The utility choice model may serve to predict the behavior of consumers in the higher education marketplace.

Ultimately, a number of questions arise when considering students' purchase decisions and the context in which educational consumption derived from university choice[2]: Why do individuals purchase some educational goods and not others? How do preferences, incomes, tuitions, and college costs affect consumption decisions? What constraints do consumers face? How can we determine the equilibrium of the consumer? These questions are examined in detail with a consumption-based model of decision-making and choice for higher education.

To begin, the paper provides a perspective on how students choose universities by weighing costs and benefits of attending a particular institution. The problem of purchase decision-making with imperfect information or incomplete information in higher education is also addressed, and begins from the premise that the classic model of utility maximization describes the behavior of a typical consumer. How students make choices about how much income to allocate among educational goods and how they seek a satisfactory return that is translated into utility maximization is then explained. The analysis also emphasizes the effects of budget constraint on college decision-making and offers reasons for why individual preferences influence educational consumption based upon income and substitution effects. Last, a

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[1] For examples of theoretical and empirical explorations of university choice based on human capital investment theory, see Arcidiacono, Hotz, and Kang (2010), Jimenez and Salas-Velasco (2000), and Paulsen (2001).

decision-making scheme for consumption in higher education is proposed to identify four important stages of the university choice process: information processing, product evaluation, purchase, and consumption.

2. BACKGROUND

When students select colleges, they do so through some type of cost-benefit calculus. Empirical evidence shows that higher education costs are important determinants of schooling choices, in particular for low-income students (Lillis & Tian, 2008; Long, 2004; McPherson & Shulenburger, 2008; Paulsen & St. John, 2002). The cost of attending a particular institution of higher education consists of direct and indirect costs that include not only the cost of tuition and fees but also living costs such as the cost of room and board, and opportunity costs. There are significant differences in costs between public and private institutions in American higher education. The National Center for Education Statistics has estimated the average costs for undergraduate tuition, room, and board to be $12,283 at 4-year public institutions, $31,233 at 4-year private institutions, and $7,463 at 2-year public institutions for the 2008–09 academic year (NCES, 2010). These major differences in cost between types of institutions suggest that the decision to attend a particular college or university is associated with a consumer's response to prices.

Students also choose universities based on the expected benefits[3] that may result from earning a college degree from these institutions. Usually, they associate the expected benefits of pursuing a postsecondary education with the expected earning streams that result from earning a college degree (Arcidiacono, et al., 2010; Long 2004; Paulsen, 2001). Arcidiacono and his colleagues, for example, have incorporated both expected earnings and students' abilities in different majors to examine educational decisions and compare the returns of different majors with the cost associated with completing them. They argue that expected earnings and student's abilities in different majors are important determinants of schooling choices (Arcidiacono et al., 2010).

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[2] I used the terms "university choice" and "college choice" interchangeably throughout this paper to refer to higher education institutions. The term "higher education" means education beyond secondary education, also called postsecondary education or tertiary education.

[3] Empirical examinations also support the hypothesis that human capital investments (i.e., education and training) benefit individuals through higher earnings (Becker, 1993; Perna, 2005; Moretti, 2004; Paulsen, 2001). Among the private benefits of postsecondary education, college graduates earn higher salaries than non-college graduates (Hossler, Don, Schmit, & Vesper, 1999; Paulsen, 2001); they experience longer working lives, more career mobility, and higher quality of life (Hossler, et al., 1999).

Students weigh the costs of a college or university that they choose against their perceived benefits when they make schooling choices. The benefits of choosing a particular college or university may include the prestige of attending a reputed institution[4] (College Board, 2008; Hossler, Braxton, & Coopersmith, 1989), an increased in expected earnings streams (Jimenez & Salas-Velasco, 2000), receiving tuition discounts and scholarships (Morphew & Taylor, 2011), campus location (Hossler et al., 1999), the quality of academic programs (Arcidiacono et al., 2010), and the quality of extracurricular programs (Menon, 2004).

2.2. Consumer lack of knowledge

Consumers are not perfectly informed in the higher education marketplace (Brown, 2011; Jongbloed, 2003; Klaauw, 2002; Morphew & Taylor, 2011; St. John, Paulsen, & Carter, 2005; O'Connor, Hammack, & Scott, 2010; Vedder, 2007). Students' lack of knowledge of educational products is an integral aspect of imperfect competition in the markets for higher education. Admission officers do not disclose to prospective students what the "value added" is for attending their institutions (Vedder, 2007, p.11). Students do not make informed choices regarding enrollment in colleges and universities. As consumers, students purchase educational products based on subjective knowledge about the qualities of these products. Klaauw (2002) expresses the knowledge deficiency in student decision-making for university choice in the following way:

A student's decision whether or not to enroll in a particular college is influenced by a number of different factors, many of which are unobserved by college administrators. The most important piece of information that is typically missing is information on a student's alternative options […] This lack of information not only pertains to new applicants, but also to applicants in previous years. Most colleges do not collect information about the alternatives options of those who enrolled, and about the destinations of applicants who chose not to enroll (p. 1250).

Students evidently choose universities without relevant information. Admission officers make students believe that they have relevant information for college decision-making and choice. "How much" prospective customers know

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[4] Longitudinal data of the Cooperative Institute Research Program (CIRP) indicate that reputation of the institution is the most significant factor in college consideration and choice- 63 % of students reported that the college academic quality was a "very important" factor in their college selection, the largest percentage in 35 years (See College Board, 2008, p. 3).

about the qualities of educational products depends on what the university as suppliers want them to know. The tendency is for students who seek information about academic programs to contact the institutions who offer these programs to gain some understandings about what an educational product does or what benefits students may receive from educational consumption.[5] This suggests that students' subjective knowledge regarding institutions that they wish to attend influences their educational choices.

Similarly, educational consumption does not provide instant satisfaction to students. It takes several years for students to learn, obtain a degree, a well-paid job, and to appreciate the consumption benefits of education. Knowing about the quality of products only after consumption is very common in higher education.

When students choose between institutions of higher education, it is not straightforward for them to make decisions based on the qualities of their academic programs. If they are choosing between a reputed institution that offers courses taught by well-know scholars and a less-reputed one that proposes courses taught by experienced instructors, students cannot determine which institution has a better offer.

Furthermore, students lack understanding of the extent to which attending a particular college or university is really going to cost them (Grodsky & Jones, 2007; Morphew & Taylor, 2011). In some higher education markets, tuition and fees continuously increase in-between academic years, and students cannot predict how much their accumulated college cost will be after completing a college degree. Under difficult economic circumstances, tuition and fees have increased due to government reduction of public funding to higher education (Heller, 2006) and increase college operational costs (Zemsky, Wegner, & Massy, 2005). In some extents, students consider these factors in selecting universities; even though it is difficult to predict the rate of increase in tuition and fees during the course of their studies.

3. THEORETICAL FRAMEWORK

The economics of the consumer's choice postulate utility maximization (Browning & Browning, 1992; Case, Fair, & Oster, 2010; Chocholiades, 1986;

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[5] Annually published college rankings is another way to gather information about academic quality, institutional prestige, and market position of colleges and universities (HERI, 2007; Meredith, 2004; Zemsky, Wegner, & Massy, 2005). The most influential rankings of higher education institutions are: the U.S. News & World Report rank orderings, Times Higher World University Rankings, Jiaotong University world-wide ranking of universities, and Money Magazine Best College-buys (HERI, 2007; Meredith, 2004; Salmi, 2009).

Friedman, 2002; Landsburg, 1992; McCloskey, 1982; Stiglitz, 1993). Consumption decisions individuals make about college choice result from how much utility or satisfaction they expect from the purchases of educational goods and services. This implies scarcity because consumers have limited budgets that they can spend. The budget constraint or the limits imposed on individual choices by income, wealth, and product prices, represents the monetary margin to the expenditures of consumers. The algebraic equation of the budget constraint is:

$$P_x . x + P_y . y = B,$$

where P_x and P_y are the prices of X and Y, x is the quantity of X consumed, y is the quantity of Y consumed, and B is the consumer's budget. The budget constraint is the principal constraint imposed on individual choices. Consumers would attempt to get the greater value possible from expenditure of their available income among alternative goods.

An individual consumption decision depends on his preferences and his opportunities. Notwithstanding the fact that people's preferences are unobservable variables; economists assume that individual preferences are relatively constant and people changing behaviors are due to changes in prices.[6] However, this assumption is not always consistent with the facts in higher education. For instance, undergraduate students definitely exhibit preferences changes in consumption behavior when college students change majors and drop courses over the course of their studies. This analysis, however, postulates that individual preferences in the student college decision-making process are constant overtime.

3.1. Definitions

In the higher education literature, college choice – also known as university choice – is referred to as a process that involves three decisions: whether to attend college after high school; selecting a particular institution; and applying (Hossler et al., 1989). It is basically a socialization process or a dynamic interaction between individuals and various societal patterns (Brown, 2010; Hossler et al., 1999; St. John, Asker, & Hu, 2001). For Hossler and Gallagher (1987) college choice is a rank order decision, a process by which students choose a particular institution to attend from a set of institutions to which they have been admitted.

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[6] Landsburg (1992) has questioned Becker and Stigler's (1977) prepositions regarding people's constant tastes and preferences. He writes: "In fact, the economists Gary Becker and George Stigler have gone so far to argue for the assumption that all individuals have the same tastes in all things at all times and they have no change! It is important to know whether such assumptions are consistent with the observable facts about the world" (Landsburg, 1992, pp. 76-78).

Student decision-making for college choice is also referred to as the decision about the first college-choice. From this viewpoint, Kim (2004) suggests that the definition of first-choice institution may vary by students in two ways: (a) some students make their first-choice selection among institutions they have applied, and (b) others make the first choice among the institutions to which they have been admitted.

The conventional understanding of college choice views the college decision-making process in terms of selection decision-making. High school students negotiate their college decisions with significant others (parents, relatives, peers, counselors, high counselors, college administrators, teachers, and relatives) who influence their decisions (Hossler et al., 1999; Hanson & Litten, 1982; Vrontis et al., 2007).

For purposes of this analysis, college choice is defined as a purchasing process by which a student chooses a college to gain the maximum return on the consumption value of education. The college decision-making process always leads to purchase and consumption of educational goods. College decisions determine how much income students (or their parents) will have to spend for attending a particular institution. This definition assumes that colleges and universities as suppliers of educational products provide price information and information characteristics of educational products. However, students have subjective knowledge with respect to the quality of educational products. Students act as consumers of higher education to make college choices based on how they perceive educational products. When students enroll in particular institutions they are fully committed to purchasing at least one educational product.

3.2. Assumptions

There are four postulations underlying this model of utility maximization:

- Each individual is a nonsatiable consumer, which means that students have positive marginal utility through the consumption of educational goods.
- Individuals are free to choose among a large number of colleges and universities. Confronted with the choice between two combinations of institutions, college A and college B, an individual should respond in one of three ways: (a) he prefers college A over college B, (b) he prefers college B over college A, or (c) he is indifferent between colleges A and B- that is, he prefers colleges A and B equally.
- Choices are consistent with individual preference ordering. If an individual prefers a college A to a college B and subsequently shows that he prefers

college B to college C, he should prefer college A to college C when confronted with a choice between the two institutions.

- There is a diminishing marginal rate of substitution, or the decline of the ratio at which an individual is willing to substitute a college X for a college Y.

These assumptions also suggest that individuals make rational educational choices, balancing the benefits of attending an institution against the costs in order to achieve optimality in a given decision. Theoretically, consumers are competent decision-makers in the higher education marketplace; therefore they could derive maximum utility from educational consumption.

4. AN APPLICATION IN A UTILITY MAXIMIZATION ANALYSIS

To begin to understand how students make college choices let us consider how a high school graduate thinks about pursuing in a postsecondary education. Then, the individual considers a number of college opportunities in the higher education marketplace. Suppose that admission in these colleges is guaranteed, that is, there is no admission policy constraint. As a result, the constraints that surround the individual college choices are related to the spending restrictions of income, wealth, and tuitions; this is the concept of the budget constraint. We, therefore, suppose that the individual allocates a fixed amount of income between "higher education" and "all other goods".

Within the budget constraint, however, the individual weighs his ultimate choice based upon preferences and tastes. The consumer's choice might be influenced by the college characteristics such as academic reputation, academic quality, campus location, campus safety, tuition and fees, cost of attendance, financial aid, and program availability. According to figure 11-a, the consumer set of indifference curves (U_0, U_1, U_2,…U_n), called a preference map, explains how an individual chooses the combination X units of higher education and Y units of all other goods to maximize total utility.

Figure 11-a is also a representation of how a consumer allocates a budget between higher education expenditures and all other goods. Graphically, the consumer's budget constraint encodes the choice set or opportunity set. Individual preferences, trade-offs, and opportunity cost govern the ultimate choices within the limits of a budget constraint. Each consumer weighs the chosen goods and services against all other things that could have been purchased with the same amount of money.

The higher indifference curves represent the greater utility ($U_0 < U_1 < U_2 < \ldots U_{n.}$). There is a trade-off between higher education (the X-axis) and all other goods (the Y-axis). The budget constraint takes apart the combinations of goods and services that are available, given limited income, from those that are not. Optimal choice decision making can be achieved if the consumer moves along the budget constraint until he attains the greatest possible utility.

Utility increases if the consumer moves along the budget line toward A. The ordinal utility maximization occurs at A (X_1, Y_1), the point at which the budget constraint line is tangent to the indifference curve and where the consumer purchases X_1 units of higher education goods and Y_1 units of all other goods. In graphic terms, point A represents the consumer utility-maximizing equilibrium (Case et al., 2010).

4.1. Utility-maximization equilibrium

Figure 11-a also shows that a consumer has the incentive to maximize his ordinal utility within the limit of a budget constraint. He has to allocate X_1 dollars to higher education expenditures and Y_1 dollars to all other goods. The ordinal utility maximization occurs at A (X_1, Y_1), the point at which the budget constraint line is tangent to the indifference curve U. This is an essential condition for consumer equilibrium that satisfies the equation.

$$MRS_{xy} = \frac{Tx}{Py}$$

where MRS_{xy} is the marginal rate of substitution of X for Y at A, T_x is the tuition charged for enrolling in higher education (or price of higher education goods), and P_y is the price of all other goods.

Figure 11-b describes how the consumer demand curve meets a perfectly elastic or horizontal supply curve at the market equilibrium price of T_1 worth of higher education goods.
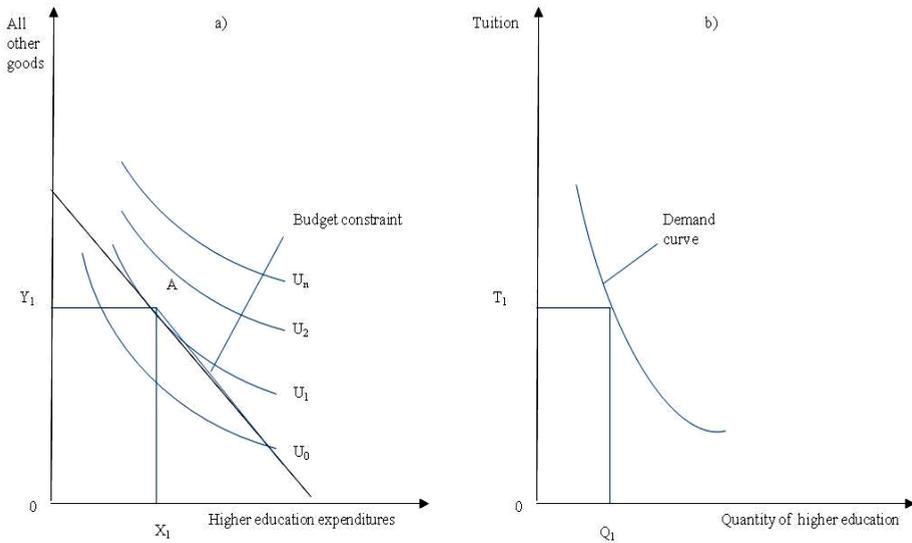
Figure 11 *Utility Maximization Equilibrium and Educational Demand*

4.2. Effects of a rise in tuition

Let us suppose that the college increases tuition to cover its operational costs, with income and the price of all other goods held constant. Figure 12-a describes how a student with a constant budget constraint responds to rising tuition. This increase causes the budget line to rotate inward from the fixed point Y_1 of the amount of expenditures allocated to all other goods to the increasing amount of expenditures allocated to higher education, X_2. This rotation produces a new budget line and the indifference curve drops to a lower level of satisfaction.

The individual responds to rising college tuition with a decrease of expenditures of all other goods. The substitution effect or the change of consumption (X_2-X_1) allows the individual to consume both goods within the limit of the similar budget constraint. The increase in college tuition also makes all other goods less expensive. Therefore, our individual consumer can increase his consumption of all other goods. This substitution effect is also referred to as the "pure price effect" or "compensated price effect" (Friedman, 2002). In the college choice decision-making context, the substitution effect is the "pure tuition effect."

The rise in college tuition also affects the consumer's quantity demanded of units of higher education- this is the income effect. Figure 12-b shows that the increase in tuition tends to make consumer demands less quantity of higher education

goods, $Q_2 < Q_1$. For example, a student may enroll in college on part-time basis instead that full-time. To maintain his level of consumption of higher education goods, the consumer may also decide to purchase less of all other goods. In fact, there is a negative relationship between rising tuition and college enrollment (Cabrera & La Nasa, 2000) and increasing tuitions discourage low-income students for pursuing postsecondary education (Heller, 2001; McPherson & Shulenburger, 2008).
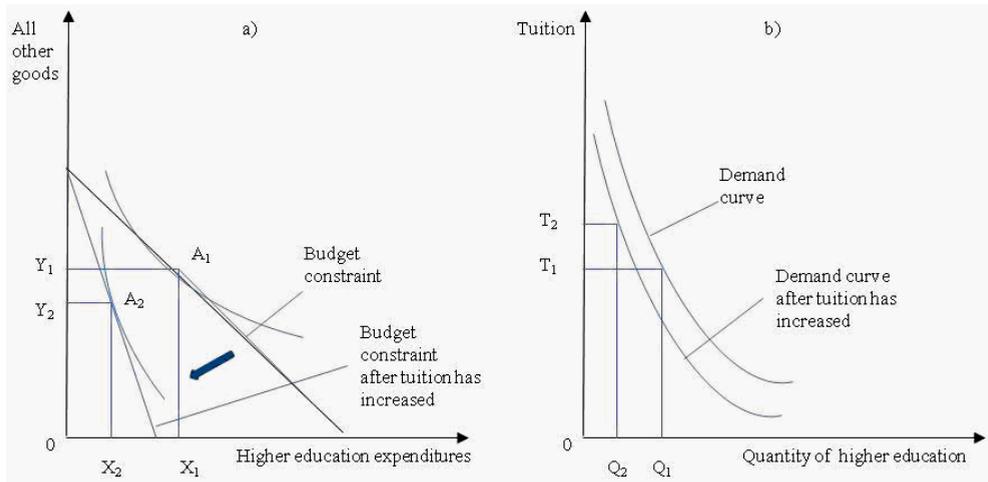
Figure 12 *Tuition Increase, Utility Maximization, and Educational Demand*

4.3. Choice of substitute goods in the higher education marketplace

Now, suppose a student makes a purchase choice among two educational goods: a private institution of higher education and a public institution. Figure 13-a describes how an increase in the tuition of one higher education good (enrolling in a private institution) causes an increase in the quantity demanded of the substitute good (enrolling in a public institution). When the tuition of the private institution goes up, the demand for a less expensive public institution goes up because many consumers demand less expensive public universities (D1). The curve D2 represents the demand for public universities when private universities are less expensive. In fact, rising college tuitions have forced low-income students to enroll in less expensive colleges or not attend college at all (Lillis & Tian, 2008; St. John et al., 2001; St. John, 2002).
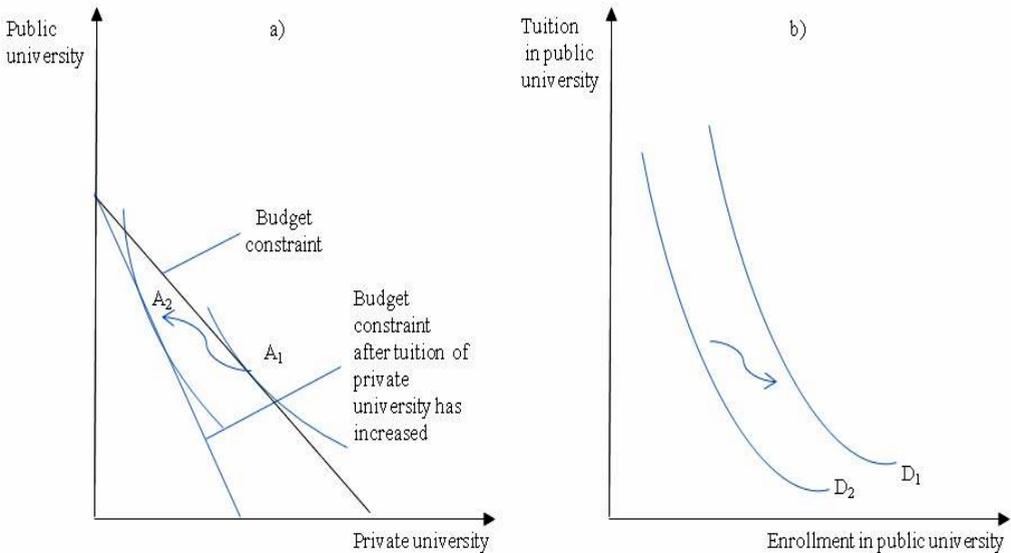
Figure 13 *Utility Maximization and Demand of Substitute Educational Goods*

4.4.   Effect of government subsidies for higher education

Financial aid programs are designed to increase college access, increase affordability, and promote equality of opportunity in higher education. These government subsidies for education reduce the cost of attending college to eligible students (Gillen, 2010; Heller, 2001). In the United States, financial aid is awarded to eligible students based on a federal formula that determines a student's "expected family contribution" (EFC) in accord with the Higher Education Act of 1965 as amended. The EFC is the sum of a percentage assessment of the net income of the applicant (and his parents) and a percentage assessment of his net assets.

In order to be eligible for financial aid, a student must actively pursue a degree or certificate in an eligible higher education institution and make satisfactory academic progress toward completing the degree. The recipient of the financial aid is also required to attend only the institution for the entire period for which the financial assistance is awarded. Under these restrictive rules, the awarded amount is typically disbursed to the eligible institution from which each student receives the financial aid refunds when the awarded amount exceeds the allowable charges of his student account.[7]

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[7] This analysis assumes that students cannot spend their financial aid refund money to purchase non-educational goods.

Figure 14 illustrates the effect of financial aid on college choices. Consider that a consumer was initially under the spending limit of a budget line from which his ordinal utility-maximization equilibrium point is A_1. When a consumer is awarded financial aid the cash subsidy extents the limit of the budget constraint. The consumer can purchase more higher education goods in order to attain another ordinal utility-maximization equilibrium point A_2, assuming tuition remains constant. In fact, empirical works show that the amounts of financial aid awarded to students influence their decisions about college including the probability of enrollment (Avery & Hoxby, 2004; Epple, Romano, & Sieg, 2006; Gillen, 2010; Heller, 1999; Kim, 2004; Klaauw, 2002; Long, 2004; Moore, Studenmund, & Slobko, 1991).
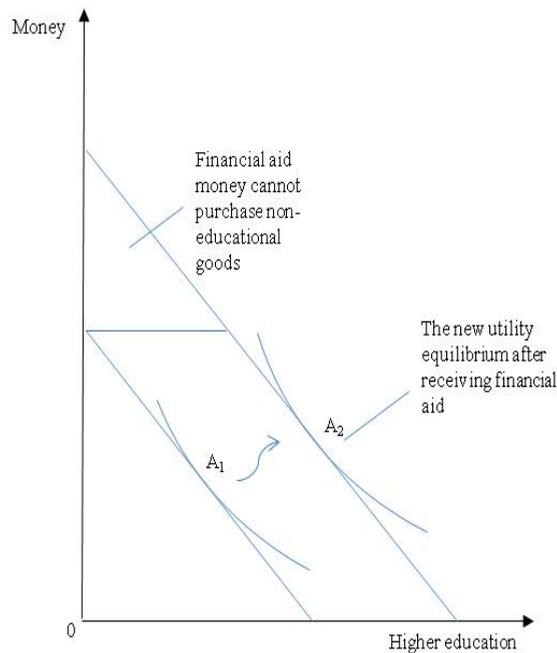
Figure 14 *Financial Aid Programs Increase Utility*

5.   THE UNIVERSITY CHOICE PROCESS

5.1. Socioeconomic factors, students and institutional characteristics

University choice is a complex process. The higher education literature offers various models to examine the most significant activities of the university choice process (Chapman, 1984; Hanson & Litten, 1982; Hossler et al. 1999; Jackson, 1982; Jimenez & Salas-Velasco, 2000; Vrontis et al., 2007). Researchers have isolated the

factors that influence college choice and have emphasized the interaction between these variables. Jackson (1982) proposes a three-stage model of college choice: preference, exclusion, and evaluation. In the preference stage, academic achievement has a strongest correlation with students' educational aspiration. In the second stage, the choice set is fed by resources, academic achievement, and aspiration. The evaluation stage is the process through which the rating schemes and the choice set lead to choice.

The Hanson and Litten's model (1982) examines a large set of variables that influence college decisions, including high school characteristics, public policy, college actions, personal attributes, student characteristics, college characteristics, and influences/media used. The Chapman's (1984) model integrates student characteristics with the other factors of college choice into a student's general expectation of college life. Three groups of factors influence the college decision-making process, including student characteristics, significant persons, college characteristics, and college effort to communicate. Vrontis and his colleagues propose a contemporary student-choice model for developed countries based on the standard theory of consumer behavior to portray the environmental, individual, and institutional factors of student-choice (Vrontis et al., 2007). They provide an exhaustive list of groups of factors that influence student-university choice. The individual determinants include race, socioeconomic status, parent's education, and sex; the environmental determinants include economic conditions, cultural conditions, public policy, influences of parents, career counselors, peers and college officers; and they argue that other factors such as college characteristics and high-school characteristics determine the decision students make about postsecondary education in developed countries.

6.   CONSUMPTION-BASED SCHEME FOR UNIVERSITY CHOICE

This paper presents a scheme for educational consumption that deals with the consumer dimension of the college choice process. This consumption scheme identifies the dynamic relationships among characteristics and determinants of purchase decision-making in the higher education marketplace. Figure 15 illustrates the ways in which consumer's motives and preferences, budget constraint, and tuition affect individual consumption of educational goods. This scheme shows that the process of educational purchase in college decision making occurs in four sequential stages.

6.1. Information processing

When high school graduates think about going to college, they have preference-orderings or positive attitudes toward some postsecondary institutions, which play an important role in the shaping of individual demand for higher education (Jimenez & Salas-Velasco, 2000). Research consistently shows that college characteristics such as reputation, program availability, tuitions and costs, and location determine personal preferences for particular institutions (Hossler et al., 1999; Long, 2004; O'Connor et al., 2008; Paulsen, 2000). The information processing consists of social interactions that are essential in the college decision process even though this stage is not included in several economic models (Hossler et al., 1999). This scheme describes how students make educational choices based on their own motives, what they know about the economic condition, higher education environment, and public policy.

6.2. Product evaluation

In the product evaluation stage, consumers mentally anticipate the purchase and makes cost-benefit comparisons between products. For each product of the choice set, consumers weigh their perceive benefits of the products against the costs. Some consumers are more concerned with college tuition than with the product characteristics or attributes. Low-income high school students, for example, tend to enroll in public institutions that charge less expensive tuitions (Lillis & Tian, 2008; St. John 2002).

6.3. Purchase

In the purchase stage, consumers are negotiating their enrollment with college administrators to enroll in an academic program. During enrollment (purchase of educational products) consumers can receive tuition discount benefits. The enrollment/purchase stage can be referred to a pre-consumption stage. If the institution increases tuition the consumer will consider substitute goods such as registering in a less expensive college in the summer, or transfer in another institution- this is the substitution effect. A full-time college student may reduce his consumption of educational goods by taking courses part-time- this is the income effect.

6.4. Consumption

The consumption phase is a recurring process that extends until graduation. Through this stage, students both consume educational products and evaluate

consumption outcomes. When they are dissatisfied with their choices, they tend to return to the product evaluation stage and consider other choices in order to achieve their educational aspirations.
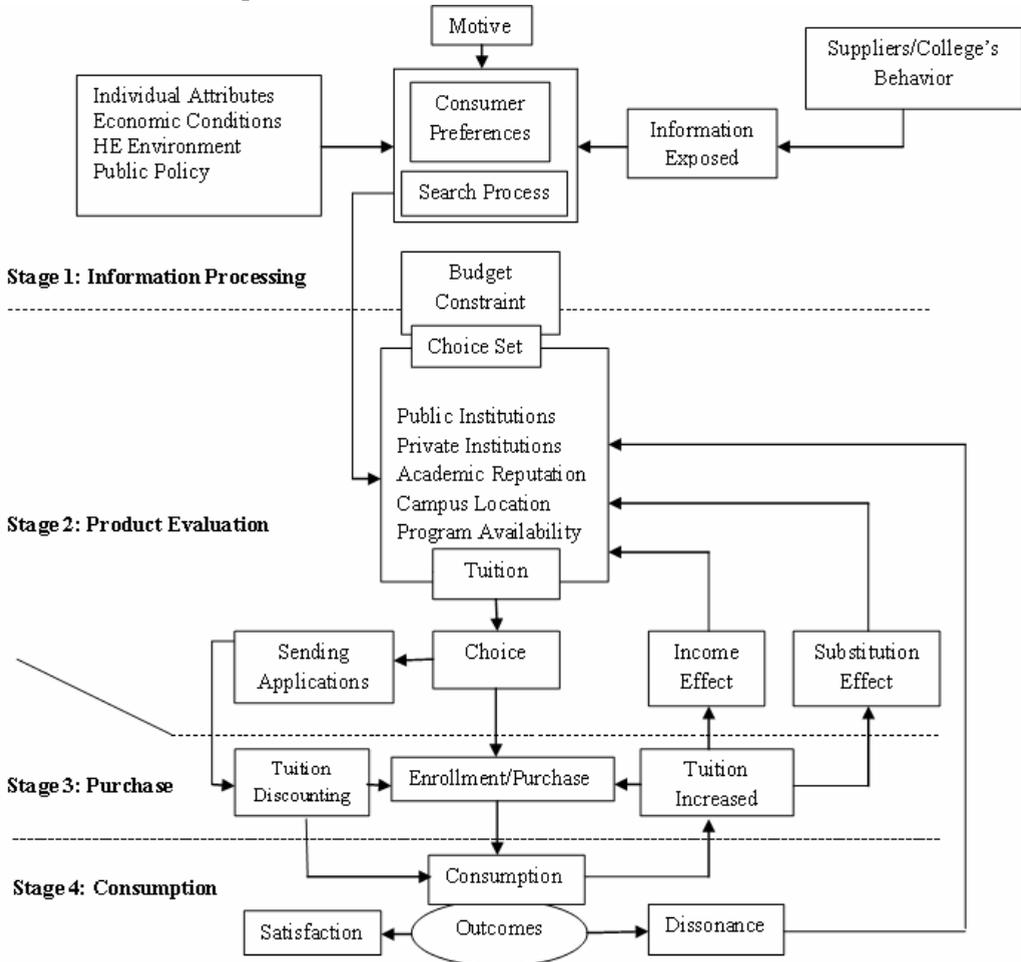
Figure 15 *Scheme of Consumption Decision-Making and Choice for Higher Education*

5.   CONCLUSION

In economics theory of consumerism in higher education all products possess objectives attributes relevant to the choice which consumers make to achieve a postsecondary education. Consumers exhibit their preferences for specific educational goods to all others by enrolling in a particular college or university.

Whenever students as consumers make educational choices, they allocate income over a large number of goods and services to maximize utility.

The human capital approach explains that the incentive to gain a postsecondary education depends on the rate of return expected from investments in education. It has been seen from the facts that a postsecondary degree raises productivity and earnings and provides other benefits to graduate students.

However, sublime and ridiculous personal motives predispose each individual toward considering college education (Sowell, 1986). Likewise, socioeconomic, academic, and institutional factors influence the decisions students make about going to colleges and lead to the purchase of educational goods. Students, therefore, tend to act rationally in their decisions and choices about higher education.

The model of consumption decision-making for higher education that has been presented posits that individuals make educational choices based on subjective information. Less is known for college decision-making about the objectives characteristics of most educational products, attributes, properties, and quality. Less too is known about the real cost of attending a college, the alternative options for those enrolled, the extent to which market conditions affect the rate of increase in tuition, and the effects of consumers' lack of relevant information on educational choices.

In this paper, college choice is referred to as a process by which students purchase educational goods to gain the maximum return on the consumption value of education. The point of the analysis is the role of the budget constraint in the university choice process. With this understanding, the determining factors of student' university choice are individual preferences, income, tuition and fees, and costs of attending a particular postsecondary institution.

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ESTIMATING PRIVATE RATE OF RETUN ON HIGHER EDUCATION IN PAKISTAN

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Abstract: *The current study focuses primarily on estimating private rate of return for two successive degrees of higher education in Pakistan namely M.Phil and PhD. Sensitivity analysis on calculations of the average private rate of return to university education is undertaken. This involves checking how estimates of the rate of return vary with key assumptions used to calculate the rate of return. Further, to estimate internal rate of returns, explicit & implicit costs and earnings on BPS-2005 scale to which a degree holder is eligible to apply. Estimates of the rate of return to a university degree would provide one measure of the net monetary benefits from higher education. Result reveals that private rate of return is extremely low for M.Phil and PhD degrees that can explain dismay situation of higher education in the country. To boost higher education, private rate of return must increase that can be achieved effectively either by raising pay scales, or by giving interest-free scholarships or by increasing retirement age.*

Keywords: *Education, Human Capital, Economic Growth, Cost Benefit Analysis, Public Sector, Pakistan*

Jel Codes: *O1, I21, I23*

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1. INTRODUCTION

Human capital refers to the stock of competences, knowledge and personality attributes embodied in the ability to perform labor so as to produce economic value. It is the attributes gained by a worker through education and experience (Sheffin, 2003). Human capital is considered an important determinant of economic growth and an effective vehicle for reducing inequality and absolute poverty (World Bank, 2008). Therefore investment in human capital in the form of higher education is recognized as capital investment (Barnet, 1990) and the "engine of development in the new world economy" (Ozsoy, 2008).

Higher education has always been an important component of the social agenda, but it has acquired a new importance today. In the emerging 'knowledge economy', nations that fail at creating a decent learning environment will lag behind, and may end up becoming virtual colonies of those that do succeed in this regard. The TFHE (2000, p. 12) report puts it very well:

> "The world economy is changing as knowledge supplants physical capital as the source of present (and future) wealth…. As knowledge becomes more important, so does higher education…. The quality of knowledge generated within higher education institutions, and its accessibility to the wider economy, is becoming increasingly critical to national competitiveness…. This poses a serious challenge to the developing world…. Quite simply, many developing countries will need to work much harder just to maintain their position, let alone to catch up".

Pakistan's situation is particularly grave, and some consider the system to be in a virtual state of collapse. Pakistan's public expenditures on health and education are less than 3 percent of GDP, whereas in newly industrialized and developed countries, public expenditures on education are above 10 percent of their GDP. Response to higher education in Pakistan improved when government established Higher Education Commission (HEC) in 2000 to promote higher education in the country. HEC started, on one hand, giving scholarships to M.Phil and PhD students, and on the other hand, increased funding to public sector universities (Economic Survey of Pakistan, 2007-08). Detail of public and private sector universities in Pakistan is given in table 33.

Table 33 *Number of Public and Private Universities in Pakistan (1947-2006)*

Year	Universities				Degree Awarding Institutions			
	Public		Private		Public		Private	
	Total	Female	Total	Female	Total	Female	Total	Female
1947-1948	2	-	0	-	0	-	0	-
1950-1951	4	-	0	-	0	-	0	-
1960-1961	5	-	0	-	1	-	0	-
1970-1971	8	-	0	-	2	-	0	-
1980-1981	19	-	0	-	2	-	0	-
1990-1991	20	-	2	-	3	-	0	-
2000-2001	32	2	14	1	5	-	8	-
2005-2006	49	4	36	1	8	1	18	-

Source: Statistical Booklet of Education in Pakistan available at www.hec.gov.pk

The higher education sector of Pakistan has passed through three phases of development. During phase 1 (1947-1970) the higher education sector was completely ignored. At the time of independence (1947), there were only two public sector universities. The same remiss attitude towards higher education continued till 1970. During second phase (1980-2000), the government realized the importance of higher education, as result the number of public sector universities increased to nineteen with two private sector universities as well. Response to higher education in Pakistan particularly improved in third phase of development (2000-2010), when government established the Higher Education Commission (HEC) to promote higher education in the country. HEC started, on one hand, giving scholarships to M.Phil and PhD students, and on the other hand, increased funding to public sector universities. As a result the number of universities and DAI reached to 132, out of which 73 are public and 59 are private. Total numbers of degree colleges are 1135, out of which 777 are public and 358 are private. There are two distance learning universities, Allama Iqbal Open University (AIOU) and Virtual University.

The objective of this paper is to estimate economic return and cost to individual for two higher education programmes, i.e. M.Phil and PhD from comparative point of view. This research focuses on the role of higher education in the development of human capital in Pakistan that refers to various levels of post-graduate studies. More specific objectives are:

- To work out private net present value (NPV) and internal rate of return (IRR) for M.Phil and PhD degrees, at first, on the basis of simplified assumptions.
- To repeat the same exercise on the basis of relaxed assumptions.
- To compare NPVs and IRRs of M.Phil and PhD degree programs with the market rate of interest.

This paper include following dimensions / methodologies of the investment in higher education:

- **Private returns:** It is based on the costs and benefits of education, as those are realized by the individual student, i.e. how much he/she actually pays out of pocket to attend a higher education institution, relative to what he/she gets back, after taxes, in terms of increased earnings, relative to a control group of secondary school graduates who did not pursue tertiary education studies. This is a private spending efficiency question. Private rates of return are used to explain the behavior of students regarding the demand for higher education, or the equity effects of state subsidies to education.

- **Internal rate of return:** It is a summary statistic that can be used to measure the net benefit of undertaking a university education – that is, the relative magnitude of costs and benefits. Formally, it is the rate of interest that equates the present discounted value of the costs and benefits from making the investment.

- **Sensitivity analysis:** It is based upon calculations of the average private rate of return to university education i.e., how estimates of the rate of return vary with key assumptions used to calculate the rate of return.

This paper is organized in five sections. Section 2 shows a comprehensive literature review. Section 3 provides data source and methodological framework. The empirical results are presented in Section 4, while the final section concludes the study.

2. LITERATURE REVIEW

Human capital plays a key role in versions of both neoclassical and endogenous growth models (Mankiw et al, 1992, Rebelo 1991, Sianesi and Van Reenen 2003). The critical difference is that in the first group, economic growth is still ultimately driven by exogenous technical progress, whereas in the second, no additional explanation is needed and human capital is much more important. Investment in human capital in the form of higher education is recognized as capital investment (Barnet, 1990) and the "engine of development in the new world economy" (Ozsoy, 2008).

Psacharopoulos (1985) analyzing the data of 60 countries explains that productivity benefits to education are associated with the receiving a higher degree, the individual comes up with new ideas and innovative methods of productivity and marketing Romer (1987) argued that socio- economic variables may affect economic

growth and human productivity significantly. Luis and Romer (1991) noted that the success of South Korea and Taiwan and failure of Thailand in developing their economies in 1960s and 1970s may be attributed to differences in their levels of education.

Psacharopoulos and Patrinos (2002, 2004) reviewed studies of 98 countries conducted from 1960 to 1997 and concluded that higher education gives less return than that on primary and secondary schooling. All these studies focus only on the financial benefits accrued by individuals and the tax revenues they generate. Lin (2004) is of the view that higher education plays a strong role in the economic growth of a country. According to his estimates, a one percent rise in higher education stock leads to a 0.35 percent rise in industrial output, and that a one percent increase in the number of engineering or natural sciences graduates leads to a 0.15 percent increase in agricultural output. Mark *et al.* (2004) calculated rates of return for higher education by subject and by gender. His analysis shows that Medicine, Law, Economic and Social Studies yield higher private return followed by Mathematics, Engineering and Natural Sciences. He discovered that Language and Cultural Studies seem to be unattractive investments as they yield a rate of return lower than that for long run government bonds.

In case of Pakistan, Guisinger *et a.l* (1984) using a Mincerian function and data for males only found low rate of return to schooling and high return at higher levels of education in Pakistan. Haque (1977), Hamdani (1977), Khan and Iran (1985), Shabbir (1991), Nasir (1998) and Asadullah (2005) all have similar findings that return to education in Pakistan increases as individual level of education increases and return to education is less in Pakistan than that in other developing countries. Monazza (2007) found large differences in labor market earnings between male and female in Pakistan and find that return to an additional year of schooling ranges between 7 and 11 percent for men and between 13 and 18 percent for women and also concluded that total labour market return are much higher for men despite return to education being higher for women. Pawel (2008) estimated that private rate of return is 7% yearly which is highest in Europe and also exist an additional 1.5% social return to higher education.

This research is different from previous studies with two respects. One is that it considers education by degree while previous studies define education either too broadly like primary, secondary and higher education or too narrowly like yearly schooling. The other is that this research works out private rate of return for each degree rather than social one that can safely be interpreted as the demand for a given degree. Private return on higher education has been estimated by two criteria; NPV

and IRR, considering explicit as well as implicit costs and life long earnings. This study aims to fill up this gap in the previous literature partially as it concentrates on M.Phil and PhD degrees of higher education only.

3. METHODOLOGY AND DATA SOURCE

Computation of education costs and benefits is not a simple task because both are too complex. However, calculation of cost is relatively simpler than that of benefits. There are two types of costs, one is public cost incurred by the government and the other is personal cost incurred by the individual who obtains education. Though both are relevant, yet we take into account personal cost only for the calculation of private rate of return. Personal costs can be further divided into two types, one is /direct/explicit or out of pocket cost and the other is indirect / implicit or opportunity cost of education. The former denotes the tuition fee and expenditures on stationary, books and boarding and lodging while the latter denotes the income forgone during the period of study. Both of these costs are taken into account.

Benefits of education are of two types, personal benefits and social benefits. Here, we take only personal benefits of acquiring higher education and ignore social benefits of education because an individual who is motivated by self interest hardly bothers about social benefits of education. Personal benefits of higher education can also be divided into two types, financial benefits like salary and non-financial benefits like prestige in society. Since quantification of non-financial benefits requires many restrictive assumptions we, therefore, ignore them and consider only financial benefits

Financial benefits of education can further be divided into two types, regular benefits like monthly salary and irregular benefits like bonus pay. We take into account only regular benefits because of non-availability of reliable data on irregular monetary benefits and also because of great variability of irregular benefits even to employees working in same cadre and same institution. Educated people work either in public or in private sector. In private sector, since the pay of an employee depends more on his efficiency and managerial abilities rather than on his academic qualifications, therefore one can hardly find any standard pay scale in private sector. Each firm and industry has its own pay structure. Instead of taking the average pay in private sector, this study assumes that a potential candidate for higher education keeps in view only government pay structure.

Moreover, to obtain a degree, the timings of costs and benefits are not same because costs are incurred heavily at the beginning of a degree program while

earnings accrue over an extended period of time after the individual completes his degree and starts some job. To get over this problem, two methods, net present value (NPV) and internal rate of return (IRR), are used. Both methods give same results if initial investment for each investment project under consideration or for each degree program is same. However, if initial cost of each degree is different, then NPV is preferable over IRR.

For illustration, let us consider two projects, A and B, with initial investment of 100 and 1000 respectively. Suppose that IRR on project A is 10 percent and on project B is 5 percent. According to IRR criterion, project A is preferable to project B because project A gives greater rate of return. On the other hand, NPV criterion suggests that project B is more beneficial because 5 percent of 1000 that comes out 50 is much greater than 10 percent of 100 that comes out 10.

It is clear from this illustration that an individual should rationally decide according to NPV criterion that refers to the absolute amount of net profit after taking into account time horizon of costs and benefits of return, and should not decide according to rate of return or IRR only. It establishes that the correct criterion for evaluation of any degree of education is NPV instead of IRR.   In spite of theoretical superiority of NPV over IRR, however, we also calculate IRR because most of the previous studies have used only IRR.

NPV is the difference between present value of benefits of higher education and present value of its cost at a given interest rate. The greater is margin by which benefits exceed costs of a degree program, the more rewarding and attractive is that degree to potential candidates. On the other hand, IRR represents the discount rate that equates the present value of additional income stream accruing to a degree holder to the cost of degree. If this discount rate is higher than the market interest rate, then education is a worthwhile investment on pure economic grounds for the individual, otherwise not.

3.1. Calculation of Net Present Value (NPV)

In this research following formulae have been used to calculate NPV for M.Phil and PhD degree programs.

$$NPV_{M.Phil} = \sum_{t=m+1}^{n} \frac{(W_{M.Phil.t} - W_{Mt})}{(1+r)^t} - \sum_{t=1}^{m} \frac{(C_{M.Phil.t} + W_{Mt})}{(1+r)^t} \tag{1}$$

$$NPV_{Ph.D.} = \sum_{t=m+1}^{n} \frac{(W_{Ph.D.t} - W_{M.Phil.t})}{(1+r)^t} - \sum_{t=1}^{m} \frac{(C_{Ph.D.t} + W_{M.Phil.t})}{(1+r)^t} \tag{2}$$

- Where, W_{Mt} is the annual after tax earning of a master degree holder working in BPS 17.
- W_{MPhilt} is the annual after tax earning of an M.Phil degree holder working in BPS 17 plus four increments.
- W_{PhDt} is the annual after tax earning of PhD degree holder working in BPS 18 plus Ph.D allowance Rs. 5000 per month.
- $C_{M.Phil}$ and C_{PhD} is the explicit or direct cost and W_M, $W_{M,Phil.}$ and W_I show the indirect or opportunity cost of master, MPhil and PhD degrees respectively.
- n subscript is the retirement age (i.e., 60 years)
- t is starting time and m is completion time of degree whereas (t to m) is duration of study.
- (n-m) is the working life which is 38, 36, 32 and 38 years respectively for M.Phil and PhD and professional bachelor degree respectively in the base case.
- r is the given rate of interest.

3.2. Calculation of Internal Rate of Return (IRR)

IRR is defined as that rate of discount which equates the present value of future stream of net receipts with initial investment outlays. It is denoted as follows.

$$\sum_{t=m+1}^{n} \frac{(W_{M.Phil.t} - W_{Mt})}{(1+k)^t} - \sum_{t=1}^{m} \frac{(C_{M.Phil.t} + W_{Mt})}{(1+k)^t} = 0 \tag{6}$$

$$\sum_{t=m+1}^{n} \frac{(W_{Ph.D.t} - W_{M.Phil.t})}{(1+k)^t} - \sum_{t=1}^{m} \frac{(C_{Ph.D.t} + W_{M.Phil.t})}{(1+k)^t} = 0 \tag{7}$$

Explanation of all variables is same as above except that of k, which is the discount rate or IRR which equates the present value of benefits to the present value of costs.

3.3. Data Sources

3.3.1. Direct/Explicit Cost: Explicit or direct cost includes university fees, expenditures on books, stationary and transport charges. Out of them, tuition is paid generally at the beginning of each semester and is same for all students whereas other expenses are incurred periodically over the whole period of study and are different for each student. However by assumption, total explicit expenses in this research are treated as constant for each student in a specific degree program and are incurred at the beginning of each academic year.

Pakistan Social and Living Standard Measurement Survey (PSLMS) 2004-05 reports education expenditures of 14000 households whose children were studying at any level. Out of them, 96 households had their children studying only in professional bachelor degree, 100 households had their children studying only in master's degree and 4 households had their children studying in M.Phil and PhD programs only. Other households had their children at different degrees of education. Therefore, we have picked up only those households whose all children were studying in the same education level and then we have calculated average education expenditure per child to represent the explicit cost of concerned higher degree program.

As the number of observations for M.Phil and PhD is very small, therefore it may not be advisable to make an analysis on the basis of PSLMS only. To come over this data problem, we have conducted a survey of 103 students of four universities in Islamabad; International Islamic University (IIU), Quaid-i-Azam University (QAU), National University of Modern Languages (NUML) and Allama Iqbal Open University (AIOU). The breakup of student interviewed is given in the table 34.

Table 34 *University-Wise Students Interviewed for Explicit Expenditure*

Education Level	Professional Bachelor	Master	M.Phil	PhD	Total
IIUI	08	08	06	12	34
QAU	-	07	06	13	26
NUML	02	05	05	05	17
AIOU	03	10	05	08	26
Total	13	30	22	38	103

Source: Survey conducted by the researcher in summer 2006.

We asked about their expenditures on tuition fee, transport, stationary, books, lodging and boarding. For comparison, total explicit expenditures of an average student on each degree obtained from both sources are reported in table 35.

Table 35 *Explicit Cost of Different Degree Programs by Different Data Sources*

	M.Phil	PhD
PSLMS*	20490	4980
Survey	23692	51610

* Self-calculations on the basis of PSLMS 2004-05.

3.3.2. Indirect/Implicit or Opportunity Cost: Implicit or opportunity cost is the income forgone during the period of study. Opportunity cost of different degree programs is calculated on the basis of government pay scales to which a degree holder is eligible to work. For example, M.Phil degree holder is eligible to work in

BPS 17 plus 4 advanced increments. The data on BPS is issued by the office of Accountant General, Government of Pakistan. It is reported in table 36.

Table 36 *Relevant Basic Pay Scales*

BPS	Existing Pay Scales 1/7/2005	Stages	Existing Pay Scales 1/7/2007	Stages
19	14260-705-28360	20	16400-810-32600	20
18	9355-675-22855	20	10760-775-26260	20
17	7140-535-17840	20	8210-615-20510	20
16	4375-340-14575	30	5050-390-16750	30
9	2770-165-7720	30	3185-190-8885	30

Source: Pay Scale Chart issued by the Office of Accountant General, Govt. of Pakistan.

3.3.3. Degree Completion Time, induction in labor market and working years: The minimum prescribed time for completion of M.Phil and PhD degree is 2 and 4 years respectively as collected from prospectuses of various universities and educational institutions. The normal age of successful holders of various degrees is also estimated on the presumption that a child gets admission in first grade, on the average, at the age of 6 years. Then he/she passes though his/her primary education at the age of 11 years, higher secondary or intermediate education at the age of 18 years and graduate degree at the age of 20 years. It is also supposed that degree holders enter the job market in the same year of their degree completion and also get jobs immediately after entering the job market.   Though this assumption may not seem very realistic, yet it seems to be in accordance with the dreams of students when they have to decide whether to get admission in a degree program or start job/business instead. The time for completion of various degrees, normal ages after completion of various degrees and normal working years for varioous degree holders are reported in table 37.

Table 37 *Life Time Plan of an Individual in Education and Employment*

Education Level	Duration of study	Age when job starts	Working years
M.Phil	2	24	36
PhD	4	28	32

Source: Various Prospectuses of educational institutions.

3.3.4. Before Tax Earnings: As in case of implicit or opportunity cost of a degree above, it is assumed here that degree holders enter the job market in the same year of their degree completion and then immediately find jobs to which they are eligible to apply. More specifically it is assumed that M.Phil degree holder joins BPS 17 plus four increments and a PhD degree holder joins BPS 18 plus five thousand PhD allowance and a professional bachelor's degree holder joins BPS 17. Though a

degree holder may be promoted to next higher BPS before completing the prescribed stages for existing BPS, yet for convenience and uniformity, yet it is supposed that an employee is promoted to next BPS only after completing all stages of existing BPS thorough a single increment each year. It means that a master's degree holder who joins BPS 17 in the age of 22 years is promoted to BPS 18 after passing through 20 stages of this scale by annual increments in the age of 42 years.

Earnings other than regular pay of an individual such as traveling allowance are also not considered due to lack of data. Monthly pay of a degree holder is calculated by summing up the basic pay given in government pay scale shown in appendix table 3 and adding up 45 percent of basic pay as house rent and 15 percent of basic pay as dearness allowance. Medical and conveyance allowances are ignored because some departments pay them in kind with different upper limits while some other departments pay them both in kind and cash different rates.

3.3.5 After Tax Earnings: Total annual earning of a degree holder is obtained by adding his/her twelve months salary as described in the above paragraph. A degree holder spays both direct taxes like income tax and indirect taxes like General Sales Tax but payment of indirect taxes depends on his/her consumption style on which data is not easily available. Therefore, only tax income is deducted from total annual earnings using the income tax rates given in table 38 issued by the office of Accountant General, Government of Pakistan.

Table 38 *Income Tax Rates for Different Income levels*

Annual income (Rs)	Tax Rate (%)
0-150000	0
150000-200000	0.25
200000-250000	0.50
250000-300000	0.75
300000-350000	1.5
350000-400000	2.5
400000-500000	3.5
500000-600000	4.5
600000-700000	6
700000-850000	7.5
850000-950000	9
950000-1050000	10
1050000-1300000	11
1300000-1500000	12.5
1500000-1700000	14
1700000-2000000	15
2000000-3150000	16

Annual income (Rs)	Tax Rate (%)
3150000-3700000	17.5
3700000-4400000	18.5
4400000-8400000	19

Source: Office of Accountant General, Govt. of Pakistan.

3.3.6. Interest Rate to Calculate NPV: To calculate NPV, an interest rate must be given that represents the opportunity cost of project. Mostly it is taken the risk-free interest rate that is given on Treasury Bills. It means that instead of investing in an education degree, one can earn risk-free interest rate by investing in Treasury Bills. Sometimes it is also interpreted as the desired rate of return. In that event, it includes the risk premium on top of risk-free rate of return. Since the inter-bank interest rate is very closely related with Treasury Bill rate, therefore we have used the average of last ten years' inter-bank interest rate that is taken from various issues of *Statistical Bulletins* published by State Bank of Pakistan.

3.4 Relaxation of Assumptions

In sensitivity analysis in the subsequent section, the base case assumptions described above are changed in the following three ways.

- Retirement age is changed from 60 to 65 and 55 years in turn.
- The average of last ten years' inter-bank interest rate to calculate NPV for various degrees has been replaced with 0, 5, 10 and 15 percent interest rates percent because in Pakistan interest rates have fallen mostly in this range.
- Completion time for a degree has been increased from the minimum prescribed period to complete because many students take longer than the minimum prescribed time to complete their degrees.

4. RESULTS AND DISCUSSIONS

Total cost of each degree is obtained by adding up its direct and indirect costs. Direct costs consist of tuition fee and expenditures on stationary, books, lodging and boarding. Data on direct cost is obtained from a survey by the researcher of 103 students in 4 universities situated in the federal capital of Pakistan, Islamabad. Data is also simulated from PSLMS 2004-05. Data from both sources are very close. Indirect cost of each degree refers to the earnings which a degree seeker could have earned during the period of his/her study, had he/she joined the job instead of taking admission in the degree program. His/her earnings are taken to be in the BPS to which he/she is eligible to apply without having the degree.

Total earnings of a degree holder are calculated by summing up his/her whole working life regular salary of the BPS for which he/she is eligible to apply assuming that he/she gets the job immediately after completing the degree. Irregular financial benefits like travelling allowance are ignored. Chances of promotion to the next BPS before completing the given stages of existing BPS are also ignored. Due income tax as prescribed by the office of accountant general, Government of Pakistan is detected from the gross earnings but indirect taxes like general sales tax are ignored because their amount depends upon consumption pattern on which data is very scarce.

Following table 39 shows costs and earnings of various degree programs for the base case. The base case adopts 60 years as retirement age, 8.3 percent as the discount rate which is the average of last ten years inter-bank interest rates and minimum prescribed time for completion of a degree. First three rows of the table report direct, indirect and total costs of each degree program respectively. Fourth row shows present value of total cost. Fifth and sixth rows represent before and after tax earnings over the whole working life respectively. Seventh line gives present value of total after tax earnings. The last two lines of the table show NPV and IRR of each degree program.

Table 39 *Total Costs, Earnings, NPV and IRR for M.Phil and PhD Degrees*

Education Level	M.Phil	PhD
Costs		
Direct Cost	20490	40980
Indirect/Opportunity Cost	213122	646099
Total Cost	233612	687079
PV of Total Cost	221784	597872
Earnings		
Life Long Earnings Before Tax	11472516	13236320
Life Long Earnings After Tax	11258971	12834866
PV of Life Long Earnings After Tax.	80338	461054
NPV at given r =8.3 percent	-141446	-136819
IRR(percent)	2.87	6.56

Source: Self calculations based on PSLMS 2004-05 and on BPS 2005.

NPVs are worked out at the interest rate of 8.3 percent which is the average of actual annual inter-bank interest rates over the last ten years from 1995 to 2005 in Pakistan. NPVs for M.Phil and PhD degrees are negative. It means that under current structure of costs and benefits of education, undertaking of M.Phil and PhD degrees is not worth while on purely economic ground because present value of their benefits is much less than their costs.

IRR for all degrees is positive. It is the highest for PhD degree and the lowest for M.Phil degree. Hence, according to IRR criterion, undertaking of M.Phil degree is still profitable but its profit is less than that the average of inter-bank interest rate during the last ten years. It means that if a potential candidate for M.Phil degree had deposited, on average inter-bank interest rate, his/her money which he/she would he spending to get the degree, then he/she would have earned more amount in interest than that he would have earned by getting 4 additional increments over the whole working life after doing M.Phil. The same is true for PhD.

A noteworthy fact is that IRR is greater for PhD than that for M.Phil that implies higher demand for PhD degree than that for M.Phil degree. However, practically the demand for PhD degree may not be higher than that for M.Phil degree because M.Phil degree is prescribed as a pre-requisite for PhD in most of the universities in Pakistan.

4.1. Sensitivity Analysis

Sensitivity analysis indicates one by one relaxation of three assumptions of the base case. First, two alternative retirement ages, 55 and 65 years, are considered in lieu of 60 years. Second, degree completion time is increased by one year from the minimum prescribed time for completion of each degree. Third, to calculate NPV, instead of using the average of actual inter-bank interest rates during the ten years 1996-2005 that is 8.3 percent, four arbitrarily chosen interest rates; 0, 5, 10 and 15 percent are used.

Assumption of different retirement age affects only the earnings of degree holders. Tough absolute earnings decrease significantly in case of 55 years of age for retirement and increases significantly in case of 65 years of age for retirement, yet the present values of lifelong earnings after tax do not change significantly as shown in table 40 below.

Table 40 *Total Costs, Earnings, NPV and IRR for M.Phil and PhD Degrees at Alternative Retirement Ages*

Education Level	M.Phil		PhD	
Retirement age	55 year	65 year	55 year	65 year
Cost (unchanged)				
PV of Total Cost	221784	221784	597872	597872
Earnings				
Life Long Earnings Before Tax	9307161	13822371	10540395	16164745
Life Long Earnings After Tax	9168850	13527134	10259385	15632383
PV of Earnings After Tax.	76369	83171	422579	485637
NPV at given r=8.3 percent	-145415	-138613	-175294	-112236
IRR (percent)	2.25	3.31	5.79	6.99

Source: Self calculations based on PSLMS 2004-05 and BPS 2005

NPV line in the table shows that NPV for M.Phil and PhD degrees remains negative even in case of 65 years of age for retirement. It means that increase in retirement age may not induce more demand for these degrees. IRR for M.Phil and PhD degrees changes marginally with change in retirement age.

Many students take more than the minimum prescribed period to complete a given degree. Therefore, degree completion time is increased for each degree by one year arbitrarily to work out the cost of each degree. This change affects both costs and earnings as the average cost of another year of education in each degree is added to total costs and earnings of the first year from life long earrings of each degree holder are deducted. Table 41 shows the changed costs and earnings for different degrees.

Table 41 *Total Costs, Earnings, NPV and IRR for M.Phil and PhD Degrees at One Year Longer than the Minimum Prescribed Period for Each Degree*

Education Level	M.Phil	PhD
Duration of Degree	3 years	5 years
Cost		
Direct Cost	30735	51225
Opportunity Cost	373532	860384
Total Cost	404267	911609
PV of Total Cost	367287	761115
Earnings		
Life Long Earnings After Tax	10826703	12302006
PV of Life Long Earnings After Tax.	-3633	363565
NPV at given r=8.3 percent	-370902	-397551
IRR (percent)	negative	3.86

Source: Self calculations based on PSLMS 2004-05 and BPS 2005

NPV remains negatives for M.Phil and PhD degrees. It means that demand for M.Phil and PhD degrees would further decrease if potential candidates for these degrees keep in view the possibility of longer time period for completion of their degrees. It has been generally observed that possibility of longer completion time is greater for M.Phil and PhD degrees than that for other's degrees.

In stead of taking a single given interest rate to calculate NPV, we have considered four different interest rates; 0, 5, 10 and 15 percent, because any of them may actually prevail in future as the last three of them fall in the range of values that interest rates have commonly taken in the history of Pakistan. The first one that is zero percent is to explore the scenario of prohibition of interest in any form in the country. This change has no effect on IRR for each degree. It affects only NPV values as given in table 42.

Table 42 *Total Costs, Earnings and NPV for M.Phil and PhD Degrees at Alternative Interest Rates*

Education Level	M.Phil	PhD
Duration of Degree	2 years	4 years
Cost		
Direct Cost	20490	40980
Indirect Cost	213122	646099
Total Cost	233612	687079
PV of Total Cost 0 percent	233612	687080
PV of Total Cost 5 percent	226265	630532
PV of Total Cost 10 percent	219586	582351
PV of Total Cost 15 percent	213487	540949
Earnings		
Life Long Earnings After Tax	11258971	12834866
PV of Life Long after Tax Earning 0 percent	426840	2264844
PV of Life Long after Tax Earning 5 percent	149996	812114
PV of Life Long after Tax Earning 10 percent	58560	354755
PV of Life Long after Tax Earning 15 percent	21219	179249
NPV 0 percent	193228	1577765
NPV 5 percent	-76269	181582
NPV 10 percent	-161026	-227596
NPV 15 percent	-192269	-361700

Source: Self calculations based on PSLMS 2004-05 and BPS 2005

IRR decreases a great deal for both degrees but it becomes even negative for M.Phil degree.   It means that if M.Phil degree takes 3 or more years for its completion, then it is simply not a worthwhile exercise on pure economic grounds. In simple words, a M.Phil degree holder would lose money by doing M.Phil. He would be better off financially without doing M.Phil and without investing his/her money which he/she should be spending to obtain this degree in risk-free treasury bills.

The figures in last four rows show that both degrees have positive NPV only at zero percent interest rate. NPV for M.Phil degree becomes negative at 5 percent interest rate and above while NPV for PhD degree becomes negative at 10 percent interest rate and above. Demand for M.Phil and PhD degrees may fall when interest rate increases in expansionary periods. The reason being that in such a situation, investing in default free treasury bills and comparable debt instruments would be more profitable than investing in these higher degrees of education.

5.   SUMMARY AND CONCLUSION

Implication of human capital theory that education is the fastest route to achieve economic prosperity, however, does not seem to be working in Pakistan because demand for education in general and higher education in particular is not coming up. To understand this contradiction in theory and practice, we have considered investment in education like any other investment in physical or financial assets.   Since investors of physical and financial assets compare NPVs and IRRs of competing investment options and choose the one which has highest NPV or IRR, therefore we have applied the same criterion for successive degrees of higher education i.e., M.Phil and PhD. It is the private return on educational investment that determines the demand for education. Therefore, this research has worked out private return to higher education in Pakistan.

The result reveals that the internal rate of return for M.Phil and PhD degrees is lower than the market interest rate which means that investment in these degrees is not worthwhile on economic grounds. This conclusion is confirmed from NPV values for M.Phil and PhD degree which are negative at any interest rate equal or above 5 percent. Negative NPVs and lower IRR than market interest rate are probably the reason for low demand for these degrees in Pakistan.

Change in retirement age affects total earnings of degree holders only marginally. Tough absolute earnings change significantly, yet the present values of lifelong earnings after tax do not make much difference. One year increase over the minimum prescribed time for completion of each degree affects both costs and earnings of the degree. NPV remains negatives for M.Phil and PhD degrees. It means that demand for M.Phil and PhD degrees would further decrease if potential candidates for these degrees keep in view the possibility of longer time period for completion of their degrees. Especially for M.Phil degree, NPV is negative even at zero percent interest rate. It means that if a student is sure that he/she would have to spend 3 or more years to complete his/her degree, then he/she would not dare to take admission for financial gains.

Use of different interest rates to work out NPVs of various degrees highlights that professional bachelor and master's degrees remain economically viable even at the highest interest rate, 15 percent. However, M.Phil and PhD degrees are viable only at interest rates below 3 percent and below 7 percent respectively. Even though PhD degree brings better return than M.Phil degree, yet demand for PhD degree may not be higher than that for M.Phil degree because the latter is a pre-requisite for the latter in most of the universities of Pakistan.

In spite of all the emphasis of human capital theory that education is the most rewarding investment, still demand for highest degrees of education i.e., M.Phil and PhD which is extremely low and is not catching up in Pakistan as expected. The results of this research explain this contradiction in theory and practice to a great extent. Potential degree seekers look at private rate of return for a degree rather than at its social rate of return whereas human capital theory probably makes high proclaims on educational investment on the basis of social rate of return.

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ASSESSING THE PERFORMANCE OF MONETARY POLICY UNDER ECONOMIC REFORM AND STRUCTURAL ADJUSTMENT PROGRAM: THE CASE OF EGYPT

Ibrahim L. AWAD[*]

Abstract: *This paper assesses the performance of monetary policy in Egypt during the periods following the introduction of economic reform and structural adjustment program (ERSAP). It sets out to answer the question: Why couldn't the central bank of Egypt (CBE) achieve the goal of price stability under the ERSAP? The study compares economic performance as of the nineties decade with both its counterpart in Germany, during the same periods, and with the economic performance of the Egyptian economy during the periods before the nineties, i.e. 1975-1990. The study concluded that the CBE could bring the rate of inflation down nevertheless, the rate of growth of both unemployment and real GDP has been worsened and price stability still far reaching. The failure to achieve price stability is explained by two reasons, namely, a conflict between monetary policy objectives and a chronic budget deficit financed by issuing new money.*

Keywords: *Monetary Policy in Egypt; Economic Reform; Monetary Policy Objectives*

JEL Codes: *E31,E40, E42, E50*

1. INTRODUCTION

The most radical changes in macroeconomic policy in Egypt since the fifties last century occurred in the early nineties decade when the Egyptian government endorsed an agreement with the IMF and the WB, known as economic reform and

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structural adjustment program (ERSAP)[1]. This agreement came about in the aftermath of a critical economic performance of the Egyptian economy in the late eighties, where the ratio of external debt (% of nominal GDP) reached to 131.7 % and 115.23 % in the years 1988 and 1989 successively[2].

During that time, early nineties, the events of the Gulf War were developing. Richards (2001) described the circumstances standing behind the introduction of the ERSAP during this period as follows: "The Gulf War created an entirely new situation. It provided a strategic opportunity, which the Egyptian government swiftly seized. The government adopted a reasonably conventional stabilization and structural adjustment package, endorsed by the IMF, in exchange for massive debt relief. Such a bargain was attractive both economically and politically. Economically, the reduction of up to $20 billion of debt cut yearly interest payments by $2 billion for the next ten years. Politically, the deal was easier to sell domestically, since the government could plausibly argue that its creditors were shouldering part of the burden of past mistakes".

The ERSAP incorporated two broad objectives, namely, (i) switching the economy into a market-based economy via the liberalization of prices, FX rate, interest rate and trade; and (ii) stabilizing the economy and rectifying macroeconomic policies. Three dimensions have been emphasized by the ERSAP: (i) trade balance dimension, where the purpose is to decrease or eliminate the deficit in the trade balance via devaluation of domestic currency, floating exchange rate, cutting tariffs of trade and eliminating quantitative restrictions imposed on imports. (ii) Price stability dimension, where the purpose is to achieve price stability using both monetary policy and fiscal policy tools through increasing nominal interest rates, increasing energy prices and lowering employment in the government sector. (iii) Private investment dimension, where the purpose is to encourage private investment by liberalizing prices, selling public enterprises to the private sector (privatization) except for infrastructure enterprises, extending tax exemptions and permit companies' profits to be transferred abroad without any obstacles.

Because the ERSAP represents a watershed between two identifiable phases of macroeconomic policy in Egypt, this paper assesses the performance of monetary

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[1] Before the ERSAP, Egypt signed three stand-by agreements with the IMF, i.e. in 1976, 1978 and 1987. These agreements were very similar to the ERSAP. For social, political and economic reasons these agreements were interrupted. For more details about the ERSAP see, Awad (2002), Richards (2001), and Korayem (1997).

[2] Calculated from WDI, CD-R 2008 where total debt (USD-billions) was 46.147 and 45.684 for the years 1988 and 1989 successively, whereas corresponding nominal GDP (USD-billions) were 35.045 and 39.648 successively.

policy by focusing on the periods following the introduction of the ERSAP. It sets out to answer the question of why the central bank of Egypt (CBE) couldn't achieve the goal of price stability under the ERSAP[3]. I organized this paper as follows: Section 2 highlights monetary policy objectives and tools under the ERSAP. Section 3 assesses the performance of monetary policy under the ERSAP. Section 4 concludes.

2. Monetary policy objectives and tools under the ERSAP

Before the 1990's, the Egyptian economy was described as a centralized economy. Central planning and public sector were dominating the whole economy thus, economic policy was implemented by direct means, i.e. orders or instructions. As the government was controlling and managing the vast majority of prices, the function of prices as guidance for economic activities was disrupted in the whole part of the economy. The role of private sector, was not completely absent, however, it was very limited. During some periods prior to the ERSAP, the private sector's role in the economy increased in comparison to some other periods but generally, the public sector was given the upper hand within the economy from the sixties until the early nineties last century (Awad 2002).

Abu-Elayoun (2003) indicated that monetary authorities applied the monetary targeting regime during the periods before the ERSAP to achieve the goal of price stability but the association between the intermediate target, i.e. M2, and the ultimate goal of monetary policy, i.e. price stability, was not strong enough. Indeed, during these periods the CBE did not announce any targets for the monetary growth. In addition, the foreign exchange (FX) rate was pegged vis-à-vis the US dollar either during these periods or even after the introduction of the ERSAP until the start of 2003. Furthermore, the government was controlling an influential part of prices of goods and services in the economy and both fiscal dominance and financial repression were practicing during all of these periods[4].

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[3] An operational definition of price stability that is now broadly accepted among economists is the one presented by Alan Greenspan: price stability is obtained when economic agents no longer take account of the prospective change in the general price level in their economic decision-making (Batini et al., 2005, p. 161).

[4] The government and public sector were crowding private sector in the credit market during these periods. The high level of the budget deficit along with banking finance to budget deficit represented a facet of fiscal dominance during these periods. Fiscal dominance does not vanish during the successive periods under the ERSAP and still constitute one of the main obstacles precluding the switch to the inflation targeting (IT) regime. See; Awad (2009).

2.1 Monetary policy objectives under the ERSAP

One of the most difficult challenges for a researcher is to determine exactly the objectives of monetary policy that the CBE was actually intending to achieve, especially during the period following the introduction of the ERSAP, 1990, until the decision of floating the FX rate, January 2003. One reason for this is that the CBE adopted inconsistent objectives for monetary policy during this period (Moursi, et al., 2007, Kamar and Bakardzhieva, 2003, and Panizza, 2001)[5].

After the introduction of the ERSAP, the ultimate objective of monetary policy was determined to be achieving both internal and external stability of domestic currency in line with the national objectives of spurring economic growth and creating more job opportunities. During this period, the intermediate target of monetary policy was determined to be the net of domestic credit and later the rate of growth of money supply (M2). The daily operational target of monetary policy was determined to be banks' excess reserves (Abu-Elayoun, 2003)[6].

During the aforementioned period, from 1990 until the start of 2003, and for long periods the CBE was targeting the FX rate, as can be inferred from figure 16[7]. Taking into account that the CBE liberalized domestic interest rates on loans and deposits in 1991[8], one may ask; how can the CBE maintain the target of FX rate and, at the same time, achieve the goal of price stability through maintaining an implicit target for the money supply (M2)?[9] Because of this dilemma the CBE was unable to

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[5] One example for such inconsistent objectives as Moursi, et al. (2007, P 4) mentioned is that the CBE adopted conflicting objectives especially during the period 1992/1993-1996/1997. In 1992/1993 while the CBE aimed at controlling the monetary expansion, it is also called for a reduction of the interest rate on the Egyptian pound to encourage investment and promote economic activity. During the period 1993/1994-1995/1996, monetary policy objectives were swayed between the two objectives of both economic growth and price stability. In 1996/1997, the CBE reverted to the objective of economic growth via monetary stabilization.

[6] During the fiscal year 2002-2003, monetary policy targeted the rate of growth of domestic liquidity at a rate of 10%, irrespective of the changes in the exchange rate. The actual rate of liquidity growth reached 9.4% (CBE, 2002-2003, 30).

[7] During the periods of 1960-2003, different varieties of exchange rate regimes had been experimented in the Egyptian economy, i.e. conventional peg in the sixties, crawling peg in the seventies and eighties, crawling bands in the nineties and managed floating as of 2003. Beside the official price, FX market witnessed multiple prices including prices of both parallel market and black market. In 2004, Egypt successfully unified FX markets (Kamar and Bakardzhieva, 2003).

[8] By January 1991, the CBE had liberalized interest rate on loans and deposits. Accordingly, banks were given the freedom to set their loans and deposit interest rates subject to the restriction that the 3-month interest rate on deposits should not fall below 12 percent per annum. This restriction was cancelled in 1993/1994 (Moursi, et al., 2007, PP 6-7).

[9] The sterilized intervention policy may give answer to this question. Nevertheless, sterilized intervention policy itself is fragile and can lead to dramatic consequences, as we will see in the next section.

efficiently use either short-term nominal interest rate or banks' excess reserves to manage monetary policy during this period, especially when the economy incurred external and domestic shocks in the second half of nineties decade, as we will see later.
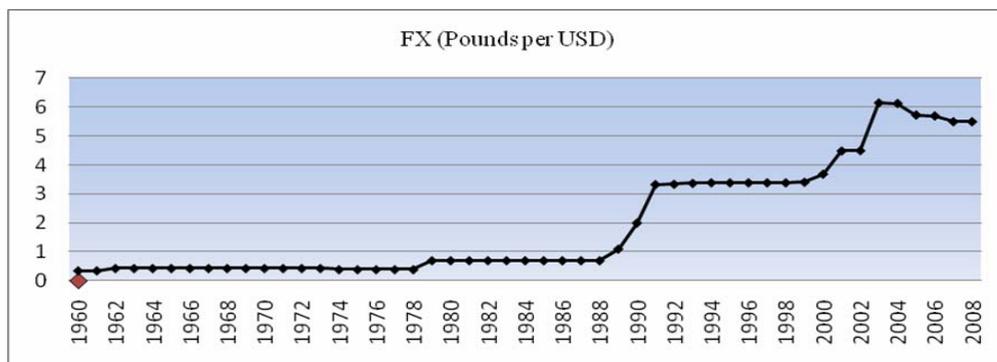
Figure 16 *FX rate evolution (1960-2008)*

Source: prepared using data from   IFS, CD-R, 2010.

After liberalizing the FX rate and issuing a new legislation in 2003, governing the CBE, the banking sector and the money, the ultimate objective of monetary policy has been changed to focus primarily on the goal of price stability. Galal (2003) assesses the decision of floating the FX rate as an attempt to resolve policy inconsistency originating from the combination of the FX rate rigidity, the reluctance to use international reserves to support the peg to the Dollar and the attempt to reduce the interest rate to activate the economy [10].

As of June 5 2005, the CBE developed a new framework for monetary policy implementation. This framework relies on the use of the overnight interest rate on the inter-bank transactions as an operational target for monetary policy, instead of banks' excess reserves. The new framework represented the central bank's main policy instrument, providing the outer bounds of a corridor within which the ceiling is the

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[10] Despite formal liberalization of FX rate in January 2003, the CBE has continued to maintain exchange rate stability as one of its key objectives during the following years 2004 and 2005. That makes many commentators suspect that the CBE still have implicit target for FX rate and do intervene regularly to maintain it (Moursi, et al., 2007, PP 8). Al-Mashat and Billmeier (2007) examined transmission mechanism in Egypt for the period from January 1996 to June 2005 using VAR model. One result of this study is that the exchange rate channel still playing strong role in propagating monetary shocks to output and prices despite the CBE is, formally, no longer use nominal exchange rate as a nominal anchor for monetary policy.

overnight interest rate on lending from the CBE, and the floor is the overnight deposit interest rate at the CBE (CBE, 2005-2006, 1)[11].

2.2 Monetary policy tools under the ERSAP

Under the assumption that the influential part of inflation in the Egyptian economy refers to the demand side, the ERSAP was designed to fight the accelerating inflation which occurred in the late eighties decade via controlling aggregate demand. That is why the CBE applied a contractionary monetary policy especially during the first stages of the ERSAP. By liberalizing the interest rate in 1991, the direct means to conduct monetary policy that were used in the previous periods became abolished, e.g. credit ceilings, interest rate ceilings, and discriminatory interest rates. Since then, the CBE no longer determines interest rate administratively but rather it affects market conditions using monetary policy tools to conduct nominal rates towards the desired path.

Liberalizing the interest rate coexisted with developing new tools to finance budget deficit using real resources, especially in the first half of the nineties. Treasury bills (TBs) were used intensively to play a central role and interest rates on TBs served as an indicator to the directions of the short-term interest rate within the market. By activating the TBs mechanism, the nominal interest rate began to rise. As a result, real interest rate recorded positive values, especially when the rate of inflation began to recede during the first half of the nineties.

Monetary policy tools used under the ERSAP are: (i) Open market operation (OMO): as the goal of price stability represents a corner stone among other objectives of the ERSAP, the CBE intended to restrict aggregate demand via absorbing excess liquidity in the economy. At the beginning of the ERSAP, the CBE

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[11] Since this date, the CBE began to use this tool intensively to conduct monetary policy. For instance, the Monetary Policy Committee (MPC) reduced the overnight deposit and lending rates several times, to stand at 8 % and 10 %, respectively, after its meeting in April 2006. This decision led to a decline in both the overnight interest rate on the inter-bank transactions and the interest rate on loans and deposits at banks during this period (CBE, 2005-2006). In December 2006, the CPI-based inflation rate reached 12.4 percent annually against 7.2 percent in June 2006. According to the CBE's analysis, the step-up in inflation was due to oil subsidy cuts and their spillover effects on the group of transportation and communications and other related groups. In addition, the avian flu and its repercussions along with the inflationary demand pressures arising from higher economic growth. The reaction of the CBE to contain the accelerating inflation based on raising the overnight deposit and lending rates by 0.50 percent in November and by 0.25 percent in December 2006, to become 8.75 percent and 10.75 percent, respectively. Accordingly, the weighted average of the overnight interest rates on the inter-bank transactions (operational target of the monetary policy) rose to 9.59 percent at the end of December 2006, against 8.3 percent at the end of June 2006 (CBE, 2006-2007).

focused on the TBs mechanism in the primary market and used it extensively during the first half of the nineties[12]. During the second half of the nineties, the CBE aimed at maintaining price stability via stabilizing banks' reserves and hence stabilizing domestic credit and domestic liquidity. To achieve this objective the CBE focused on the secondary market of TBs. Thus, *repos* and *reverse repos* were used extensively. In 2001, the CBE permitted *repos* for one night at the prevailing discount rate. In September 2002, the CBE shifted from accepting deposits in local currency, in virtue of mutual agreements between the CBE and some other banks, to a new market-based system. According to the new system, the CBE specifies the quantity of deposits required to be deposited and the date and maturity of the transaction. On their part, banks are to submit their bids specifying the required quantity and interest rate (CBE, 2002-2003)[13]. As of August 2005, a new instrument dubbed "the central bank notes" was developed. These notes are issued with a maturity spanning up to two years and are used to absorb banks' excess liquidity, instead of the reverse *repos* of the TBs (CBE, 2005-2006, 6).

(ii) Reserve ratio: at the beginning of the economic reform, particularly in 1990 the reserve ratio was cut to 15 % and later to 14 % of total deposits. The method of calculating the reserve ratio was modified to include the average balances for a period of one week excluding official and end-of-week holiday with a time difference of two weeks between the values of numerator and denominator. In March 2001, the CBE decided to exclude long-term deposits from the denominator of the reserve ratio (Abu-Elayoun, 2003). In the fiscal year 2002-2003, the CBE decided to modify the method of calculating the reserve ratio by extending the calculation period from one to two weeks, including official and end-of-week holidays. In addition, it was decided to exclude from the numerator of reserve ratio the balances of TBs whose remaining period of maturity does not exceed 15 days. The ratio is to remain in effect at its prevailing level of 14% (CBE, 2002-2003).

(iii) Discount rate: during the first half of the nineties decade, both the discount rates and the lending rates were associated with the directions of the short-term interest rate on 91-day TBs. Beginning from the second half of nineties this association is broken when the short-term interest rate on TBs declined and the discount rate was frozen by the CBE (Abu-Elayoun, 2003).

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[12] The inflation rate fell dramatically during this period (see figure 6).

[13] After the CPI-based inflation rate reached to 12.4 percent annually in December 2006 against 7.2 percent in June, 2006 the CBE continued its OMO to contain the inflationary pressures, via absorbing excess liquidity in the banking system, resulting mainly from larger foreign currency inflows (CBE, 2006-2007).

3. ASSESSING THE PERFORMANCE OF MONETARY POLICY
UNDER THE ERSAP

To gauge the performance of monetary policy under the ERSAP the study compares economic performance during the periods beginning of 1991 with both its counterpart in an advanced economy, e.g. Germany, during the same periods, and with the economic performance of the Egyptian economy during the periods before the introduction of the ERSAP, 1975-1990. Although inflation, unemployment, and real GDP growth are used to gauge the performance of monetary policy, the behavior of the rate of inflation is given priority as it represents the main objective of monetary policy. To explain changes in these variables, particularly a change of the rate of inflation the study focuses on another group of variables related to fiscal policy, trade policy and monetary policy.

In what follows, the study sheds light on the economic performance of the Egyptian economy during the period of 1975-1990, which represents a base period in our assessment of the performance of monetary policy under the ERSAP.

3.1 The economic performance during the period 1975-1990

The period 1975-1990 can be divided into two sub-periods; the period 1974-1981, a consuming open-door policy period, and the period 1982-1990, a consuming open-door policy and the external debt crisis (Awad, 2002).

3.1.1 The period 1974-1981: beginning from this period the Egyptian government adopted an "Export leading growth strategy". The government began to present more facilities to the foreign and Arab investments by issuing the law 43/1974. The Egyptian economy became more oriented towards Western Europe and the USA compared with the previous periods. A large number of taxes that were imposed on imports during the previous periods had been cut. The role of the private sector in the economy began to become revived once more. During this period, The Egyptian government applied an "open-door policy". One of the consequences of this policy is the deterioration of the trade balance because of the high scale of consuming imports (see Figure 18).

Although the government was controlling most prices, as in the previous periods, domestic prices surged up during this period (see Figure 17). The rise of price level was induced by both external factors and domestic factors.
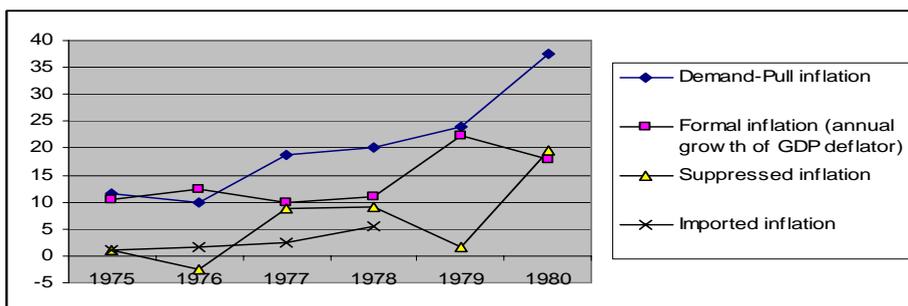
Figure 17 *Inflation in the Egyptian economy (1975-1980)*

Source: Prepared from Awad (2002)

On the one hand, the FX rate was pegged to the USD during this period. At the same time, this period witnessed a growth of inflation rates in the worldwide economy. Thus, domestic prices were affected negatively because of imported inflation. The Price of tradable goods and intermediate goods moved up where most imports were coming from Western Europe and USA, which witnessed the highest levels of inflation during this period[14].

On the other hand, domestic factors played a central role on domestic inflation. During this period, a notable improvement in the resources of foreign currencies occurred. Some of these resources refer to external factors, i.e. FDI, loans and grants, and some others refer to internal factors, i.e. oil exports, tourism, Suez Canal and remittances of Egyptian labors in abroad, especially in the Arabian oil countries. The improvement of foreign resources affected aggregate demand and led to demand-pull inflation. In addition, the structure of aggregate demand might have changed because of a change in the consumers' preferences and the problems of urbanization.

Another channel that may explain high inflation rates during this period is the deficit in the general budget supported by banking finance. During this period, the government was still supporting food's subsidies and controlling prices of basic goods. When the rate of inflation increased in the world market, the government did not cut food subsidies and continued controlling prices of public sector's products, which were lower than market prices. Since most intermediate goods' prices increased during this period in the world market, public sector's losses increased accordingly and hence budget deficit was exacerbated. The government was

unwilling to impose additional burdens through higher taxes on people after the 1973's war. Thus, both external debt and banking finance of budget deficit rose dramatically during this period (see Figure 18).
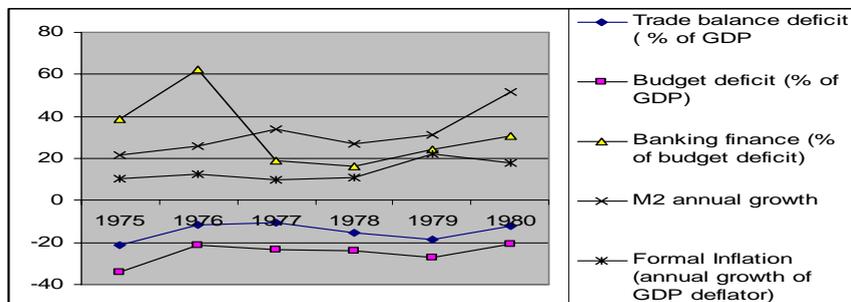
Figure 18 *Some indicators for economic performance (1975-1980)*

Source: Prepared from Awad (2002)

***3.1.2 The period 1982-1990*:** This period was an extension of the seventies decade. The government stepped more towards encouraging the private sector. The law 43/1974 had been substituted by the law 159/1981, which permitted foreigners a stake of 51 % in the businesses' capital. The central planning, which stopped on the aftermath of the 1967's events was resumed through articulating the second quinquennial plan over the period 1982-1986.

The most distinguishing features of the eighties decade was the eruption of the unemployment problem. Nassar (1989) concluded that the investment policies during this period were anti-employment. Beginning from the second half of the eighties, the government moved gradually to relinquish the adherence of appointing graduates because of successive public sector losses. During that time, the demand on Egyptian labor in the Gulf countries and Iraq was relaxed because of receding oil prices and higher competition with Asian and Indian laborers. As a result, the formal rate of unemployment began to rise from 6.75 % in 1986 to 9.6 % in 1989. Budget deficit (% of GDP) recorded the highest level during this period, e.g. 27 % in 1981 and 26 % in 1985. Banking finance represented the main tool to finance budget deficit, e.g. 30.6 % in 1980 and 51.5 % in 1990. As a result, both the rate of growth of M2 and the formal rate of inflation stood at high levels during this period (Figure 19).

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[14] During the period of 1974-1978 exchange rate was pegged and imported inflation was positive as reported by Awad (2002) thus, domestic price level was worsened during that time because of unfavorable shifts in terms of trade.
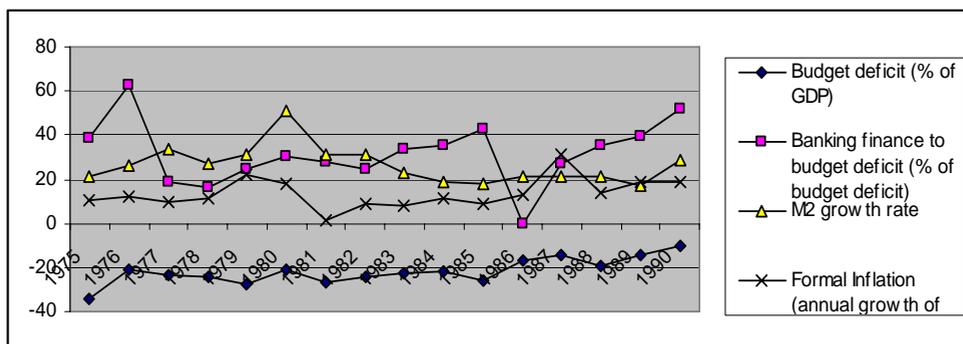
Figure 19 *Some indicators for economic performance (1975-1990)*

Source: prepared from Awad (2002)

In the late eighties decade, the economic performance of the Egyptian economy was critical. A chronic deficit in the general budget supported by banking finance created demand-pull inflation. The rate of unemployment increased continuously and recorded high levels at the end of this period. The rate of growth of GDP was diminishing and approached zero at the end of this period (Figure 20).
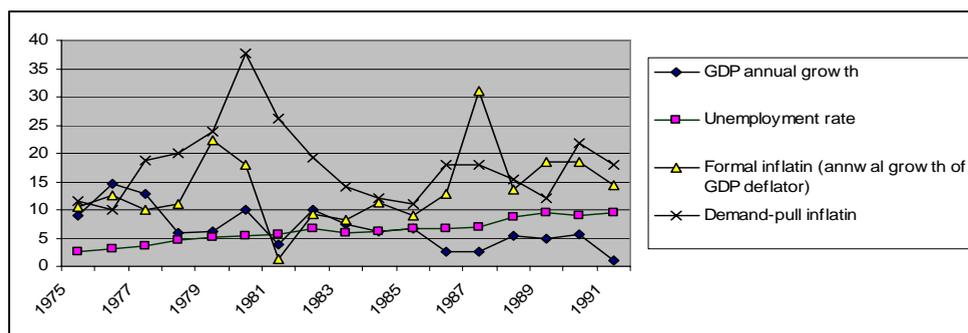
Figure 20 *Some macroeconomic indicators of economic performance (1975-1991)*

Source: prepared from Awad (2002)

3.2 The economic performance under the ERSAP

Table 43 depicts the behavior of the rate of growth of real GDP, the rate of unemployment (% of total labor force) and CPI-inflation. Comparing the rate of inflation under the ERSAP, 1991-2008, with the previous periods, 1975-1990, Egypt could bring the rate of inflation down by nearly 50%. Nevertheless, the rate of unemployment increased by 66.67 % and the rate of growth of real GDP slumped by

35.4%. However, the ERSAP did not yet stabilize the economy. The rate of inflation under the ERSAP, nearly 8 % in average, is very high compared with Germany, 2 %, during the same periods[15].

Table 43 *Some indicators of macroeconomic performance in both Egypt and Germany*

Average rate (%)	Real GDP growth	Unemployment	CPI-Inflation[1]
Egypt			
1975-1990	7.2[2]	6[5]	15.6
1991-2008[3]	4.65	10	7.85
Germany			
1991-2008	1.72[1]	10.71[4]	2[1]

Source: [1] Calculated from IFS, CD-R, 2010. Data about Unified Germany is calculated for the period 1992-2008. [2] Calculated from WDI, CD-R, 2009. [3] Calculated from IFS, CD-R, 2010. [4] Calculated for the period 1993-2008 from IFS, CD-R, 2010. [5] Calculated from Awad (2002).

The failure of achieving the goal of price stability under the ERSAP can be explained by two reasons, namely, a conflict between monetary policy objectives, i.e. pegging FX rate and the attempt to use an independent monetary policy to achieve some other goals (e.g. price stability and economic growth), and a chronic deficit in the general budget financed by issuing new money. I will discuss these two reasons with details.

3.2.1 A conflict between monetary policy objectives: As mentioned above, after the introduction of the ERSAP in 1990 and liberalizing the interest rate in 1991 the CBE adopted a dual-target policy, i.e. targeting the rate of growth of M2 and pegging the FX rate vis-à-vis the US dollar[16].

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[15] One can describe the case depicted by Table 1 as 'stagflation'. Where, higher rates of both inflation and unemployment exist.

[16] In 1987, Egyptian government established "The Free Market of FX". Thus, two different rates were formally in practice; (i) the CBE's rate, which continued since 1979 and used for some transactions (oil and cotton exports, Suez Canal fees, bilateral payment agreements, and a large segment of public-sector capital transactions) where USD = 0.7 LE. This price increased in 1989 to be USD = 1.1 LE; (ii) the price of the Free Market, which was determined upon a daily basis and reflected to some extent the real value of the Egyptian pound.. The price of the Free Market was oriented to cover some other transactions, i.e. workers' remittances, tourist receipts, and some export receipts. With the introduction of the ERSAP, Egyptian government unified FX rates. The Egyptian pound was devalued in 1991 and 1992 and then maintained fixed until 2000, as shown in figure 1 in the text.
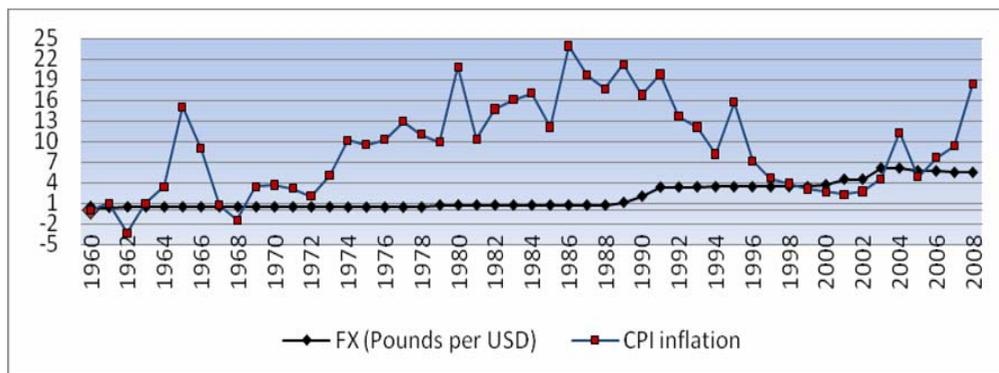
Figure 21 *The evolution of both CPI-inflation and FX rate under the ERSAP*

Source: prepared using data from IFS, CD-R 2010

As figure 21 indicates, the CBE could bring the rate of inflation down during the nineties decade under pegging the FX rate. Nevertheless, the rate of inflation was revived once more when the CBE was forced to devaluate domestic currency as of 2001 upon the aftermath of economic shocks that occurred during the second half of the nineties decade.

Literally, such a policy is either inconsistent or fragile. It is inconsistent because monetary policy cannot simultaneously follow an internal and external policy target under free capital mobility (Flemming, 1962; Mundell, 1963)[17]. Alternatively, a country willing to secure an independent monetary policy along with a fixed exchange rate has two options; impose control on the international mobility of capital or, satisfy the net demand for foreign exchange at the fixed FX rate with sterilized foreign exchange intervention. Both of the two policies are fragile (Goodfriend, 2008).

Under financial liberalization, it becomes very difficult, if not impossible, to impose controls on speculative capital flows especially when interest rate differentials are high. Figure 22, table 44 and table 45 indicate the following notices: (i) during the period 1995-2003 the CBE intended to maintain the deposit rate, DEPR, higher than the federal fund rate, FFR, as can be inferred from the mean value of the two variables. (ii) According to the value of standard deviation, the CBE during this period did not use the deposit rate to support domestic currency after economic shocks that happened during the second half of nineties. (iii) According to

the correlation coefficient and Granger causality test, the CBE did not follow an independent monetary policy during the above period, where the correlation coefficient between both DEPR and FFR was high, 66%, and FFR Granger causes DEPR (iv) After floating the FX rate in 2003, deposit rates moved gradually to approach FFR as shown in figure 22.
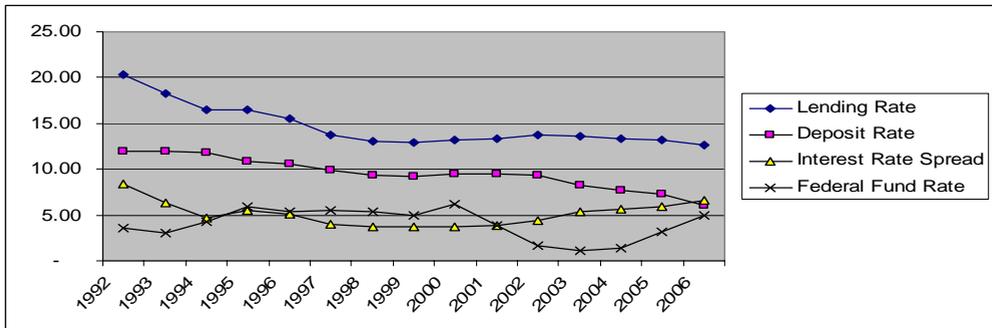
Figure 22 *Domestic interest rates and federal fund rate (1992-2007)*

Source: domestic interest rates for Egypt are taken from WDI, CD-R 2009. Federal fund rates are taken from IFS, CD-R 2010.

Table 44 *Descriptive statistics for both deposit rate and federal fund rate*

	1992-2006		1995-2003	
	DEPR	**FFR**	**DEPR**	**FFR**
Mean	9.5	4.06	9.6	4.42
Std. Dev.	1.75	1.7	0.78	1.84
Correlation	0.465		0.66	

Source: the author

Table 45 *Pairwise Granger Causality Tests*

Sample: 1995 2003			
Lags: 1			
Null Hypothesis:	**Obs.**	**F-Statistic**	**Probability**
FFR does not Granger Cause DEPR	8	9.94539	0.02528
DEPR does not Granger Cause FFR		0.07590	0.79395

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[17] This idea is known in literature as 'impossible trinity hypothesis', i.e. a country can only pick two out of the following three objectives; (i) fixed exchange rate, (ii) free capital mobility and (iii) monetary policy independent.

The remaining option to secure interest rate policy independence with a fixed FX rate is to satisfy the net demand for foreign exchange at the fixed FX rate with sterilized foreign exchange intervention. Sterilized intervention means that the CB will accommodate capital flows by sterilizing its effect on the money supply. For instance, if the CB were faced by capital outflows that had a negative effect on the money supply, the CB can maintain its target of money supply through purchasing securities (*repo*) with the same amount of capital outflows. The important issue in such a case, i.e. the case of capital outflows, is the extent that the CB is ready to defend the pegged rate. When the CB does not have either enough foreign reserves or the desire to sacrifice a high amount of its foreign reserves this policy ends with devaluating domestic currency. The picture becomes darkened when the pass-through effect is high which fuel domestic inflation.

The above scenario describes, partly, a monetary policy followed by the CBE as of nineties until the decision of floating FX rate in the start of 2003. It also answers the question, 'why could not the CBE maintain price stability for a long time, especially with successive devaluations of domestic currency as of 2001?'

Abu-Elayoun (2003) and Kamar and Bakardzhieva (2003) mentioned a number of external and domestic economic shocks that negatively affected the performance of external sector especially in the second half of the nineties. These economic shocks include: (i) The East Asian crisis in June 1997 that, firstly, provoked capital outflows and negatively affected the performance of capital market investment and, secondly, deteriorated the performance of the trade balance because of devaluation of Asian currencies, which made their exports more competitive than the Egyptian goods. (ii) Luxor's terrorist attack in November 1997, which negatively affected the revenues of tourism. (iii) The fall of oil prices in 1998 that exacerbated the negative influence on the current account.

Because of these shocks, external sector's performance and hence economic performance, were negatively affected during the second half of the nineties. As shown in figure 23, Exports (% of GDP) stepped down (from 22.6 % in 1995 to 16.2 % in 2000), trade balance deficit went up (from 5.2 % to 6.6 % during the same period) and current account hit negative values only during this period. However, foreign direct investment (FDI) was nearly at the same level during this period.
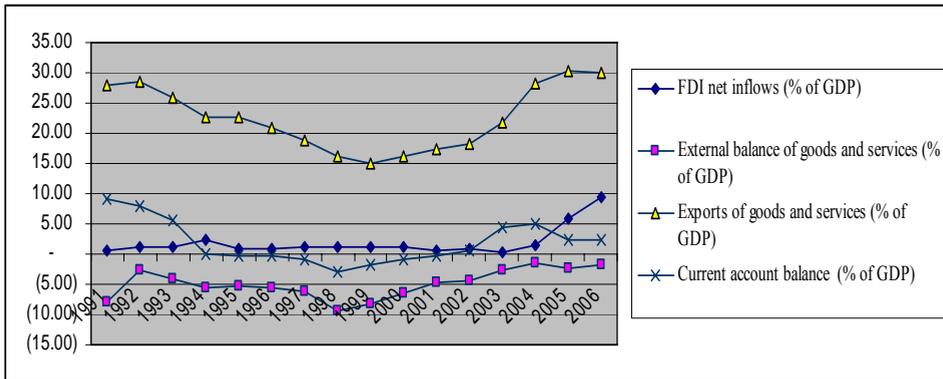
Figure 23 *Performance of external sector under the ERSAP*

Source: prepared from Appendix 1, Table 3

Despite negative consequences of these shocks on the economic performance, the CBE did not respond, i.e. the CBE did not devalue domestic currency to support the competitiveness of the exporting sector by cutting deposit rates. As we mentioned above, during this period the CBE was anchoring domestic currency vis-à-vis the US dollar as a policy target. Another reason that might explain the behavior of the CBE is the concerns of the pass-through effect. Panizza (2001) mentioned that beside the economic shocks that negatively affected the current account in the end of the nineties, the appreciation of the real exchange rate by itself darkened the picture of the economic performance.

However, as the CBE insisted to defend an unreal value of the Egyptian pound during this period, the problems of Dollar shortages exacerbated in the economy[18], the CBE lost an influential part of its international reserves (during 1998-2000, international reserves decreased from 18 to 14 billion dollars) and the black market of FX rate revived in the economy. To stop losses in foreign reserves the CBE conducted successive devaluations on domestic currency as of 2001 and floated domestic currency in the start of 2003[19]. Price levels went up since then.

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[18] Despite commercial banks declaring on the price of FX, they did not sell Dollars to any one even with limited amount.

[19] At the end of 2000, Egyptian authorities began moving towards a more flexible exchange rate. On January 29, 2001 the Egyptian government conducted FX rate system using "managed peg" with a central price of USD = 3.65 LE and +/- 1 % bands. On July 2001 the CBE devaluated the Egyptian pound by increasing central price and bands to be USD = 3.9 LE with bands +/- 1.5 %. On August 2001 the CBE switched to "crawling band" where, the central price and bands were changed to be USD = 4.15 LE with bands +/- 3%. In January 28, 2003, the Egyptian Prime Minister announced a free floating of the Egyptian pound.

Table 46 sheds light on the variability of FX rate during the period 1991Q1-2008Q1. The low variability of FX rate during 1991-1999, 0.04, refers to fixed peg followed by the CBE during that time. During the period 1999Q1-2008Q1, FX rate variability fell to 0.24. However, FX rate variability is still high if it is compared with the Euro during the same periods.

Table 46 *FX rate variability during the period 1991Q1-2008Q1*

Variability	1991_{Q1}-1999_{Q1}	1999_{Q1}-2003_{Q1}	2003_{Q1}-2008_{Q1}	1999_{Q1}-2008_{Q1}
EG/USD	0.04	0.65	0.24	1.05
EU/USD	Na	0.09	0.07	0.15

Source: calculated from IFS, CD-R 2010

To summarize, a conflict between monetary policy objectives renders the CBE unable to maintain the goal of price stability. Such a confliction is mainly because a monetary policy that includes internal and external policy targets is fragile by itself. Although the fear of high pass-through effect represented a justification of pegging FX rate policy during the nineties decade, the CBE was forced to conduct successive devaluations on local currency as of 2001 and to float FX rate in the start of 2003. After devaluations, domestic prices went up.

3.2.2 The deficit in the general budget financed by issuing new money: although the above conclusion can explain the failure of the CBE to maintain price stability during the periods before floating FX rate in 2003, it does not completely explain the persistence of high inflation even after the floatation of FX rate. Literally, the floatation of FX rate should end a confliction between monetary policy objectives and enable the CBE to pursue the goal of price stability. Floating foreign exchange rate, firstly, clears the foreign exchange market and, secondly, enables interest rate policy to target domestic inflation freely. Nevertheless, the magnitude of the deficit in the general budget and the use of monetary means to finance it can preclude monetary policy to pursue the goal of price stability.

Table 47 compares budget deficit and CPI-inflation (and its variability) in both Egypt and Germany. It compares the period 2003-2007, the period after floatation, with the previous periods, 1996-2003, where data about Germany is not available for periods before 1995.

Table 47 *Budget deficit and inflation in both Egypt and Germany*

	1996-2003	2003-2007	1995-2007
Average budget deficit (% of GDP)			
Egypt	2.8	4.84	3.17
Germany	2.14	2.07	2.1
Average inflation			
Egypt	3.87	7.07	6
Germany	1.34	1.6	1.5
Std. Dev. of Inflation			
Egypt	1.6	2.71	4.05
Germany	0.47	0.39	0.44

Source: Calculated from WDI, CD-R 2009

The increase of the budget deficit during the period 2003-2007 by nearly, 73 % compared to previous periods was in conjunction with an increase of inflation rate by nearly, 83 % during the same periods. In addition, inflation variability is worsened during the periods 2003-2007 comparing to the previous periods. In general, while low and stable inflation rates were coexisting with a low budget deficit in Germany high and variable inflation rates were coexisting with soaring budget deficit in Egypt during the last periods.

Literally, fiscal expansion financed by issuing new money, can lead to demand-pull inflation. Figure 24 depicts the behavior of demand-pull inflation (DPI), GDP deflator-inflation (GDPD), and budget deficit (BD). The DPI was calculated using the following formula:

DPI = [(1+ the rate of growth of M2) / (1+ the rate of growth of GDP)] – 1 [20]   (1)

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[20] This formula is derived from the quantity equation;

$$M \times v = p \times q \qquad (1)$$

Equation (1) at the end of the year can be written as follow:

$$M (1+Rm) \times v (1+Rv) = p (1+Rp) \times q (1+Rq) \qquad (2)$$

Where, Rm, Rv, Rp and Rq are the rate of growth of M2, v, p and q.
Put Rv = 0, under the assumption that (v) is constant, and divide (2) by (1) yields the formula used in the text;

$$Rp = (1+Rm) / (1+Rq) – 1 \qquad (3)$$

It is important to notice that even if we dropped the above assumption the value of demand-pull inflation will not be changed so much or it will not be changed in average.
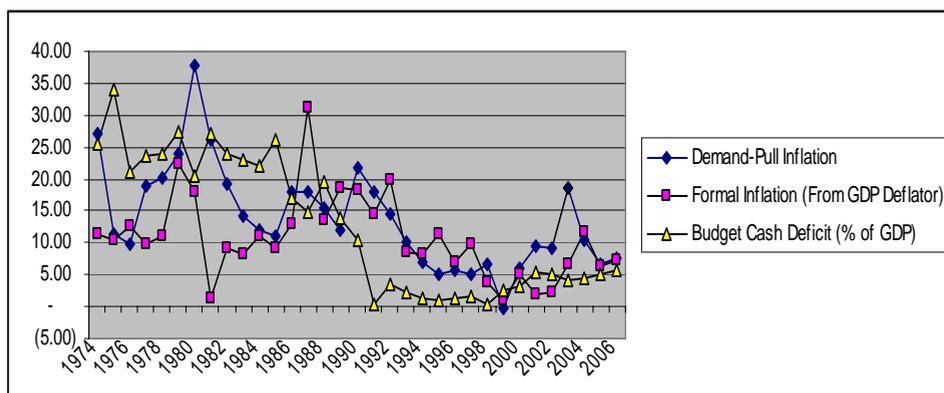
Figure 24 *Demand-pull inflation, formal inflation and budget deficit (1974-2007)*

Source: prepared using data from Awad (2002) and WDI, CD-R 2009.

The deference between DPI and open-inflation (measured by annual change in GDPD) represents the suppressed inflation, that is,

$$\text{Suppressed Inflation} = \text{Demand-pull inflation} - \text{Open-Inflation} \qquad (2)$$

As mentioned, before the nineties decade suppressed inflation was high because the government was controlling price levels. After the introduction of the ERSAP, suppressed inflation receded, where the government privatized the economy and liberalized most prices[21]. This point is obvious if we compare correlation coefficients between GDPD and DPI for the periods 1991-2007 (Table 50), 51 %, with the correlation coefficients for the periods 1974-2007 (Table 48), 44.6.

However, the important issue here is that high correlation is found between DPI and BD, 58.5 %, as shown in table 48. Moreover, according to the Granger causality test for the period 1974-2007, table 49, BD Granger causes DPI. During the period 1991-2007, the correlation between GDPD and DPI was high, as mentioned, and BD (Granger) causes DPI at level 10 % (table 51).

Table 48 *Correlations coefficient Matrix during the period 1974-2007*

	GDPD	**DPI**	**BD**
GDPD	1	44.6	23.5
DPI		1	58.5
BD			1

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[21] The contribution of the private sector in real GDP is increased after the introduction of the ERSAP to more than 67 % in average comparable with 25 % in the past (calculated from the data available on the CBE website: http://www.cbe.org.eg/timeSeries.htm)

Table 49 *Granger Causality Tests 1974 2007*

Sample: 1974 2007			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Probability
BD does not Granger Cause DPI	31	5.17808	0.01280
DPI does not Granger Cause BD		0.31688	0.73119

Table 50 *Correlations coefficients Matrix during the period 1991-2007*

	GDPD	DPI	BD
GDPD	1	51	-26.3
DPI		1	11.3
BD			1

Table 51 *Granger Causality Tests 1991 2007*

Sample: 1991 2007			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Probability
BD does not Granger Cause DPI	14	4.01572	0.05668
DPI does not Granger Cause BD		1.38529	0.29888

Figure 25 sheds light on the contribution of the banking system [including the CBE] to finance the budget deficit (cash) during the period 1975-2005. During the first half of the nineties decade the government used treasury bills to absorb excess demand. Therefore banking finance to budget deficit was negative during this period, 1990/1991-1994/1995, by 31.2 %. In the second half of the nineties, 1995/1996-199/2000, banking finance to budget deficit was nearly 96.75 %. Thus, for the whole period, 1990/1991-1999/2000, it reached to 33 % in average.
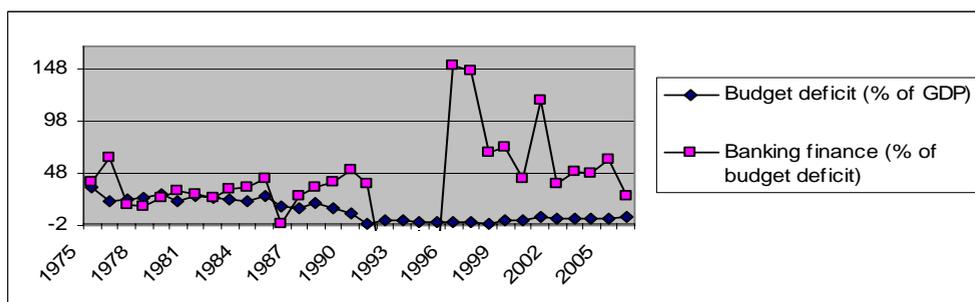
Figure 25 *Budget Deficit and banking finance to budget deficit (1975-2006)*
Source: prepared using data from Appendix 1, Table 1

In addition, the CBE is regularly financing budget deficit via issuing of new money 'seigniorage'[22]. Table 52 shows budget deficits and the domestic sources of financing during the period 2001/02-2006/07.

Table 52 *Budget defect and sources of financing during the period 2001/02-2006/07*

Description	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006	2006/2007[1]
Cash deficit(% GDP)[2]	9.8	9.1	9.1	9.4	9.2	5.7
Overall deficit(% GDP)[3]	10.2	10.4	9.5	9.6	8.2	7.5
Domestic financing (% overall deficit)	80	82.5	98.8	123	108	61
Banking financing (% domestic financing)	47	54	46.3	49.4	27	–
CBE financing (% Banking financing)	41	27	112	79	(77.5)	15

[1]Pre-actual data, [2] Cash deficit = Total revenues – Total expenditures, [3] Overall deficit = Cash deficit + Net acquisition of financial assets

Source: Calculated from; http://www.cbe.org.eg/timeSeries.htm

The high numbers of either cash deficit or overall deficit are supported by high contributions of the CBE in financing budget deficit. The contribution of the CBE in financing budget deficit will cause an increase in money supply thereby the price level will soar. That explains the causality relationship between budget deficit and demand-pull inflation in Egypt as shown in table 51. In other words, causation between budget deficit and demand-pull inflation in Egypt is because the CBE is obliged to finance budget deficit.

To summarize, the failure of the CBE to maintain price stability even after floating FX rate in 2003 is explained by high budget financed by issuing new money. The increase of the budget deficit especially after 2003 and the use of monetary means to finance it created a demand-pull inflation. Since majority prices became free after the introduction of the ERSAP demand-pull inflation expressed itself through a growing formal price level measured by the GDP deflator.

4. CONCLUSIONS

This paper assesses the performance of monetary policy in Egypt during the periods following the introduction of the ERSAP in the early nineties decade. The paper intends to answer the question of why couldn't the CBE achieve the goal of

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[22] The role of the CBE in financing budget deficit did not interrupt during the periods either before the introduction of the ERSAP or even after the ERSAP. The new legislation of the CBE, the banking sector, and the money issued in 2003 obliged the CBE to finance budget deficit.

price stability under the ERSAP. The study compares economic performance as of the nineties decade with both its counterpart in Germany, during the same periods, and with the economic performance of the Egyptian economy during the periods before the nineties, i.e. 1975-1990.

The main conclusion of the study is that although Egypt could bring the rate of inflation down after the introduction of the ERSAP, the rate of growth of both unemployment and real GDP was worsened, and price stability did not attain. The failure to achieve the goal of price stability is explained by two reasons: (i) a conflict between monetary policy objectives that rendered the CBE unable to efficiently use monetary policy tools to maintain the goal of price stability and (ii) high budget deficit financed by the issuing of new money which fuels demand-pull inflation.

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THE STUDY OF HEALTHCARE ASSESSMENT IN PAKISTAN (1991-2007)

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Abstract: *Pakistan is a developing country, where health is at a low priority. "Health for All" is the buzzword used by government health agencies in the last twenty years which covers healthcare development countrywide. This paper reviews the 17 years' progress in the Healthcare segment, from 1991 to 2007. Health care indices, economic growth and population growth are considered as the parameters. Results reveal that there is little / insignificant improvement in the health care environment. Preventive Healthcare sector is ignored, which has increased the healthcare burden. Healthcare expenditure as percentage of GNP has gone down from 0.7 to 0.6 in a period of 17 years. High population growth, low literacy rate, political instability, improper hygienic conditions and non-availability of potable water are the major challenges, to be countered for better healthcare environment. This paper opens new dimensions for healthcare players and* policy makers.

Keywords: *Health for all, Health indices, Infant mortality rate, Maternal mortality, Maternal morbidity, Elasticity.*

JEL Code*: I1*

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1. INTRODUCTION

According to the 1948 Universal Declaration of Human Rights "Everyone has the right to a standard of living adequate to the health and well-being of himself / herself and his/her family." Human Development is a basic right of every individual and "Health" can be regarded as a prerequisite for development. Beside the importance of the Health for measurement of the Welfare of an individual, poor health can directly influence an individual's opportunities –his or her earning capacity, performance at school, ability to care for children, participation in community activities and so on. Such an important role of health implies that the inequalities and the deficiencies in the health can be translated into other inequalities and deficiencies of life and so can affect the well -being of an individual and welfare of a society as a whole (World Development Report, 2007).

A healthy population contributes positively to the economic and social development of a country. The reflection of this can be seen from the importance accorded to the health issues in the United Nations Millennium Development Goals. Poverty, Education and Health are considered as the indicators of well-being of a nation. Millennium Development Goal focuses two on Educations and four, five & six are Health specific. Three of the eight MDGs emphasize directly to health sector with four targets and sixteen indicators. The MDGs include: Reducing Child Mortality; Improving Maternal Health and Combating HIV/AIDS, Malaria and Other Diseases (MDG, 2005).

Pakistan is fully committed to the Millennium Development Declaration and the Government of Pakistan recognizes and acknowledges the access to essential health as a basic human right. The Constitution of Pakistan guarantees basic human right to all citizens, which includes equitable access to health and social services. The Government of Pakistan (GOP) is aware of the huge burden of preventable deaths and morbidity among women and children and is fully committed to improving their health status. The GOP is also aware that the goals of attaining better maternal and child health (MCH) involves sustainable economic growth, poverty reduction and ensuring human rights (Ministry of Finance Report, 2007-08).

Different reports available from World Health Organization (WHO), United Nations Children's Fund (UNICEF), Asian Development Bank (ADB), Centre for Poverty Reduction and Income Distribution (CRPRID), Poverty Reduction Strategy Papers (PRSP), Ministry of Health (Islamabad) and Mehbub ul Haq Human Development Centre are used for assessment. According to a study of Zaidi (1988), diseases of rich and western countries (heart disease and cancer) account for less than 2 percent of deaths in Pakistan. There is every probability that figure of 2 percent

may have changed to 4 percent approximately since 1988 i.e., during a period of 9 years. GoP (1997) report states that "the existing national network of health services in the public sector consists of 830 hospitals; 4,250 dispensaries; 4,997 basic health units (BHUs); 864 maternity & child health centres (MCH); 501 rural health centres (RHCs) and 260 tuberculosis (T.B.) centres. There are 86,921 beds in hospitals and dispensaries. The number of registered medical doctors have increased to 74,229; registered dentists to 2,938; registered nurses to 22,810; registered lady health visitors to 4,250 and registered midwives to 21,304. The population in relation to medical personnel works out at 1,773 persons per doctor; 44,803 per dentist and 5,771 per nurse".

Different researchers have different views pertaining to healthcare progress. Gupta, *et al.* (2002) has concluded in his 56 country cross-sectional study that by increasing public healthcare expenditures reduces infant and children mortality rates. Study conducted by Toor and Butt (2005) shows that socio-economic factors play an important role in determining the health care expenditure in Pakistan. However, literacy rate and GDP growth are also essential variables, which contribute towards health. Norman (1985) concluded that increased government expenditure on health services eventually benefits more to the upper income than the lower income groups. According to Castro-Leal, *et al.* (2000) the public spending on curative care in several African countries has favored to the better-off rather than the poor. Hamid, *et al.* (2003) used benefit incidence approach on 56 sub-Saharan African countries, from 1960– 2000, where healthcare expenditure has shown pro rich effect. Limited literature is available on the incidence of public healthcare expenditure and its distribution in Pakistan.

Social Policy Development Centre (SPDC), 2004, has depicted healthcare status in Pakistan, out of every 1,000 children who survive infancy, 123 die before reaching the age of five. A large proportion of those surviving suffer from malnutrition, leading to impaired immunity and higher vulnerability to infections. Malnutrition is big problem in Pakistan and also in developing countries. As per Human Conditions Report (2003) about 40 percent children under 5 year are malnutrited and 50 percent of deaths in children less than 5 years are due to malnutrition. According to Economic Survey 2006-07, "the existing national network of health services in the public sector consists of 924 hospitals; 4,712 dispensaries; 5339 basic health units (BHUs); 906 maternity & child health centres (MCH); 563 rural health centres (RHCs) and 288 tuberculosis (T.B.) centres. There are 86,921 beds in hospitals and dispensaries. The number of registered medical doctors have increased to 102073; registered dentists to 8042; registered nurses to 64022; and

registered lady health visitors to 9741. The population in relation to medical personnel works out at 1,254 persons per doctor; 28451 per dentist and 2671 per nurse".

GoP (2010, p.3) report states that "The human resource available for health care registered till December 2009 in the country included 139,555 doctors, 9,822 dentists and 69,313 nurses. The current population doctor ratio is 1,183 persons per doctor and 16,914 person per dentist. Health care is also provided to the public through vast health infrastructure facilities now consisting of 968 hospitals, 4,813 dispensaries, 5,345 Basic Health Units, 572 Rural Health Centres and 293 TB Centres etc. However, the health care system as a whole needs to be strengthened further at all levels".

Major focus on Pro-poor growth is shown in the research of Ravallion & Chen, 2002. Dollar & Kraay, 2001 opined that a constructive economic growth provides assistance to both the poor and the whole economy. Similarly Knowles, 2001 finds a significant negative effect of inequality on economic growth. Foster & Szekely, 2000 showed that positive value of poverty elasticity, which is a positive indicator for poverty reduction. Kakwani and Son – 2004, presented their research that rapid reduction in poverty can be assessed through the Poverty Equivalent Growth Rate (PEGR) instead of normal growth rate / GDP growth rate.

This paper reviews a statistical relationship between healthcare indices and human resource indices with respect to economic growth by using secondary data from 1991 to 2007. Paper does not include all dimensions and factors of the healthcare – growth relationship but focuses on pro-growth analysis:

- **Pro-Health Growth (PHG):** According to Kakwani and Pernia (2000), "pro-poor growth" means that poverty falls more than it would have, if all incomes had grown at the same rate. This concept is modified in terms of 'pro-health growth', which means that healthcare facilities are more elastic with the changing rate of economic growth. In other words, 'pro-health growth' is growth that increases healthcare facilities.
- **Pro-Population Growth (PPG):** Human resource indices for population growth rate, unemployment rate, and labour force size are used. The term 'Pro-Population Growth' is the growth that reduces population pressure.

This paper focuses the healthcare progress in Pakistan by using time series data from 1991-2007 with following objectives.
  i. To examine the relationship between improvement of healthcare indices and economic growth in Pakistan.

ii. To examine the relationship between healthcare facilities and population growth in Pakistan.

iii. To estimate the total health elasticity in terms of pro-population growth and pro-health growth analysis.

Data is analyzed by Pro-Growth Index (PGI), which is derived from Pro-Poor Growth Index (PPGI), primarily proposed by Kakwani and Son (2004) in the literature. To calculate Pro-Growth Index, two different time periods are required (1991 – 2007). By using Pro-Growth Index on data sets, that period can be regarded as pro-growth or anti-growth.

This paper is organized in five sections. Section 2 shows an overview of healthcare and human resource indices in Pakistan over a period of 17 years. Section 3 provides data sources and methodological framework. The empirical results are presented in Section 4, while the final section concludes the study.

2. OVERVIEW OF HEALTHCARE AND HUMAN RESOURCE INDICES IN PAKISTAN

2.1. Healthcare Indices

The heath sector performance in terms of physical infrastructure i.e. Rural Health Centres, (RHC) Basic Health Units (BHU) and hospital beds has been encouraging. The targets for health sector during 2009-10 included the establishment of 50 Basic Health Units (BHUs), 10 Rural Health Centres (RHCs), upgradation of 20 existing Rural Health Centres (RHCs), 50 Basic Health Units (BHUs) and addition of 5000 hospital beds. The manpower development targets cover the output of 5000 Doctors, 500 Dentists, 4000 Nurses and 5000 paramedics. Under the preventive program, 7.5 million children have to be immunized and 22 million packets of oral Rehydration Salt (ORS) are to be distributed during 2009-10 (GoP, 2010).

The achievements have been largely in vicinity of the targets. Healthcare system in Pakistan is a western oriented curative healthcare model, with little emphasis on preventive health care. Healthcare system in Pakistan can easily be described in two specific sectors i.e., Public Healthcare and Private Healthcare sector. Pakistan spends less than one percent (0.7%) of its GNP on Health and Nutrition Expenditure, which is the lowest percentage in the world (Planning and Development Division). In terms of the government budget health takes up to 4 percent for both the public and private healthcare, compared to an average in Asia of

5.2 percent. Despite the fact, that 61percent of the population lives in rural areas, 70-75 of the medical personnel and health facilities are based in the cities (Economic Survey of Pakistan, various issues).

Population has grown from 110.8-158.3 million during 1991 to 2007. This is 42.8 % growth in seventeen years or we can say that there is an annual average population growth of 1.86%. During this same period, the number of hospitals has increased from 756-924. Seventeen years growth is 22.2%. Annual average growth is 1.31%. Dispensaries have increased from 3953-4834. This equals to 22.28 % growth, in seventeen years. Average annul growth is 1.30%. Basic Health units have increased from 4414-5339. Seventeen years growth is 20.95 % and an average annul growth is 1.23%. Rural Health Centers have increased from 465-563. Seventeen years growth is 21.07 %, average annual growth is 1.24%. Beds in hospitals and dispensaries have increased from 75805-102656. Seventeen years growth is 35.42%, and average annual growth is 2.08%. There has been an improvement in the hospital beds ratio from 1:1600 to 1:1516. Seventeen years back, registered Medical Doctors were 56546 and now they are 127534. There has been an increase in the number of doctors by 125.54% in seventeen years. So the annual average growth is 7.38%. There is a significant difference between the data of registered doctors and actual physician population serving in Pakistan. Almost 50% of the registered doctors are working abroad, due to lack of opportunities in the homeland. This brain-drain phenomenon is most evident in this field. Dental ailments are also common in Pakistan. In 1991, there were 2184 registered dentists while in year 2006-07, there are 8042 dentists available. Government must have to observe those healthcare indices which are less growth rate with population pace i.e., Number of hospitals, dispensaries, BHUs, RHCs etc (Human Development Report, 2006). Specific healthcare indices are reproduced for ready reference in table 53.

Table 53 *Healthcare Indices*

S. No.	Index	1991	2007	Cumulative Growth Rate	Annual Average growth rate
1	Population(000)	110.8	158.3	42.56	1.86
2	CBR/1000persons	39.5	27.7	42.59	2.51
3	CDR/1000persons	9.8	8.01	22.34	1.31
4	IMR/1000persons	102.4	68.8	48.84	2.87
5	Life expectancy	58.9	63.4	7.64	0.45
6	TFR	6.0	4.0	50.0	2.94
7	PCI US$	426	925	117.13	6.89
8	Doctors	56546	127534	125.54	7.38

S. No.	Index	1991	2007	Cumulative Growth Rate	Annual Average growth rate
9	Nurses	18150	64022	252.73	14.87
10	Dentists	2184	8042	268.22	15.77
11	LHVs	3463	9741	181.29	10.66
12	Hospitals	756	924	22.22	1.31
13	BHUs	4414	5339	20.96	1.23
14	Dispensaries	3993	4834	21.06	1.24
15	RHCs	465	563	21.08	1.24
16	MCH centres	1057	906	-14.29	-0.44
17	T.B centres	219	290	32.42	1.91
18	Total Beds	75805	102656	35.42	2.08
19	Pop^n per bed	1425	1533	7.52	0.45
20	Pop^n per Dr.	1:1911	1:1229	55.49	3.26
21	Pop^n per Nurse	1:5953	1:2406	147.42	8.67
22	Pop^n per Dentist	1:49469	1:19465	154.14	9.06
23	BCG	3849	5529	43.65	2.56
24	POLIO	3925	5645	43.82	2.58
25	DPT	3991	5937	48.76	2.87
26	HBV	1653	5653	241.01	14.23
27	T.T	3012	3819	26.79	1.58
28	Measles	3121	5714	83.08	4.88
29	Expenditure as % of GNP	0.7	0.6	-14.29	-0.88

Source: Economic Survey of Pakistan, various issues, Human Development Report   2006, Pakistan
        Millennium Development Report 2006.

2.2. Human Resource Indices

Human resource indices are specifically related with labour force, unemployment rate, population growth rate, infant Mortality rate, crude birth rate etc. In seventeen years period, population has grown from 110.8 millions to 158.3 millions. Per capita income has increased from 426 US $ to 925 US$. Literacy rate has shown an upward trend from 34.9% to 55.2%. In 1993, 50 % population was getting potable water, while in year 2006-07 two third of population is getting safe drinking water. Mortality has been decreasing and fertility has shown a significant decline over the recent years, the crude death rate (CDR) of Pakistan is estimated at 8.2 (per thousand) in 2005-06. In Pakistan, decline in mortality rate is due to the elimination of epidemic diseases and improvement in medical services. Despite a considerable decline in the total mortality in Pakistan, infant mortality has still remained high at 77 per thousand live births in 2005. The major reasons for this high rate of infant and child mortality are diarrhea and pneumonia. Maternal mortality

ratio ranges from 350-400 per hundred thousand births per year leading to about seventeen thousand new born babies being born motherless. Labor force has grown from 31.5 million in 1991 to 47.2 million in 2007 and unemployment rate has increases from 6.2 percent to 6.6 percent in the same period. Per capita income in US $ has grown from $ 426 to $ 925. Specific Human Resource indices of year 1991 and 2007 are reproduced for ready reference (Table 54). By reviewing this data, one can easily assess the progress of human resource status in Pakistan.

Table 54 *Human Resource Indices*

S. No.	Index	1991	2007
1	Population (Million)	110.8	158.3
2	Population Growth Rate	2.5	1.9
3	Per Capita Income (US $)	426	925
4	Crude Birth Rate (Per 1000 Persons)	39.5	27.7
5	Crude Death Rate (Per 1000 Persons)	9.8	8.0
6	Infant Mortality Rate (Per 1000 Persons)	102.4	68.8
7	Total Fertility Rate (Children born/women)	6.0	4.0
8	Life Expectancy (in years)	58.9	63.4
9	Labour Force (Million)	31.5	47.2
10	Unemployed Labour Force (Million)	2.0	3.6
11	Employed Labour Force (Million)	29.6	43.9
12	Unemployment Rate (% per annum)	6.2	6.6

Source: Economic Survey of Pakistan, various issues, Planning and Development Division.

3. DATA SOURCE AND METHODOLOGICAL FRAMEWORK

The current study is being initiated to review the Healthcare indicators in Pakistan by using the secondary data of the Economic Survey of Pakistan, 2009 and Pakistan Social and Living Standard Measurement Surveys (PSLM), collected and published by the Federal Bureau of Statistics, Pakistan over the period of 1991 to 2007. The study focuses on the relationship between economic growth, population growth & healthcare facilities. Change in health indices can be decomposed into:

$$dH = \partial H / \partial y \; dy \; + \; \partial H / \partial L(H) dL(H). \tag{1}$$

After some straightforward manipulation (2) can be written as:

$$dH / H = \gamma dy / y + \phi dL(H) / L(H) \tag{2}$$

Where γ is the growth elasticity of health, which measures the percentage change in health that takes place when economic growth increases by one percentage point, and ϕ is the population elasticity of health, which measures the percentage change in health as a result of a one percent change in the population. In principle, γ

can be expected to be positive while ϕ can be expected to be negative. That is, growth will lead to health indices while increase in population will lead to reduction in health expenditure. Bringing together elasticities and magnitude of change one can also express the condition by which health expenditures will increase as:

$$\gamma dy / y > \phi dL(H) / L(H) \tag{3}$$

In principle it is possible for health expenditure to increase when growth is positive. The lower the growth rate the more likely that health expenditure will decrease when population increases. By combining elasticities, we may get the total health elasticity (ξ) that is the summation of growth elasticity and population elasticity of health.

$$\xi = \gamma + \phi \tag{4}$$

When ξ > 5%, it implies high growth rate, ξ >3 & <5%, it implies moderate growth rate, ξ > 1 & < 3%, it implies slow growth rate and when ξ <1, it implies negative growth rate between health indices with respect to growth and population between the period of 1991 & 2007. This cut-off point is used in the studies conducted by Sundaram and Tendulkar (2002) and Islam (2004) respectively, in the literature.

4. RESULTS AND DISCUSSIONS

Estimates of elasticities between 1991 and 2007 are given in table 55 and table 56 respectively. Both tables demonstrate a wide variation in the elasticity estimates between the different parameters of health.

Table 55 *Growth Elasticity of Health between the Year 1991 & 2007*

S.No.	Index	Elasticity	Pro-Growth/Anti-Growth
1	Life expectancy (years)	15.314	Pro-Growth
2	Hospitals	5.265	Pro-Growth
3	Dispensaries	5.555065	Pro-Growth
4	Basic Health Units	5.583114	Pro-Growth
5	Rural Health Centers	5.551531	Pro-Growth
6	Medical Doctors	0.911972	Anti-Growth
7	Maternity & child health centres	3.608873	Pro-Growth
8	T.B. centres	0.645382	Anti-Growth
9	LHVs	3.664016	Pro-Growth
10	Immunization vaccination (BCG)	1.994872	Pro-Growth
11	Expenditure on Health as % of GNP	-8.19	Anti-Growth
12	Population in million	2.729179	Pro-Growth

S.No.	Index	Elasticity	Pro-Growth/Anti-Growth
13	Labor Force in million	2.347452	Pro-Growth

Source: Calculated by the authors.

Table 55 concludes that many healthcare indices are in pro-growth phase between the year 1991 & 2007. Numbers of hospitals, dispensaries, BHUs, RHCs, MCH centers, LHVs, population growth and labor force growth are increased, with the increasing pace of economic growth between the said periods. Number of Medical doctors, T.B. Centres and Expenditure on health as a percentage of GDP has gone down, which denotes anti-growth. Government has to pay major attention towards anti-growth factors for bringing pro-growth changes in healthcare industry.

Table 56 *Population Elasticity of Health between the Year 1991 & 2007*

S.No.	Index	Elasticity	Pro-Growth/Anti-Growth
1	Life expectancy (years)	5.602	Pro-Pop. Growth
2	Hospitals	1.926	Pro-Pop. Growth
3	Dispensaries	2.032	Pro-Pop. Growth
4	Basic Health Units	2.042	Pro-Pop. Growth
5	Rural Health Centers	2.030	Pro-Pop. Growth
6	Medical Doctors	0.341	Anti-Pop Growth
7	Maternity & child health centres	-2.996	Anti-Pop. Growth
8	T.B. centres	1.320	Pro-Pop. Growth
9	LHVs	0.236	Anti-Pop. Growth
10	Expenditure on Health as % of GNP	-2.996	Anti-Pop. Growth
11	Labor Force in million	0.858	Anti-Pop. Growth
12	Per Capita Income US $	0.365	Anti-Pop. Growth

Source: Calculated by the authors, Pro-Pop Growth represents pro-population growth.

Table 56 concludes that healthcare indices have Pro-population growth between the year 1991 & 2007 in comparison with Life expectancy, Number of hospitals, dispensaries, BHUs, RHCs, and T. B. Centers. Anti-population growth pattern is observed with Medical doctors, MCH centers, number of LHVs, Expenditure on health as percentage of GNP, Labor force and per capita income. Government has to pay attention by increasing the budget allocation towards healthcare facilities. Table 57 gives total health elasticity.

Table 57 *Total Health Elasticity between the Year 1991 & 2007*

S.No.	Index	Total Health Elasticity(ξ)	High / Moderate/ Slow / Negative Growth
1	Life expectancy (years)	20.916	High Growth
2	Hospitals	7.191	High Growth
3	Dispensaries	7.587	High Growth

S.No.	Index	Total Health Elasticity(ξ)	High / Moderate/ Slow / Negative Growth
4	Basic Health Units	7.625	High Growth
5	Rural Health Centers	7.581	High Growth
6	Medical Doctors	1.252	Slow Growth
7	Maternity & child health centres	0.618	Negative Growth
8	T.B. centres	1.965	Slow Growth
9	LHVs	3.900	Moderate Growth
10	Expenditure on Health as % of GNP	-11.186	Negative Growth
11	Labor Force in million	3.205	Moderate Growth
12	Life expectancy (years)	20.916	High Growth
13	Hospitals	7.191	High Growth

Source: Calculated by the authors.

Table 57 shows the pace of health indices with respect to GDP and population growth rate between the years 1991 & 2007. Results emerge as high growth health variables, moderating growth variables, slow growth variables and negative growth variables. More attention is required towards slow and negative healthcare variables.

This present study reviews the GDP growth elasticity, population growth elasticity and cumulative growth elasticity, with respect to Healthcare indices in Pakistan, over a period of 17 years from 1991-2007. Life expectancy, Number of hospitals, Dispensaries, RHC's, MCHC's, LHV's, Immunization and Labour force indices has increased with the increase in GDP, while healthcare expenditure and number of T.B. centres has gone down with respect to GDP growth. There has been a proportionate increase in life expectancy, Number of hospitals, Dispensaries, BHU's and RHC's with population growth. However, number of doctors, LHV's, Per-capita income, Labour force and Healthcare expenditures has not been increased, with the increasing population over this specified period. Cumulative effect of GDP and population growth over healthcare indices has been interpreted in a simple pattern i.e., High Growth, Moderate, Slow and Negative Growth. High growth is observed in life expectancy, Number of Hospitals, Dispensaries, BHU's, and RHC's. Moderate growth pattern has been observed in Number of LHV's and Labour force. There has been a slow growth in Number of Medical Doctors and T.B centres. While a negative growth pattern has been observed for MCHC's and Healthcare expenditures.

5. SUMMARY AND RECOMMENDATIONS

The paper attempts to review the healthcare assessment of Pakistan from 1991-2007. This study reveals that there is a negative growth pattern in Healthcare expenditure for the above mentioned time frame. Healthcare expenditure is one of

the major determinants of health sector progress. Negative growth in Maternal Child Healthcare Centers is linked with poverty and is also incompatible with the quantum increase in population. Statistics issued by the government, show a decline in population growth rate. But population has grown at a much higher pace.

It is recommended that government should upgrade the priority of Health by increasing healthcare budget, because healthy nation contributes more towards the economic growth. Health has different dimensions such as Economic Health, Political Health, Environmental Health, and Social Health along with the Educational health. These all health dimensions have a significant effect on a common-man and also help in prospering the nation. Government has to focus on all these dimensions. Better healthcare governance will avoid depletion of available healthcare resources. Government has shown its intention to privatize healthcare system. This will further deteriorate the healthcare status, especially for poors. Due to non-availability of potable water and improper sanitation facilities to majority of population, government has to increase the preventive healthcare budget to reduce the curative healthcare burden. This will also help in controlling the communicable diseases. Government has to adopt a no-frill cost effective healthcare policy to have a pro-poor impact. Poor Hospital Waste Management Practices are prevailing in Pakistan. Poor practices increase the curative healthcare expenses significantly. Future research is proposed on the "Impact of Hospital Waste Management Practices on health".

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OWNERSHIP STRUCTURE AND VOLUNTARY DISCLOSURE IN ANNUAL REPORTS OF BANGLADESH

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Abstract: This study examines the association between ownership structure and voluntary disclosure levels in the 2007 annual report of 94 samples of Bangladeshi listed companies. Ownership structure is provided by management ownership and institutional ownership. Using agency theory, it is argued that firms with higher management of ownership structure may disclose less information and higher institutional of ownership structure may disclose more information to shareholders through voluntary disclosure. It is because the determined ownership structure provides firms lower incentives to voluntarily disclose information to meet the needs of non-dispersed shareholders .Agency theory is utilized as the underlying theoretical framework of voluntary disclosure. Using a unweighted relative disclosure index for measuring voluntary disclosure. The extent of voluntary disclosure level is measured using 68 items recommended by those who have professional qualifications. The result shows that the extent of corporate voluntary disclosures is negatively associated with a higher management of ownership structure and the extent of corporate voluntary disclosures is positively associated with a higher institutional ownership structure.

Keywords: *Corporate Governance, Ownership structure, Voluntary Disclosure*

JEL Codes*: G32, G14*

1. INTRODUCTION

Corporate disclosure has received a great deal of attention from many researchers (for example, see M. Akhtaruddin et al., 2009; Hongxia Li& Ainian Qi,

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2008; Ibrahim, Haron and Ariffin, 2000; Ho and Wong, 2001; Chau and Gray, 2002; Haniffa and Cooke, 2002; Eng and Mark, 2003).Why corporations should and do disclose information is expressed in various theories namely stakeholder theory, agency theory, legitimacy theory and political economy theory. While different theoretical perspectives make different arguments, they all agree that companies release information mostly for traditional user groups such as shareholders, creditors, financial analysis and security consultants who find this information useful when making investment decisions. The agency theory implies that companies increase disclosure in order to mitigate conflicts between shareholders and managers. In addition, companies wishing to enhance their firm value may do so by increased disclosure (Lobo & Zhou, 2001).

Generally, disclosure is done in company annual reports either through the statements or notes accompanying the statements. Although other means of releasing information, such as interim reporting, letters to shareholders and employee reports, are used by the companies, the annual report is considered to be the major source of information to various user-groups. Nevertheless, all parts of the annual reports are not equally important to all users. Income statement is believed to be the most preferred sections to investors while cash flow statement and balance sheet are most useful sections to bankers and creditors (Ho & Wong, 2001). Likewise, users of accounting information weight audit reports, directors' reports, accounting policies and historical summary differently. The annual report should contain information that will allow its users to make correct decisions and efficient use of limited resources. Companies provide information on the ground that such disclosure will not respond to the negative impact on the company image. The objectives of the proposed study are: (i) To measure the level of disclosure of information made by the listed companies in Bangladesh (ii) To examine the association between ownership structure and voluntary disclosure levels of listed companies in Bangladesh.

2. AGENCY THEORY AND VOLUNTARY DISCLOSURE

The agency theory models the relationship between the principal and the agent. In the context of the firm, the agent (manager) acts on behalf of the principal (shareholder) Lundholm and Winkle(2006); Barako(2004); Healy and Palepu (2001); McKinnon and Dalimunthe (1993). An example of this situation is where a team of managers may have inside information on the positive future of a firm and take action and make decisions that will mostly benefit them at the potential expense of the principal. Meek et al.(1995) defined voluntary disclosure as "disclosure in excess

of requirements – represents free choices on the part of company managements to provide accounting and other information deemed relevant to the decision needs of users of their annual reports".

Lundholm and Winkle (2006) reported that voluntary disclosure can be utilized to reduce the information asymmetry problems. They noted that conflicts arise when managers make decisions either to disclose or not to disclose certain information. This conflict generally occurs because of the information irregularity problem.

Barako(2004) argues that managers may focus on their own personal interests, rather than maximizing shareholders' wealth. Thus it is essential for shareholders to create the mechanisms to mitigate agency problems by aligning the interests between principal-agent or by monitoring the agent's opportunistic behavior.

Healy and Palepu (2001) reported that outside investors have less information compared to managers with regards to a firm's performance. In the real business world where the market is not perfectly-efficient, they believed that managers use financial disclosure policy to balance the decisions that they make and communicate to the outside shareholders. This illustrates that information irregularity problems influence the voluntary disclosure policy of the company.

McKinnon and Dalimunthe (1993) found favorable support that Australian diversified firms are more likely to voluntarily disclose segment information if they have minority interests in their subsidiary companies. This result indicates that disclosure of segment information provides incentives to align the interests between managers and minority interests and is therefore likely to reduce information irregularity problems.

Therefore, as suggested by agency theory, corporate governance could serve as one of the monitoring mechanisms.

3. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

3.1 Ownership Structure and Voluntary Disclosure

Ownership structure is a mechanism that aligns the interest of shareholders and managers (Eng and Mak, 2003; Haniffa and Cooke, 2002; Chau and Gray, 2002; Hassain, et. al.,1994). The agency theory suggests that where there is a separation of ownership and control of a firm, the potential for agency costs arises because of conflicts of interest between contracting parties. It is believed that agency problems will be higher in the widely held companies because of the diverse interests between contracting parties (Mohd, et.al.2006). By utilizing voluntary disclosure, managers

provide more information to signal that they work in the best interests of shareholders.

In this study, ownership structure is proxied by management ownership. Using agency theory, it is argued that firms with higher management of ownership structure may disclose less information to shareholders through voluntary disclosure. It is because the determined ownership structure provides firms lower incentives to voluntarily disclose information to meet the needs of non-dispersed shareholders groups. McKinnon and Dalimunthe(1993) note that companies with a single ownership structure disclose more voluntary information. Hossain et al.(1994) suggested a negative association between management ownership structure and the level of voluntary disclosure by Malaysian listed firms. In addition, Lakhal (2005) proposes that share management ownership is statistically and negatively associated to voluntary earnings disclosures. Oliveira et al (2006) also reported that firms with a lower shareholder management voluntarily disclose more information. The significant role of management ownership in influencing voluntary disclosures practices of firms from the prior researcher. So, it is expected that ownership structure will influence the voluntary disclosure information. The hypothesis is formally stated as:

H1: *The extent of corporate disclosures is negatively associated with a higher management* of ownership structure

Due to the large ownership stake, institutional investors have strong incentives to monitor corporate disclosure practices. Thus, managers may voluntarily disclose information to meet the expectations of large share-holders. Dulacha G .B (2007) found that there is a significant positive relationship between the percentage ownership by institutional investors and voluntary disclosure of corporate governance practices by listed companies in Kenyan. Similarly, Bushee and Noe (2000) documented a significant positive association between institutional shareholdings and corporate disclosure practices, as measured by the Association for Investment Management and Research (AIMR). Given shareholder activism and the monitoring potential of institutional shareholders, the following hypothesis is tested:

H2: *The higher the percentage of shares held by institutional shareholders, the higher the extent of voluntary disclosure.*

4. CONTROLLABLE VARIABLE HYPOTHESIS

4.1 Firm Size

Most of the studies found that size of firm does affect the level of disclosure of companies. Barako et al.(2006) Brammer and Pavelin (2006) investigated that the larger the firm, the more likely they will make voluntary disclosures. Based on the study done world wide, for example Watson et al.(2002); Wallace et.al.(1994);Ho and Wong(2001) suggested the underlying reasons why larger firms disclose more information. The reasons proposed are that managers of larger companies are more likely to realize the possible benefits of better disclosure and small companies are more likely to feel that full disclosure of information could endanger their competitive position. Thus, the impact of firm size is expected to be positively associated with the extent of social responsibility disclosures. In this study, total sales and total assets will be used as the measures of company size. The following specific hypotheses have been tested regarding size of the firm:

H_3: The extent of voluntary disclosures is positively associated with the total assets

H_4: The extent of voluntary disclosures is positively associated with the sales turnover

4.2 Profitability

Higher profitability motivates management to provide greater information because it increases investors' confidence, which in turn, increases management compensation. Haniffa and Cooke (2002) find a positive and significant association between the firm's profitability and the extent of voluntary disclosure, which is consistent with the earlier (Kusumawati, D. N, 2006) finds that profitability affects Good Corporate Governance voluntary disclosure level negatively. It implies that when companies are facing decline in profitability, they will tend to give more disclosure about corporate governance practices. Since the studies supporting positive relationship between profitability and disclosure are conducted in financial disclosure field, the hypothesis of this study will be in the form of positive relationship. In this study, profitability is measured by return on sales; that is, net income divided by total sales. The following specific hypotheses have been tested regarding profitability of the firm:

$H5$: The extent of voluntary disclosures is positively associated with the higher profitability of the firm

5. RESEARCH DESIGN AND METHODOLOGY

5.1 Disclosure Index Construction and Application

In the initial stage of this research, comprehensive list of items that may be voluntary disclosed by companies in their annual reports was identified. The list of disclosure items included both financial and non-financial items that may be relevant to investment decision-making, and that listed companies may be disclosed. Since the focus of this research is voluntary disclosures, the preliminary list of 91 items was subjected to a through selection to eliminate those that are mandated. This list was sent to various experts (professor, Professional Chartered accounted & Cost and Management accounted etc.) for selection and as a result of their feedback, the initial list of 91 items was reduced to 68 items. For each item in the disclosure checklist, a firm receives a score of "1" if it voluntary discloses information item and "0" if the item is not disclosed (Hossain et al., 1994; Akhtaruddin, M. et al., 2009).

5.2 Sample Selection and Data Sources

Sample is taken from annual reports of 94 listed companies on Dhaka Stock Exchange (DSE), all companies were considered inclusive in the survey. The main criteria used for sampling the firms were: (i) annual reports must be available at the stock exchange and (ii) the firm must have been listed for the entire period of the study 2006-2007.The companies listed on the DSE are classified into thirteen categories, just have taken here seventh categories i.e. engineering, food& allied, fuel & power, textile, pharmaceuticals & chemicals, tannery & paper and cement & ceramics. Corporate-governance attributes was collected from the annual reports of listed companies of DSE. The comparative distribution of the companies in the population and the sample are given in Table 58 and Table 59 provides a summary of the operational definition of variables and their sources.

5.3 Regression Model and Test of Hypothesis

The statistic method being used is multiple regression analysis. The regression equitation developed empirically tests the relationship between the dependent variables of voluntary disclosure and independent variables of ownership structure. In addition to the ownership structure, a number of control variables are also included in the model to test the hypotheses. The regression technique used to test H1 is as follows:

$$\text{TVD}_{\text{i j,t}} = \sum_{t-1}^{Nij} Xij$$

Where,

TVD = total voluntary disclosure score for j^{th} firm at the time t,

N_{ij} = i^{th} item for j^{th} firm

t   = year

$$TVD = a + \beta_1 PEOI + \beta_2 PEINS + \beta_3 TA + \beta_4 TSE + \beta_5 PNPTS + \varepsilon$$

The variables that will be used in the analysis are as follows:

Dependent Variable:

TVD = Total voluntary disclosure score received from each company

Independent Variables:

PEOI   = Percentage of equity owned by the insiders to all equity of the firm

PEINS = Percentage of equity held by institutional shareholders to all equity of the firm

TA   = Total assets of the firm

TSE   = Total Sales of the firm

PNPTS = Percentage of Net Profit on total sales

a   = total constant, and

ε = the error term

Table 58 *Distribution of Sample by Industry Types*

Industry Types	Population		Sample	
	Number	**%**	**Number**	**%**
Engineering,	23	13.77	15	15.96
Food& allied,	35	20.96	14	14.89
Fuel & power,	10	5.99	10	10.64
Textile,	38	22.75	12	12.78
Pharmaceuticals &	24	14.37	15	15.96
chemicals,	18	10.78	12	12.76
Tannery & paper& Service	19	11.38	16	17.02
Cement & ceramics& IT				
Total	167	100	94	100

6. DESCRIPTIVE STATISTICS

Table 59 *Descriptive Statistics for all Variables*

Variable	Mean	Minimum	Maximum	Std. Deviation
TVD	47.47	18	72	12.239
PEOI	21.93	0.001	65.920	19.774
PEINS	26.39	0.000	73	16.899
TA	26831.56	56.95	378056.50	66041.84
TSE	18228.79	0.00	441016.71	58455.818
PNPTS	-1.1184	-258.96	64.09	38.595

Table 60 *Voluntary Disclosure Score*

Disclosure Score (%)	No. of Companies	Percentage	Cumulative %
<=30	8	8.5	8.5
31-40	19	20.3	28.8
41-50	31	34.1	62.9
51-60	19	20.3	83.2
61-70	14	14.7	97.9
71-80	2	2.1	100
>80	0	0.0	00

The Table 61 shows the number and percentages of companies whose disclosure score is within the specified range.

Table 61 *Pearson Correlation Analysis Results (N=94)*

Variables	TVD	PEOI	PEINS	TA	TSE	PNPTS
TVD	1.000	-0.721	0.405	0.349	0.197	0.070
PEOI	-0.721	1.000	-0.290	-0.283	-0.007	-0.254)
PEINS	0.405	-0.290	1.000	0.173	0.173	0.113
TA	0.349	-0.283	0.173	1.000	0.580	0.148
TSE	0.197	-0.007	0.173	0.580	1.000	0.068
PNPTS	0.070	-0.254	0.113	0.148	0.068	1.000
Sig(2-tailed)TVD	-	0.000	0.000	0.001	0.057	0.505
PEOI	0.000	-	0.005	0.006	0.946	0.014
PEINS	0.000	0.005	-	0.095	0.095	0.283
TA	0.001	0.006	0.095	-	0.000	0.159
TSE	0.057	0.946	0.095	0.000	-	0.520
PNPTS	0.505	0.014	0.283	0.159	0.520	-

** Correlation is significant at the 0.01 level (2-tailed).* Correlation is significant at the 0.05 level (2-tailed).

TVD = total voluntary disclosure score received from each company; PEOI = percentage of equity owned by the insiders to all equity of the firm; PEINS = percentage of equity held by institutional shareholders to all equity of the firm, TA = total assets of the firm; TSE = total Sales of the firm; PNPTS = percentage of net profit on total sales

Table 62 *Regression Analysis Results*

Variable	Coefficient	Standard Error	Beta t Values	Significance
PEOI	-.659	.049	-8.341	.000***
PEINS	.194	.052	2.629	.010**
TA	.079	.000	.865	.389
TSE	.126	.000	1.423	.158
PNPTS	-.140	.022	-1.923	.058*

* $P<0.01$, two tailed, ** $P<0.05$, two tailed, *** $P<0.001$, two-tailed

R squire =0.579; Adjusted R squire= 0.555; F Value =23.701; F significance =.000; Durbin Watson test =1.807

TVD = total voluntary disclosure score received from each company; PEOI = percentage of equity owned by the insiders to all equity of the firm; PEINS = percentage of equity held by institutional shareholders to all equity of the firm TA = total assets of the firm; TSE = total Sales of the firm; PNPTS = percentage of net profit on total sales

6.1 Results of Descriptive Statistics

Table 59 presents descriptive statistics for the sample firms. The results from the disclosure index indicate (TVD) the highest score achieved by a firm is 72% and the lowest score is 18% with a standard deviation of 12.23%. So, the firms are widely distributed with regard to voluntary disclosure. The mean of the ownership structure (Percentage of equity owned by the insiders to all equity of the firm) is 21.93% with standard deviation is 19.78%. The mean of the ownership structure (Percentage of equity owned by institutional shareholde*r* to all equity of the firm) is 26.39% with standard deviation is 16.899%.The average total assets (TA) and total sale (TSE) is 26831.56 and 18228.79; standard deviation is 66041.84 and 58455.818% with minimum and maximum amount of 56.95 & 0.00 and 378056.50 &441016.71 respectively. The statistics on the net profitability (PNPTS) indicate negative return on an average.

6.2 Results of Product-moment Correlation Test

Table 61 provides the Pearson product-moment correlation coefficients of the continuous explanatory variables as well as the dependent variable included in the survey. The result of Pearson product-moment correlation exposed that Ownership structure (PEOI) are negatively related with voluntary disclosure (P<0.01, Two-tailed) at significant level 0.000. The result also exposed that Ownership structure

(PEINS) are positively related with voluntary disclosure (P<0.01, Two- tailed) at significant level 0.000 Total assets is positively related with TVD at the level of (P<0.01, Two- tailed). Total sales and Net profit ability is positively related but not significant at the level of (P<0.01 & P<0.05, Two- tailed).

7. RESULTS OF MULTIPLE REGRESSION ANALYSIS

Table 62 shows the results of the multiple regression analysis in the study. Regression has been used in many previous researches e.g. M. Akhtaruddin et al., 2009; Hongxia Li& Ainian Qi,2008; Ibrahim, Haron and Ariffin, 2000; Ho and Wong, 2001; Chau and Gray, 2002; Haniffa and Cooke, 2002; Eng and Mark, 2003.The table shows the association between voluntary disclosure index and experimental variables. The coefficient of determination R-square, F ratio, beta coefficients and t-statistics for the regression model and summarized results of the dependent variable on the explanatory variables can be seen in the Table 62. The results indicate an R-square of 0.579, and an F value of 23.701, which is significant at the 0.000 levels. Both of these values suggest that a significant percentage of the variation in voluntary disclosure can be explained by the variations in the whole set of independent variables.

If the independent variable PEOI is one unit increased then this situation the dependent variable is decreased – 0.659 with SE = 0.049, Beta t value = -8.341 and significance at the 0.000. The result suggests that firms have a higher percentage of equity owned by inside is negatively associates with voluntary information. This result is similar to that of McKinnon and Dalimunthe(1993); Hossain et al.(1994); Lakhal (2005); Oliveira et al.(2006).

The most significant variable PEINS, this study suggests that the higher the percentage of shares held by institutional shareholders, the higher the extent of voluntary disclosure at the significant level of (P<0.05, two tailed). This result similar with Bushee and Noe (2000); Dulacha G .B (2007)

With regard to control variables, this study suggests that firms that are larger in size in respect to total assets and total sales are insignificant. This result similar with Watson et al., 2002; Wallace et al.,1994; Ho and Wong, 2001; Hossain et al.2006.

With regard to control variables, our study suggests that a profitability of the firm in respect to percentage of net profit on total sales is significant but not positively. This result similar with (Kusumawati, D. N, 2006)

8. CONCLUSIONS AND IMPLICATION FOR FURTHER STUDY

This research is an extension of previous research where a set of corporate governance variables is considered to examine their association with the level of voluntary disclosure. The objective of this study was to examine ownership structure and firm specific characteristics influence on voluntary disclosure. These include percentage of equity owned by the insiders to all equity of the firm, percentage of equity held by institutional shareholders to all equity of the firm, total assets, total sales and profitability of a firm. In this study we used the disclosure index to measure voluntary disclosure on a sample of 94 listed companies of Bangladesh. The first hypothesis of the study was the extent of corporate disclosures is negatively associated with a higher management of ownership structure. Finding my result is similar to the hypothesis. The results are supported by prior research, for example- Akhtaruddin, M. and Haron, H., (2010) McKinnon and Dalimunthe (1993); Hossain et al.(1994); Lakhal(2005); Oliveira et al.(2006); Chau and Gray(2002); Haniffa and Cooke(2002). The second hypothesis of the study was the extent of corporate disclosures is positively associated with the higher the percentage of shares held by institutional shareholders, the higher the extent of voluntary disclosure. The result is supported by the prior researches, for example-Bushee and Noe (2000);Dulacha G .B (2007).

There are number of limitations of this study as well. First limitation of the study is used only non-financial companies as a sample. So the results may not extend across all companies in Bangladesh. Second, the study considers only one year of data. The results may differ across different years if multiple years are considered for analysis. Finally, the study investigates the extent of voluntary disclosure leaving the other facet of disclosure i.e., mandatory disclosure. The higher levels of voluntary disclosures, therefore, do not necessarily mean higher transparency. The results of the study should be interpreted with these limitations in mind.

Future research on voluntary disclosure should seek to take into account all listed companies under non-financial group. Additionally, studying the same research issues found here but in a different industry sector would be an interesting extension of this study. This may disclose interesting results in terms of variations within the industrial sectors.

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THE POTENTIAL OF THE INVESTMENT IN EDUCATION IN CREATING SOCIO-ECONOMIC DEVELOPMENT IN THE NEW ECONOMY AND THE KNOWLEDGE-BASED SOCIETY

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Abstract: *Compared with classical economics, the new knowledge economy and learning society gets another new framework for addressing specific facets and therefore is no longer centered on the transfer of information, but becomes a **dynamic process** in which **individuals learn how to continuously learn**, how to access new opportunities to explore and exploit effective and timely information in order to transform it into new knowledge.*
*In this new context in which human skills and knowledge are core components of the strategic economic and social system, traditional factors of production lose their centuries supremacy and become secondary. Paraphrasing Quash professor at the London School of Economics, robust growth in investment in intangible assets facilitates the so-called "cognitive domains" in which "**ideas are worth billions, while the products still cost less.** " (Suciu, 2004). Thus, more investment in education leads to an increased income which leads to wealth and in this way contributing to society development.*

Keywords*: investment in education, socio-economic development, knowledge.*
JEL Codes*: I21, I25*

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INTRODUCTION

„*Education is one of the sub-systems of the social system, with which it has a strong interdependence relation. It fully indicates the social requirements, having a decisive role in the training of the next generations at higher quality standards*". (Avram E., Neagoe C., Avram R., 2010, p.2)

The investment in education (Suciu, 2001), particularly higher education in the future allows us to gain higher levels of income, facilitates us the access to new job opportunities, reduces our risk of unemployment, forms and perfects our complex beings both as individuals and increases our creative potential and the transmission of moral and civic attitudes, offering a broader perspective, innovative on all aspects of life. But in all this intricate process of learning a crucial role is played by higher education institutions. Thus, through their potential in the creation, exploitation and dissemination of knowledge, as it was appreciated by Sizer (2001) in one of his works, universities are "*a critical success factor for the development of competitive knowledge-based economies, countries, regions and cities in an ongoing learning (learning countries) as well as sectors, clusters and innovative activities that focus on lifelong learning.*" (Sizer, 2001, p. 228)

This article is structured in two parts, the first part makes an approach to the theoretical framework of the literature, opinions, viewpoints, controversies regarding the role of education in the knowledge society, while the second refers to the potential of the investment in education to generate socio-economic development.

From **a methodological point of view** in order to achieve this paperwork we have abstracted works of various articles ISI, NURC, articles in international databases and online sources of the national and international literature in order to obtain accurate information referring to the potential of the investment in education to generate socio-economic development within the knowledge based society.

1. THEORETICAL BACKGROUND ON THE ROLE OF EDUCATION WITHIN

Knowledge Based Society

In economists' sense there are two fundamental economic theories designed to capture the role of *knowledge* acquired largely through ***education*** and technology in achieving *sustainable economic growth potential: the new theories of economic growth or endogenous growth theory and evolutionary economic theories or system theories.*

The *new theories of economic growth or endogenous growth* theories are concerning on **knowledge** as a special type of a product and use standard general equilibrium neoclassical models to analyze the production, exchange and use knowledge. These theories focus on two major rescheduling of growth: a) *incremental learning* literature described primarily by Lucas (1988) and b) *investments in research and development* (innovation), initially treated by Romer (1986), and Aghion and Howitt (1998). According to the new growth theory, the capacity of a countries to benefit from the *knowledge economy* depends on how fast the economy can become a **'learning economy'**.

Economic theories or theories of evolution encompasses a series of system of thought based on the initial logic of Schumpeter "creative destruction". The essence of these theories is the perception that **innovation** with technological and organizational changes along with its associated are the main drivers of long-term growth..(Sabău, 2010, p.2)

Since the early '60s when were made the educational foundations of the concept of *education economy*, a series of studies from around the world were preoccupied with studying and quantifying **the potential contribution of education to economic growth and development.** Among these, in literature circulated the names of some prominent economists who have been involved in studying the relationship between education and economic growth generally, including: Schultz (1961, 1981) and Denison (1962) that published papers on the use of innovative assessment of education in U.S. economic growth, Becker (1964) and Becker and Lewis (1992), Chinoly (1980), Bishop (1989) has created a general index of intellectual creation, Barro (1992) and (2001) compared the Economic contribution rate of education (ECE) from different countries. A common feature is that their research is that they were circumscribed specifically to the economic model of Romer-Lucas. Although the results of these studies have been mixed, in principle it was argued that education, by increasing the stock of human capital of individuals contribute to economic growth with improved productivity. Later Jorgenson and Fraumeni (1992) pointed out that *"investment in education will continue to prevail in the needs and investment requirements to ensure faster economic growth"* (Jean-Luc de Meulemeester, Denis Rochat, 1995, p. 351)

Other contributions to the development of the field have been made by the Min and Ding (1999) through their work on the economics of education, Lai (1998) by studying the distribution of education in general and of revenue, or Wang (1999) with his research on *input* and *output* of education. They have shown through their research that *"education can directly support economic development",* but its

contribution to economic development effects can sometimes be hard quantifiable in terms used of the deterministic approaches for their evaluation, as can be manifested indirectly within long periods of time or later. (Guo Haixiang, Diao Fengqin, Zhu Kejun, Li Jinling, Xing Yanmin, 2008, p. 499, 505)

According to David Wilson Schejbal and Davis Wilson, the most relevant public and political recognition of the link between *higher education, economic development and national wealth* was made after the Second World War. Harry Truman in 1946 appointed a *Presidential Commission on Higher Education* which has been "responsible for the problem of defining the responsibilities of faculties and universities in American democracy and international relations – and, in particular, review the objectives, methods and facilities of higher education in the U.S. in terms of the role and its social impact." (Schejbal, Wilson, 2008) The commission concluded that higher education is critical for national security, social welfare and economic growth. So, according to the authors, higher and further education is seen as "an extension of the organization" and it is more than an economic engine as it contributes "directly and in a multivariate manner to the common good." It generates and makes it accessible to a wide variety of knowledge which is leading and propeling the economy, helping the development of personal, social and human competencies, without which, paraphrasing Thomas Hobbes – *life would be poor, immoral, savage and brief.* (Schejbal, Wilson, 2008, p. 32)

2. INVESTING IN EDUCATION – A PROCESS LEADING TO SOCIAL AND ECONOMIC DEVELOPMENT

According to experts, *the productivity of the years of education* of the individuals, incorporated in human capital it is considered to be specific to each country and it is a function of the overall quantity of *inputs* used by firms and technologies adopted by them in the moment of measuring. (Ahmed Tritad, 2008, p.31) Therefore, a richer country would assume that it will invest more in new technologies, training and education and thus record a higher average of productivity in the years of education of the individuals compared with the poorest countries which will not allow a high level of investment.

Krueger and Lindahl (2001) found out from their research on education and economic growth that "*education is statistically significant and positively associated with subsequent growth only for countries with the lowest levels of education.*" (Krueger, A. B., Lindahl, M., 2001, p. 1130) Their conclusion we could say that it is supported by other studies undertaken by specialists and an example in this regard is

the position of Kitaura (2009) vis-à-vis the education-growth relationship according to which "*education was recognized as a key factor determining economic growth for developing countries*". (Kitaura, Koji, 2009,p. 615) Rumors in literature say that this might be the case that poor countries have a comparative advantage of adopting the existing technologies because the process does not require a force of highly skilled and educated labor. Based on the research results of Krueger and Lindahl (2001), Vandenbussche, Aghion and Meghir (2006) have proposed the development of a theoretical model to analyze the contribution of human capital to technological improvements made throughout the economy through two channels of *imitation and innovation*. Following their study which has contributed to the development and completion of previous theoretical approaches and empirical link between *educational attainment* and *economic growth*, the conclusion was that if in the case of the more competitive developed countries *the source of the technological progress* is determined both by the adoption of the already existing technologies but especially by the *pure innovation* that is specific and considerably enhanced in the case of the workers with a high level of education and training. Using a panel data which covered 19 OECD countries between 1960-2000, the authors showed that in the competitive and developed economies the unskilled human capital has a low contribution in improving technology, the major contribution being determined by highly qualified and educated individuals. They also found that differences between the levels of education of the workforce in OECD Member States was an important source of growth of the differences between them. (Vandenbussche, J., Aghion, P., Meghir, C., 2006, p. 97, 99, 121) *Internationally*, according to a study made by the World Bank (Psacharopoulos, George; Patrinos, Harry, 2002, *World Bank Research Paper*, 2881, septembrie), the contribution of education and training in the process of development is widely acknowledged and the estimations show that investment in education and training generates **benefits both to individuals (private benefit) and society (social benefits)**, a result recognized also by other expert opinions such as for example that of Aina Tarabini (2010) in her ISI article: "*Education and Poverty in the global development agenda: Emergence, Evolution and Consolidation*", according to which "**Clearly education has always played roles that transcend individual Benefits of training.**" (Tarabini, Aina, 2010, p. 204)

Approached from a *microeconomic perspective*, in the context of the new economy and knowledge society, "**the essential function of education is to help train the individual as a complete being**" In this context, education becomes a complex process conducted over a period of time as, compared with classical economics, it cannot be sized according to the target, being different from one

individual to another. However, education is not an exclusive function of the family or school but through its specific appears to be a process that occurs throughout the life of the individual (lifelong learning) (Suciu, 2008) and is "***seen to be both a privilege social and economic necessity*** "(Anderson, 1999), whereas education can ultimately be seen as a ***right to social inclusion and ensuring equality of opportunity***.

Also at a EU level according to a study on the role of education in the success of Europe, conducted under the aegis of Lisbon – *Lisbon Council*, it was clear that *for every penny invested in acquiring higher qualifications, those who invest receive more and more money through economic growth*. Moreover, this investments ***generate tangible benefits for society as a whole*** and not just to the individuals which also have more educational opportunities, which confirm the appropriateness of education approach and in terms of "macro". (Schleicher, Andreas, 2006, p.2) *We consider* that the social benefits can be explained by the effect of spread of individual investments, comparable with the investments in physical capital which tend to outweigh them in accordance with the developing of the convergence process towards the knowledge economy and society.

To emphasize the positive effect of investment in education from the perspective of higher future income generation and providing different alternatives to choose a job appropriate we consider further to present in table 63 the results of a study conducted by the Bureau of Labor Statistics U.S. the weekly average of the earnings of full-time people according to the level of education in 2010. The data analysis presented in table 63 and in the figure 26 shows a direct and positive link between the level of education (conducted by individual investment in education) and the size and average income obtained after and also the inverse relationship between the level of education and the unemployment rate which determines the reducing of the social costs involved.

Table 63 *Weekly average earnings and the unemployment rate for people aged over 25 years compared with the level of education in the U.S. in the year 2010*

Unemployment rate in 2010 (%)	Education level	Weekly average earning (2010) în $
1.9 %	Doctoral degrees	1,550 $
2.4 %	Professional degree	1,610 $
4.0 %	Master's degree	1,272 $
5.4 %	Bachelor's degree	1,038$
7.0 %	Associate degree	767 $
9.2 %	Some college, no degree	712 $

Unemployment rate in 2010 (%)	Education level	Weekly average earning (2010) în $
10.3 %	High-school graduate	626 $
14.9 %	Less than a high school diploma	444 $

Source: Labour Statistic Bureau. Education attainment: Education pays http://www.bls.gov/emp/ep_chart_001.htm – accesat 28.05.2010
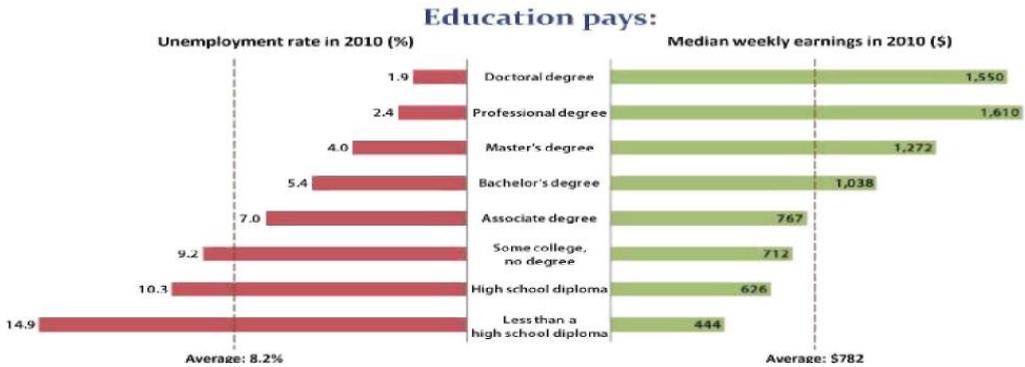
Figure 26 *Weekly average earnings and the unemployment rate for people aged over 25 years compared with the level of education in the U.S. in the year 2010*

Source: Bureau of Labor Statistics, Current Population Survey http://www.bls.gov/emp/ep_chart_001.htm – accesat 28.05.2010

From the data we can see that the average weekly earnings of a graduate doctoral studies in the U.S. was in 2010 almost three times higher than a high school graduate as a doctor earn on average about 20% more than a master's graduate and about 35% more than a graduate of the undergraduate. From the graph we can see also that the lowest recorded unemployment rate among people with doctoral studies, it is hovering around 1.9%, while for those with high school education or those without a high school diploma is reaching the highest values of 10.3% and 14.9% in the year 2010 in USA. The average unemployment rate in this country in 2010 amounted to 8.2% according to *Bureau of Labor Statistics USA* for people aged over 25 years while the average earnings for these people regardless the skill level ranged at around $ 782.

The income bonuses related to higher levels of education are revealed and confirmed by the study of Mark C. Long (2009) conducted on three cohorts of students from the '70s until the late '90s. According to the results obtained and outlined in his article: *"Changes in the returns to education and college quality",* the later recorded gains on the labor market are influenced by *the number of years of quality education and graduate universities*, in the case of men the increase in the

income being more pronounced than in those of women. It was also found that the number of years of education has led to delays in marriage and determined the reducing of the divorce rate. (Mark C. Long, 2009, p. 338, 346)

According to data presented, it appears that there is *a strong and positive link between the acquisition of education and average earnings levels*. In all countries, tertiary education graduates earn more overall than the upper secondary education and post-secondary graduates.

CONCLUSIONS

In our view, in the new economy and knowledge society, **education cannot be seen simply as a private and individual resource** because its social benefits are useful also to other individuals outside of those who adopt and interiorize the educational process. *To support our approach and to highlight the beneficial effect propagated to social scale of the education investment* we will expose the following statement of RW Connel (1990) which we find particularly relevant in this respect: *"My education is, of course, a resource for me. However, my education is both a resource for other people. My education affects the quality of life of individuals who I interact in life. It is therefore a special feature of education which cannot be altered unless it would charge a fee every time you open your mouth.* " (R.W. Connel (1990), cited work – Cojocaru, Făuraş, 2006, p. 30)

According to this view, education is itself a **positive externality** because it is possible that its social marginal income to exceed the private marginal revenue. In other words, because of its beneficial effects to third persons, benefits are that not reflected in the prices and costs and therefore not reflected in market equilibrium. Therefore **education is also a range of** *social benefits that transcend the economic interests* in stricto sensu, for example its contribution to training individuals as complex beings, promoting intercultural dialogue and equal opportunities for all staff, which has strong implications for the social development. Also, education complemented by creativity and vice versa, through its contribution to the ongoing development and enhancement of human potential, takes a key role in supporting technological development, economic development, social and human as a whole.

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THE ECONOMIC DEVELOPMENT OF BUKOVINA (II) BUKOVINA AS AN AUTONOMOUS DUCHY: 1849-1918

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Abstract: *The duchy of Bukovina has experienced a great development after obtaining its autonomy. The new status and the internal organization allowed Bukovina to significantly reduce the gap in development with other provinces of the Empire. Unfortunately, the autonomy of the province of Bukovina in the Empire was a short one and the reduction of the gap in economic development was not enough to surpass other provinces. The great conflict at the beginning of the XXth century changed everything as the industry of the province was mostly destroyed and the union with Romania led to the loss of its autonomy.*

Keywords: *Bukovina, economic growth, reforms, immigration, values, mentalities, integration, economic development*

JEL Codes: *F15, F22, N13, N33, N43, O14, O52*

By the Austrian Constitution of the 4th of March 1849, Bukovina was declared a province of the House of Austria and received the title of Duchy. The province was made of the autonomous municipality of Cernăuți (the seat of the provincial Government) and 9 districts. The autonomy of the province was completed in 1860, when a provincial *Dieta* with 31 members, led by the "Captain of the country", was elected in Bukovina. The *Dieta* had two members *ex officio*: the Metropolitan Bishop and, since 1875, the Rector of the University of Cernăuți. The other members of the *Dieta* were elected from the great landowners (10), the towns (3), the Chamber of

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Trade and Commerce (2) and the rural districts (12). At the same time, Bukovina had 14 members in the Empire's Parliament.

By the Imperial Decree of 9th of December 1862, the Duchy of Bukovina received its own emblem, similar to the Moldavian one. German was the language used in administration, but the languages of the main minorities were also accepted. The judiciary system remained under the authority of the Provincial High Court of Lemberg and consisted of one Provincial Court and 17 District Courts. On the 28th of November 1918 Bukovina became part of Romania, losing its autonomy.

1. ECONOMY

The main goal of the policies implemented by the Habsburg Administration during 1775-1918 was the development and integration of the province into the empire. Before World War I, of the 17 provinces of the Empire, Bukovina had the 5th average cereal production, competing and exceeding Austria to yields of wheat, rye, oats and corn. It occupied leading positions in the growth of livestock and the exploitation and trading of wooden materials. More than that, the production was close to the average of the Empire mostly because the soil in Bukovina was fertile so that less manure was necessary.

During the autonomous years of the duchy, the system of artificial irrigation developed strongly. For example, at the beginning of the XXth century, the local authorities initiated a plan, estimated at over 60.000.000 kroner, for the drainage and irrigation of the region, which had to be achieved by regulating the rivers. Till World War I the Prut and Moldova rivers were regularized in a large extent so that a considerable area of land has been protected from flooding. (Peace Handbooks: 1920: 28)

The measures taken by the Austrians (draining, deforestation of wooded areas, reduction of the surface of meadows and pastures) led to an increase of the arable land from 180.203 hectares in 1820, to 216.439 hectares in 1860. In 1876, the arable lands reached a cumulative area of 521.254 acres, meaning 27.59% of the region's surface. The arable land was organized in farms which were either large, as those of the Religious Fund, nobility and bourgeoisie, either small subsistence farms. Medium properties were almost extinct. (Peace Handbooks: 1920: 28)

Table 64 *The degree of fragmentation of agricultural properties at the end of the XIXth century*

Size of the parcel	U.M.	Surface (thousands of ha)
< 2	ha	93.99

Size of the parcel	U.M.	Surface (thousands of ha)
2-5	ha	93.99
5-10	ha	76.23
10-50	ha	112.77
50-100	ha	38.64
>100	ha	628.68
Total	**ha**	**1,044.3**

Source: *Bucovina 1861-1918: Aspecte edificatoare pentru Europa Unită?*: 2002: 85

Through the allotment made for the benefit of the immigrants and the one realized after the 1848 Revolution, almost half of the agricultural sector became propriety of small farmers. Because of this, a quarter of the arable land was constituted of undersized surfaces, preventing the development of modern agriculture. Seventy years later, at the beginning of the XXth century, the agricultural plots were reduced even more. The Romanian farmers owned 3/4 of the individual farms, but only 1/8 of the whole agricultural area. (Clark: 1922)

Table 65 *Use of land in Bukovina (1876)*

Type of land	Surface (acres[1])
Arable land	521,254
Gardens	15,693
Meadows	320,587
Grasslands	229,470
Forests	950,278
Constructions	7,515
Lakes, swamps and unproductive land	50,211
Total	**2,095,008**

Source: Aurelianu: 1876: 29

From the total surface of Bukovina, more than a quarter was used in 1876 for agriculture. The area is quite large if we take into consideration the fact that the mountain was the dominant terrain and forests covered over 40% of the total area of the province.

Table 66 *Average production in the decade 1861-1871*

Nr.crt.	Agricultural product	Quantity	U.M.
1.	Wheat	17.324	kg
2.	Corn	164.899	kg
3.	Rye	57.725	kg
4.	Oats	65.289	kg

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[1]The Romanian unit of measure *pogon*

Nr.crt.	Agricultural product	Quantity	U.M.
5.	Barley	47.664	kg
6.	Buckwheat	10.469	kg
7.	Legumes	3.814	kg
8.	Potatoes	230.812	kg
9.	Rape	3.852	kg
10.	Flax and hemp (seed)	2.075	kg
11.	Clover seed	1.259	kg
12.	Clover hay	32.779.428	*ocale*
13.	Hay	174.615.760	*ocale*
14.	Cereal straw	354.254.240	*ocale*

Source: Aurelianu: 1876: 36

From 1866 to 1871, the production of wheat, rye, barley and oats doubled and farmers started to grow beans, pumpkins, sunflower (the last two were used mostly for oil production). Other crops that had grown in importance were maize and potatoes.

Table 67 *Areas occupied by the main crops (1912)*

Nr.crt.	Crops	Hectares	Nr.crt.	Crops	Hectares
1.	Barley	33.593	8.	Oats	46.400
2.	Buckwheat	2.752	9.	Potatoes	37.750
3.	Clover hay	38.425	10.	Pulse	14.023
4.	Flax	2.172	11.	Rye	31.267
5.	Fodder (mixed)	4.699	12.	Sugar-beet	2.842
6.	Hemp	5.453	13.	Swedes & c.	6.580
7.	Corn	62.964	14.	Wheat	22.204

Source: Peace Handbooks: 1920: 27

The main crops cultivated in Bukovina in 1912 were corn on 62.294 hectares, barley on 33.593 hectares, oats on 46.400 hectares, and potatoes on 37.750, rye on 31.267 and clover hay on 38.425 hectares. In the same year, there were 128.463 hectares of meadowland and a fruit crop of 131.150 quintals, although only one quarter of the agricultural area was exploited, while the farmers were cultivating 2.842 hectares of sugar beet which had a yield of 379.510 quintals.

Table 68 *Domestic animals (1869)*

Animals	Number
Horses	42.047
Mules	30
Donkeys	54

Animals	Number
Cows and oxen	224.201
Sheep's	217.913
Goats	18.786
Pigs	133.385
Bee Hives	27.091

Source: Aurelianu: 1876: 39

The development of animal husbandry in the region took a great upsurge especially in the second half of the nineteenth century. An important livestock industry for Bucovina was the growth of thoroughbred horses. The horses of the Bukovina studs were particularly excellent for light cavalry. (*Encyclopedia Americana*, vol. V: 1831: 183)

On changes in number of the main livestock raised we can note that, between 1861 and 1869, the number of horses increased to 8.716. This spectacular evolution of the area was recorded by the 1869 census. Also it is important to underline the fact that the Orthodox Fund had fisheries, which brought annual revenues of 30.000 kroner[2]. The fisheries were spread on 100-200 hectares of water. The fish varieties found in these lakes were Trout, Carp, and Crucian Carp.

More than 40 per cent of the surface of Bukovina was covered with forest. After the installation of the Austrian administration, the ownership structure of forests in the Bukovina became (with little changes until 1940):

Table 69 *Ownership structure of forests in Bukovina*

Owner	Percentage (%)	Surface of forest (ha)
The Orthodox Fund	51.5	225,055
Private forests	30	131,100
Communal Forests	13	56,810
Inalienable proprieties	5	21,850
State-owned forests	0.5	2,185
Total	**100**	**437,000**

Of the total afforested area, 51.5% was the property of The Orthodox Fund, mainly under State control, 13% were communal forests and most of the rest were private estates.

Table 70 *Incomes obtained from the forests of Bukovina (1862-1871)*

Owners	Incomes
Communal	218,327

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[2] The value corresponds to the years before World War I.

Owners	Incomes
Private	711,583
The Orthodox Found	506,955
TOTAL	**1,436,865**

Source: Aurelianu: 1876: 57

Although the main owner of forests was the Orthodox Fund, the highest incomes were obtained by the individual owners. Because of the good organization of the exploitation, in 1871, forests became the main source of income; 100 years before there were ownerless forests which were burned and introduced in the agricultural circuit.

A negative aspect of the intensive exploitation of the wood material was the massive deforestation. For example, because of the manufacture the birch fuel oil, this category of forests disappeared almost completely, while the beech forests experienced a decline of 80% in just 50 years. Also, due to the blockade imposed by Napoleon to the Empire, the Habsburgs started to use maple bark in the manufacture of sugar, thousands of hectares of forest thus being destroyed.

At the beginning of the XXth century, the industries of the province have supplied almost all domestic needs of the inhabitants. (Peace Handbooks, 1920: 31) The poor resources and the lack of infrastructure have caused, in the mid-nineteenth century, a continuous regression of the mining activities. Because of the debts, the mines were seized in 1862, so that in 1870 they became the property of the Orthodox Fund . The Orthodox Fund maintained the mines in conservation, for 10 years, so that the German workers from the 5 colonies (Iacobeni, Cârlibaba, Pojorâta, Prisaca and Moldoviţa) had to convert to forestry.

After the construction of the railway between Câmpulung Moldovenesc and Vatra Dornei, the trade conditions for Bukovina's market have improved substantially, so that in certain mining baths the activity started again (including in Iacobeni). At the same time, there had been unsuccessfull attempts to launch again the extraction of copper and pyrites ores in Pojorâta.

Local entrepreneurs tried to exploit gold from de sands of Bistriţa, but they gave up after a few years because it was unprofitable. Another industry which collapsed due to poor resources was the iron extracting industry. Other unprofitable exploitations were the one of silver and lead at Cârlibaba and cooper at Pojorâta. The production of brown coal continued, but was negligible. (Peace Handbooks, 1920: 30)

In 1912 one mineral which was exploited profitably was the manganese. A major mine was the one of Arsita (5 km south-west of Iacobeni). The mine was

founded by Romanian boyars and later it became the property of The Orthodox Fund. Although the production was not impressive, it represented almost the total production of manganese in the Austrian Empire. For example, in 1912 the mine produced 10,944 metric tons of manganese, valued at 135,823 kroner. (Peace Handbooks: 1920: 30)

Sulfur was exploited at Luisenthal, a mine which was not profitable but was reopened by order of the military authorities. The small production of sulfur[3] was important because it represented a large part of the total sulfur production of the Empire.

The evolution of the production at the Cacica mine was extremely dynamic; in 1886 the mine production reached a 2.380 tons production of salt-lumps, 2.926 tons of evaporated salt and 233 tons milled salt. Twenty six years later the production of salt was of 5.190 tons for human consumption and 670 tons for industrial uses. The value of the production was of 959.865 kroner. Anyhow the production from Cacica represented only a small fraction of the total Empire production.

After the 1848 Revolution, the market decreased because of the stiff competition with the higher quality Western products and also due to wearing of technology and exhaustion of the mineral deposits.

In many settlings, there were deposits of hausmannite, hematite and lime which were not exploited. For a short period (1885-1890) petroleum was exploited at Russisch-Moldawitza. Because of the poor quality of deposits, the exploitation was not profitable.

The peak of the steel industry was reached in the mid-nineteenth century. In 1853, the iron factories in Iacobeni were producing 1.224.794 kg[4] of iron and copper and those in Pojorâta 122.502 kg of copper, in total amount of 454.958 Florins. In 1858, there were 3 furnaces of molten iron in Iacobeni and 11 ovens for refining iron, in Cârlibaba-2 furnaces for molten silver and lead, in Pojorâta refined copper was melted in 8 furnaces, in Prisaca Dorna there were 10 furnaces for refining iron and in Watra Moldowitza as well.

The rich forest of the area favored the development of the timber industry. The modern exploitation of forests began with setting up of first saw-mills for timber production. Under Austrian occupation, in Bukovina, wood was exploited, usually by companies with private capital. According to existing rules, the attempts to exploit under its own administration were done just under the strict control of the Forestry

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[3] in 1912 8,011 metric tons value 124,167 kroner
[4] In original **ocale**, 1 **oca** = 1201 g ; there were 1.019.812 **ocale** of iron; 102,000 ocale of copper

workers. The contracts for the exploitation of forests were made for a relatively long period, about 10 years[5].

The wood was sold according to the accessibility of the forest, the thickness, wood species and their quality. Thus, there were 4 categories of accessibility and depending on its thickness wood was divided into 3 classes, namely:

Class I: wood with a diameter of 35 cm and above;

Class II: wood with a diameter between 23 cm and 34;

Class III: wood with less than 23 cm in diameter[6].

Production increased continuously so that, in 1898, it was of about 500.000 cubic meters of timber. The first large timber factory (by steam, with 10 sawmills) was built in 1874 by the stock company of Philip and Charles Götz in Cernăuţi. The company extended further with new processing centers in Falcau and Vatra Dornei. At the end of the XIX th century, in Rădăuţi was opened the *Berlin Teiner Factory* and in 1902 the biggest company in Austria, *Balan & Comp*, opened in Rădăuţi the *Wood Processing Center "Bukowina"*. The production capacities were completed by the patrimony of the Orthodox Fund[7], which had 7 timber factories located in Brodina, Falcău, Putna, Vicovul de Sus, Suceviţa, Gura Humorului and Moldovitza.

Because of the development of the infrastructure made in the second half of the nineteenth century the number of sawmills grew significantly. The high number of sawmills along with the intensive production triggered the price of wood.

The „Magazine of forests" published in 1888 a list of prices for construction wood:

- Cernăuţi fir tree (slats, girders, boards, floorings) 53 RON/m^3;
- Cernăuţi spruce (floorings, boards) 50 RON/m^3 and 55 RON/m^3;

Pricing[8] was exclusively an attribute of the market economy, depending on supply and demand. Demand for wood was certainly crucial for the quantities extracted and revaluated. Thus, due to industrial development after 1888 and the extracted quantities, the prices grew continuously till the general crisis of 1929-1933, when both fell[9].

The upward trend of the timber industry continued until after the union of Bukovina with Romania. For example, the timber industry showed an increasing prosperity. There were several important sawmills across the region with expansion

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[5] later, in the between the wars period, contracts were made for shorter terms → 1-5 years

[6] Eng. Ionescu Nicolae - S.C. "FOREX" S.A. Suceava

[7] the main owner of the forests

[8] Prices were considered in gold RON; a gold RON was equivalent to one French franc.

[9] Eng. Ionescu Nicolae - S.C. "FOREX" S.A. Suceava

trends. For example, in 1920 the *Bukovina Timber Manufacturing Company* increased its capital from 3 to 5 million kroner. (Peace Handbooks, 1920: 28).

In 1912 the *Peace Handbook* stated that *there were several breweries and brandy distilleries* (5 large distilleries). Most of the factories producing alcoholic beverages were opened before 1848, after that we can note mostly changes in the structure of ownership. For example, the Ministry of Agriculture leased the Rădăuți factory, in 1870, to a drinks merchant Koffler; in 1881 the factory was entrusted to Mechel Rudich. In 1890, the ministry sold the factory to the Orthodox Fund, the largest economic authority in Bukovina. The Fund sold it to Mechel Rudich who became the first private owner of this factory in 1897.

In 1860, besides the brewery, there was set a distillery which refined crude alcohol produced by the distillers[10] nearby Rădăuți. The production of this distillery was not, however, constant, reflecting both the oscillations of agricultural production of cereals and potatoes in the area, and changing prices of those raw materials. Throughout the region, alcohol production had an upward trend, reaching in 1910 a 64,400 hectolitres production of alcohol in the factories of Bukovina.

In order to diversify the economic structure, efforts had been made for the development of other industries. Till 1914, there were 4 sugar factories (destroyed or dismantled by the Russians during World War I); 2 flour mills (destroyed during World War I); 5 large distilleries (destroyed) and 70 large farms (all but 3 destroyed); etc. The devastations of the Russian troops, the coal shortage and transportation crisis devastated the region's industrial base (Clark, 1920).

In 1838, Johan Ekert opened in Rădăuți a paper factory, and in 1868 was opened, with foreign capital, the match factory *Kreindler & Fischer*. Without too much success there were put into service the glass factories from Putna (in 1907 by Friederich Fischer), Old Huta and New Huta.

Textile industry (in particular the manufacture of cotton, flax, hemp linen drapery and wool fabrics) was represented in 1876 mainly by domestic producers. Over time, however, at the beginning of the twentieth century many manufactures established by experienced producers: *Tricotania* textile factory (now Arnica) in Cernăuți, *Hercules Textile Factory* (also in Cernăuți) etc. were already operating in Bukovina.

Food industry had all prerequisites to develop rapidly, because the Bukovina benefited from cheap and good quality raw materials. Most investments were made with foreign capital, which assured the integration of the province into the European

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[10] small agricultural factories that produced alcohol up to the stage of raw alcohol.

economic circuit. Among the oldest mills built in Bucovina were the *Schlassmann A.* (1866), and one year later, *Berl's Mill* in Rădăuți. Other mills in Rădăuți were: the one located on the brook Temnic (founded in late-nineteenth century), *Reuberger's Mill* (built in 1900) and the mill set up by Adolf Leon. Other places in which there were flour mills of high quality were Cernăuți, Tereblecea, Dornești, Vășcăuți, Gura Humorului and Solca.

Generally, sugar was traditionally produced from sugar beet. The first sugar (beet) factory was built in 1901 in Juica, followed by the one in Lujeni. For a while, the sugar production was also using maple sap. The first factory in which this technology was being used, was opened in the forest Horetza (around Cernăuți), but it had gone bankrupt after 3 years.

Another branch stimulated by the socio-economic development was the industry of construction materials. The first *Portland Cement Factory* was established in Straja, by F. Marbitzer, the second was opened in 1898 by E. Axelrod & Comp. The offer was completed in 1897 by Hersch Trichter, who opened in Cernăuți the first factory of bricks and terracotta. Two other major bricks factories existed in Rădăuți, the one belonging to David Leontovici and the brickyard-furnace built by Philip Engster.

On the eve of World War 1, home industries had still a significant proportion of the total industry. These industries supplied till the end of the nineteenth century nearly all the needs of the peasants. The most important domestic industry was weaving. (Peace Handbooks, 1920: 31)

Railway. In 1866 Cernăuți was linked with Lemberg by railroad. After the political battles from 1848-1860, the Lemberg ↔ Cernăuți ↔ Iași railway line (1867) was put into service with a positive impact on the trade of cattle. Between 1888 and 1904, the local Bukovina railway lines were built, which stimulated and facilitated wood trade. Moreover, until 1914, cities like Siret, Suceava and Rădăuți were linked to the local railway. Also, there were built a series of forest railways, which helped the sale of wood. It should be noted that, while the region was part of the Empire, there was no direct link between any city of Bukovina and Vienna. Till World War 1 the track length was of 375 miles, and there were circa 700 miles of quality high-way. (Clark, 1922) And later, in 1918, in Bukovina, there were 832 km railways. (Giurescu: 1981: 397)

Rafting. In 1843, the *Administration of state goods* regulated the rivers Bistrița, Dorna, Cosnei and Tesna, so that now the merchant's access to Dorna was possible.

In 1882 *Götz & Comp*, takes over the rafting on the Bistrița and, in 1870, on the Suceava River, till Falcău. In 1870, the Company *Götz & Comp* had already invested in the rafting on this river about 200.000 kroner, so that at the end of the XIX-th century it was possible the transport on this route about 180.000 cubic meters of wood yearly. In 1876, there were approximately 700 km of navigable waters in Bukovina, but after 1900, the length of this network reduced to around 350 km (in 1908 – 352 km, 1910 – 335 km) due to waiving off some flowing water and the development of other means of transportation. (Aurelianu: 1876: 64)

In 1916, water power was still used in a small proportion which increased significantly after the draining of the main rivers.

Roads. After sustained investment the roads reached in 1876 a total length of 6.820 kilometers. (Aurelianu: 1876: 64)

Cernăuți was connected to Vienna by telegraph in 1854. Before the war, there were in Bukovina 231 post offices, or one for every 3.469 inhabitants, and 105 telegraph offices. (Peace Handbooks: 1920: 25)

In terms of tourism one of the favourite resorts was Vatra Dornei, at that time, near the Romanian and Hungarian frontiers, and not far from the Siebenbürgen. It lies on the mountain spurs, about 2,500 feet above sea-level. This was a growing health resort, with fine curative resorts and baths for gout and rheumatism, for which its waters and mud baths were most curative. There were five sources and two bath establishments, and the pretty rivers and picturesque villages made it a pleasant resort. (Baker: 1913)

The resort passed through a new development stage after 1895, when, following a geological[11] study of the land[12], the resort was designed in the configuration known today. There were completed and inaugurated a series of objectives such as: Vatra Dornei Casino, The Communal Palace, and The National Palace, spring "*John*", spring *"Ferdinand"* and spring *"Sentinel"*, the Big Railway Station and the Bath Railway Station, the Catholic Church and the Hebrew Temple.

2. FOREIGN TRADE

By becoming a Habsburg province, Bukovina incurred complex and sophisticated policies, which aimed to change its socio-economic, administrative, cultural and demographic structure. These policies determined Bukovina's integration into the European economic circuit. Besides general measures stimulating

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[11] Stur's geologist
[12] effected in Vatra Dornei

economic activity, the Austrian government implemented a series of policies determined the development of trade with salt and wine from Moldavia and Transylvania to Hungary and the avoidance of capital outflows from the Empire.

The major organization which promoted commerce was the Chamber of Commerce in Cernăuţi, the capital of the province. After the integration into the Austro-Hungarian Empire, Bukovina developed export-import relationships with the surrounding states, the most important being those with Russia, Romania and Turkey.

Table 71 *The exports and imports of Bukovina*

Main export items	To	Main import items	From
Cows and Oxen	Breslau, Transylvania, Galicia	*Fur skins*	Moscow, Galicia
Animal skins	Galicia, Sighet, Upper Hungary	*Wine*	Focsani, Transylvania
Butter	Hotin, Constantinople	*Salt*	Moldavia, Galicia
Tallow	Bistritza, Breslau	*Leather products*	Galicia
Sheep's and Goats	Constantinople, Poland	*Iron products*	Turkey, Russia, Hungary, Frankfurt
Wool	Breslau, Poland, Transylvania	*Glass*	Poland, Galicia
Sheep skins	Galicia	*Luxury food & clothing[13]*	Turkey, Venetia, Frankfurt
Horses	Poland	*Honey and wax*	Saxony, Silesia, Turkey
Goat and sheep cheese	Constantinople	*Spirit*	Galicia
Pigs	Moldavia, Breslau		
Honey and wax	Venetia, Constantinople		

The wood from the forests of the Orthodox Fund was of high quality (especially wood for musical instruments) and had a world reputation; it was exported to Turkey, Russia, Germany, Italy, France, Greece and other countries of the Crown.

Table 72 *Main items of trade with Romania (1871)*

Product	Import	Export	U.M.
Cattle for cutting	19,260	-	pieces
Cattle for breeding	8,349	-	pieces
Wood cubic "Stânjeni"	-	55,702	
Country Chariots	-	1,233	pieces

Source: Aurelianu: 1876: 65

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[13] Consisting of fine fabric, silk, woolen, silk handkerchiefs, cotton, coffee, sugar, lemon, persimmon, figs, raisins, locust bean, oil, salted fish etc.

The main imported goods were cattle for cutting (41,028 units in 1871, of which 19,260 from Romania, i.e. almost 50%), cattle for breeding (24,211 pieces, of which 8,349 from Romania, i.e. almost 35%), cereals (350,000 kg in 1871) etc.

Goods which were exported: especially wood – in 1871, 58,582 cubic „stânjeni[14]" (of which 55,702 in Romania, i.e. almost 95%) compared to 35,380 in 1862; country chariots a (in 1871, 1,616 pieces of which to 1,233 in Romania, over 75%) etc. In 1912, from a quantity perspective, 9% (91,782 tones) of the total imports into Romania were made by the railway line Lemberg ↔ Cernăuți ↔ Iași and of the exports 2, 5 % (146.271 tons).

In 1913 the Empire exported to Romania timber valued at over 18,000,000 kroner. A large part of the timber was from Bukovina. It is unlikely that any timber was sent from the rest of Austria, as it would have had to go by rail, whereas from Bukovina it could be floated down the rivers. (Peace Handbooks: 1920: 32)

Table 73 *Merchants of Bukovina in 1916*

Establishment	Romanian	Jews	Foreign	Total
Cernăuți	45	2.517	393	2,995
Câmpulung	81	775	67	923
Coțmani	-	259	65	324
Gura Humorului	75	402	78	555
Rădăuți	98	1.070	124	1,292
Siret	44	567	107	718
Storojineț	33	610	75	718
Suceava	68	534	42	644
Vășcăuți	-	251	37	288
Vijnița	-	1.082	76	1,158
Zastavana	-	575	162	737
Total Bukovina	**444 (4.3%)**	**8,642 (83.8%)**	**1,226 (11.9%)**	**10,312 (100%)**

Source: Torouțiu: 1916: 393

The development of trade in Bukovina is illustrated by the relative number of merchants, who worked in the province. They were concentrated in major urban centres (about 30% in Cernăuți, about 12-13% in Rădăuți and Vijnița etc.) with a disproportionate distribution among the main ethnic groups. Thus, most merchants in Bukovina (83, 8%) were at that time Jews, while the number of Romanian merchants was very low, representing only 4.3% of the total.

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[14] 1 cubic *stanjen* (Romanian unit of measure) of wood equals 8 cubic meters

A *List of small business and owners in Bukovina* was published in the book *Archiv-Auskünfte über die Firmen Galiziens und der Bukovina* (Krakau 1914-1915). In that year in Bukovina, there were registered 971 small businesses for a population of about 820.000 people. From the total number, 353 were registered in Cernăuți, 36 in Vatra Dornei, 42 in Gura Humorului, 34 in Câmpulung, 72 in Rădăuți, 27 in Sadagora, 35 in Siret, 38 in Storojineț, 58 in Suceava and 40 in Vijnița. The most common businesses were: shops with mixed goods, taverns, tailor, shoemakers, shops with colonial goods, coffee houses, restaurants, shops with furniture, paper, carpets, furs etc.

3. FINANCE

The development of Bukovina determined an increase in tax collection. For example, in 1861, direct taxes, indirect taxes and state monopolies brought revenues of 5.664.220 lei[15].

Table 74 *Taxes collected in Bukovina in 1871*

Nr.crt.	Tax	Sum
1.	Fund tax	900,580
2.	Tax on houses after social classes	448,280
3.	Tax on house rents	190,140
4.	Tax revenues	320,602
5.	Registration	224,672
6.	Tax on consumption	1,110,962
7.	Personal taxes	621,250
8.	Timbre	319,790
9.	Custom taxes	1,547,627
10.	Tobacco	1,193,872
11.	Salt	577,999
TOTAL		**7,455,774**

In 1871, the amount of collected taxes increased to 7,455,774 lei, approximately 14,56 lei per capita. The structure of budgetary revenues shows clearly that the tax system in Bukovina became an incentive for commercial activities, taking into account the specific needs of the region.

The total amount produced by direct taxation in 1911 was of 4,186,950 kroner. Indirect consumption taxes produced 9,382,845 kroner, more than half of which came from the tax on brandy. The local budget of 1910 balanced at 33,470,144 kroner. (Peace Handbooks: 1920: 33)

Bukovina had agricultural associations and credit societies. The most important native banks were:

The Bukovina Bank which had the headquarter in Cernăuți. In 1911 the bank had a capital of 4,000,000 kr. and a turnover of 55,000,000 kr. Its offer included loans (to communes for railway construction and for buildings), mortgages and the usual banking operations. Most of the turnover was done in mortgage loans and commercial bills.

Bukovina was a true „promised land" for foreign investors in the financial sector and banking. Banks in Cernăuți were mostly with foreign private capital, of which the most important being: *Samuel Chodrower et Comp*, *N. Fuhrman et Comp*, *Charles Schor et Rosenblatt*, *Iwanier et Ernst*, *Ohlgiesser et Fraenkel*, *Laibuka Barners Nachfolget*, *Banca Rusticală*[16] etc. Other important banks with branches in Cernăuți were the following: *Austro-Hungarian Bank*, *Galician Land Credit Bank*, *Central Bank of Austrian-German Savings Banks*, *Anglo-Austrian Bank* and *Vienna Bank Union*.

In 1874, *Bukowinaer Sparkasse* (Bukovina's House of Savings) opened a branch in Rădăuți, and a year later, *Radautzer Spaar-Und Vorschugsverein* (The House of Savings and Loans Rădăuți) was established.

In the late-nineteenth century, following the economic development of the city Rădăuți more credit institutions with foreign capital were established: *Radautzer Armenofonde* (Poor Fund), *Radautzer Credit Für Handel Und Gewerbe* (Radautzer Credit for Trade and Industry), *Comerziellen Creditanstalt im Rădăuți*, *Escomte und Sparrsverein für Handel und Industrie im Rădăuți*, *Cumulatiwen Waisenamtes* in Rădăuți.

In 1904 was established *Spaar and Darlehenskassensvereine für die Cristens of Gerichbezirkes Rădăuți* (The House of Savings and Loans for the Christians around the Rădăuți court) and four years later *Sparkasseder Stadtgemeinde* (Savings House of the City).

In Siret, the number of banks was smaller than in Rădăuți or Cernăuți: *Sireter Credit und Spaarsvereine*, *Union Credit und Spaarsvereine*, *Sparkasse der Stadtgemeinde Siret*, *Eskomtenbank*, *Handel und Gewerbebank* and *Comerziellen Credit Vereine*.

In 1913, there were around 200 cooperatives: 90 cooperative stores; 71 village co-operatives; 20 city trades-union Cooperatives; and a few others. Other institutions

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[15] The Romanian currency was equivalent to one golden franc

[16] Founded in 1872, the bank offered lends intensively but crashed in 1885.

were a Landesbank, for rural credits; a mortgage loan institution, 3 savings banks, one government pawn-shop, and a number of branches of Vienna banks, with deposits in Bukovina in value of 8,000,000 dollars. Also, there were 586 popular banks, 470 of the Reiffeisen system, and 114 of the Schultze-Delitzsch. (Clark: 1922)

Other banks with private capital were: *Abraham Tritt and Iosif Nadian* at Sadagura, *L. Schlaefer et Sohn* at Moldavian Câmpulung, *Schmaje Pistineri* in Vatra Dornei, *Pinkas Horowitz* in Suceava, *Calman Goldenberg* in Suceava, *Carl Rudich* in Rădăuți, *Sparkasse de Stadtgemeinde* in Suceava, *Sparkasse der Stadtgemeinde* in Câmpulung Molodovenesc etc.

Local savings banks were far more popular than the *Post Office Savings Bank*. The latter had 31.800 depositors in 1911, but the total of their deposits is not recorded. *The Bukovina Savings Bank* had in 1911 deposits amounting to 21,114,000 kr., and the *Suceava Town Savings Bank* deposits amounting to 2,600,000 kr. (Peace Handbooks: 1920: 33)

Mutual credit associations were founded for commercial and industrial credit (there were 27 in Cernăuți and 6 in Suceava). Before World War I, there had been established in Cernăuți branches of the foreign banks: *Allgemeine Depozitebank Wien*, *Wiener Lombard et Escompte-Bank Gesell*, *Bank und Wechselstuben Akt Gesel Mercur Wien* and *Bukowiener Agrar und Industrie Bank Gesell*.

At the beginning of the XIXth century agriculture could not progress more because of the lack of credit institutions, which were necessary to grant loans to farmers, needed to cover the cost of maintenance and cultivation of land, seed purchase, harvesting and fruit marketing. The lack of credit had negative effects on land ownership in Bukovina.

Jews obtained in 1865, much earlier than in other parts of the Empire, the right to acquire land, which led to a fluctuation in the ownership structure of the small properties. The cause of this fluctuation has been the usury, which had economic and social effects of the most disastrous.

Because the main cause of the rural population poverty was the high price of credit, the Austrian state has stipulated a maximum value for interest by a law in 1877. However, the need for money has pushed the peasants to accept from the usurers the extremely heavy conditions of lending and high interests.

Table 75 *The evolution of the sums rolled by moneylenders (1888-1892)*

Year	Sum (florins)
1888	5,689,153
1889	6,852,728
1890	7,624,817

Year	Sum (florins)
1891	8,099,997
1892	8,638,224
Total	**36,904,919**

Source: Torouțiu: 1916: 393

Thus, only in the period 1888-1892, the sums run through usurious reached the huge amount of 36.904.919 Florins. Usury involved high interest rates of 30-40% and sometimes 70% at the payment deadline overrun. The failure of small peasant households in Bucovina can be observed analyzing the debts of debtors and forced executions of properties for non-payment of debts.

Table 76 *The situation of the peasant household debt (1888-1892)*

Year	Sum of debt (florins)	Through execution (proprieties)	Through sale (proprieties)	Debtors up to 100 florins (proprieties)	Losses (florins)
1888	49,308	152	7,740	1,066	4,889
1889	64,102	92	7,357	1,391	20,125
1890	148,801	97	7,722	1,665	14,813
1891	80,976	140	8,100	1,428	17,297
1892	101,417	134	9,688	1,621	25,031

As it can be seen from the table, the total debt increased in only 5 years with 50%, while losses have increased by almost 80%, reaching in the year 1892 the amount of 25,301 Florins. Usury, rent and tax burdens have led to the grind of small and large properties. Agricultural census of 1902 has revealed relevant numbers to the precarious situation of peasant households. Of the 198.000 agricultural properties, only 44% were owned by peasants, peasants who shared the majority of the total population of 99%. Only 14% of the peasant households had more than 5 hectares, over two-thirds exploited areas less than 2 hectares.

4. SOCIAL ASPECTS

Bukovina became, in time, through immigration, a region characterized by a great ethnic, religious and confessional diversity. Its complexity attracted the name of Europe Minor; the region was also compared with a Habsburg microcosm. In fact from an almost unpopulated region, Bukovina became relatively quickly a well-populated province of the empire.

Table 77 *Area and number of inhabitants of Cisheltania[17] (31.12.1869)*

Areas of crown	Population (inhabitants)	Surface (square km)
Lower Austria	1,954,251	19,287
Upper Austria	731,579	11,998
Salzburg	151,410	7,166
Styria	1,131,309	22,457
Carinthia	336,400	10,375
Carbiola	463,273	9,989
Maritime territory	582,079	7,909
Tyrol	878,907	29,331
Bohemia	5,106,069	59,963
Moravia	1,997,897	22,233
Silesia	511,581	5,148
Galicia	5,418,016	78,508
Bukovina	511,964	10,453
Dalmatia	442,796	12,795
Total	**20,217,531**	**300,232**

Source: Lalor: 1899

Through the spectacular evolution of the population, Bukovina became in the year 1869 the 9th region of the Austrian Empire, with a population density comparable to that of Upper Austria and Tyrol, and greater than the one of other provinces. This increased further after 1869, reaching 76.8 inhabitants/km² at the beginning of the XXth century, nearly 11 times higher than at the end of the XVIIth century.

The internal population of Bukovina had, in 1869, according to the census the following structure:

Table 78 *The population of the Bukovina at the 1869 census*

Nationalities	Number	%
Romanian	209,116	40.8
Ruthenians	191,195	37.3
German	41,065	8
Hungarian	8,586	1.7
Russian and Lipovan	3,043	0.6
Jews	47,754	9.5
Other Christians	9,998	1.9
Other Religions	17	-
Total	**511,964**	**100**

Source: Aurelianu: 1876: 19

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[17] A part of the Empire administrated directly by Vienna.

By measures taken by authorities, in 1850 the total population of Bukovina reached 380,826 inhabitants, and seven years later, in 1857, it reached 456,920 inhabitants, which means an increase of over 20%.

Table 79 *Structure of population in Bukovina*

Year	Total population	Romanian	Ruthenians	Germans, Jews, Polish, Hungarians, Armenians, Lipovans etc
1860	456,920	202,655	170,983	83,282
1870	511,964	209,116	191,195	111,653
1880	568,453	190,005	239,690	138,758
1890	642,495	208,301	268,367	165,267
1900	730,195	229,018	297,798	203,379
1910	794,924	273,254	305,101	216,474

Source: Nistor: 1918: 206

By 1880, the total population reached 568,453 people, a growth of almost 12% compared to 1869, over 50% to 1850 and almost 8 times greater than the size of the population in 1775. To be noted that in 1880, two thirds of the population was not using Romanian for communication.

Table 80 *The language of communication at the 1910 census*

Language	Inhabitants	%
Romanian	273,254	34
Ruthenian	305,101	38
German	168,851	21
Polish	36,210	
Magyar	10,391	
Bohemian	1,005	
Slovak	80	
Russian & other languages	5,206	
Total	**808,098**	**100**

The total number of the population was, in 1910, of 808,098. Three years later, in 1913, the population reached a total of 818,328. The first census after the union of Bukovina with Romania was made in 1919. The major ethnic groups amounted in that year 378,859 Romanians and 227,361 Ruthenians. (Clark: 1922)

In the 143 years of Austrian occupation, the Bukovina has developed strongly, so that if in 1775 most towns had a population of 1,000-2,000 inhabitants, in 1910 the main city (Cernăuți) reached almost 100,000 inhabitants.

Table 81 *Population's size and density in key regions of the Bukovina (1910)*

Administrative headquarter	Courts	Inhabitants	Density
Cernăuți (without surroundings)	Cernăuți	84,457	1,477
Cernăuți	Bojan, Cernăuți, Sadagora	103,563	119

Administrative headquarter	Courts	Inhabitants	Density
Gura Humorului	Gura Humorului, Solca	61,395	83
Câmpulung	Dorna-Watra, Câmpulung, Stulpicani	60,592	26
Coțmani	Coțmani	45,134	131
Rădăuți	Rădăuți, Seletin	90,400	49
Siret	Siret	65,603	126
Storozenetz	Storojenet	69,287	72
Suceava	Suceava	66,826	117
Suceava	Stanestie, Suceava	42,289	105
Vijnița	Putilla, Vijnița	55,540	43
Zastavna	Zastavna	51,262	104

Source: www.deutsche-scutzgebiete.de

In 1910 without surroundings the capital of Bukovina, Cernăuți had a population of 84,457, Rădăuți had 16,535, Suceava had 11,401, Storojenet 10,242, Siret 7,948, Câmpulung 8,748, Vijnița 5,052, Berhomet 7,309 and Bojan 7,468.

Cernăuți was a well-built and attractive modern town. The architecture and the degree of civilization have brought Cernăuți, the nickname of Little Vienna. The brightness of Cernăuți contrasted with the rest of the province. The city was not only the administrative capital of the region but also the seat of the metropolitan church and of the university. The city had a strong commercial development (the merchants traded in particular with Germany and Austria) and a thriving industry (there were several breweries, saw-mills and other plants). (Peace Handbooks: 1920: 9)

The second most important city of the province as population and size was Rădăuți. At the beginning of the twentieth century it was called, rightly, the German city of Bukovina. After 1919, under the new administration, the population of the city grew considerably but only in favor of some minorities like the Jews and the Romanians. The German minority continued to be a significant one so that before 1940 6,000 Germans still lived in Rădăuți. (Talsky: 1956: 97-100). Rădăuți was an important agricultural centre on the Suceava plain. Suceava was a town of minor importance, which had only one private bank and 1-2 breweries and saw-mills.

The economic transformations affected the socio-professional structure of the population. While in 1775, the vast majority of the population was involved in agricultural activities, at the beginning of the XXth century the situation showed a certain balance between different economic sectors.

According to the census of 1869, in the Bukovina health service worked 35 physicians, 31 surgeons, 144 midwives, 25 pharmacists and 42 other people with specialized functions. In the cultural and educational area were recorded 817 teachers, 1,914 students, 5 writers and 207 artists.

Table 82 *Employees in industrial activities (1869)*

Domain	Patrons	Clerks	Workers
Mining exploitation	2	37	1,023
Construction and works of art industry	139	27	1,336
Metals, wood and stones processing industry	1,598	47	3,444
Chemical products, tobacco, food items, etc.	597	144	1,987
Textiles	647	-	1,753
Tannery, paper products and other industries	1,396	9	1,964
Other industries	532	32	1,308
Commerce	2,964	122	3,538
Transport	335	224	603
Total	**8,210**	**642**	**16,956**

Source: Aurelianu: 1876: 20-21

It can be seen that the largest number of patrons was seen in areas with a strong manufacturer character, fact illustrated by the large number of companies and independent workshops. The concentration of economic activities was most visible in the mining operation and construction activity.

According to the data provided by I. E. Torouțiu, in 1900, there were 120 recognized professions in Bukovina, a total of 9,322 craftsmen, of which 5,091 were Hebrew, 3,494 of different nationalities and only 737 were Romanian. Their extremely small number, compared to their share in total Romanians, shows without any doubt, the absence or the poor development of a middle class in the Romanian population. The main craft workshops were those of Bodnar, brickyard craftsman, butcher, cobbler, confectioner, skinners, bakers, cart wrights, painters, hatters, watchmakers, tin men and printers.

Also, the water carriers had a particular role in urban areas since the beginning of the XIXth century until the development of water networks; their importance is explained by the two major fulfilled functions: water and extinguishing fire.

Table 83 *Population according to Bukovina occupational field (1910)*

Occupational field	Number	Percentage %
Professionals (Freelancers)	145,349	34.15
Owners of agricultural land	1,024	0.24
Employees	10,985	2.58
Workers	48,802	11.47
Apprentices	3,709	0.87
Daily workers	73,895	17.37
Employees in family business & agriculture	141,789	33.32
Total	**425,553**	**100**

Source: *Österreichische Statistik*, NF, Vol. 3, No. 10 (Vienna, 1916), page 226

In 1910 most of the working population was concentrated in agriculture (33.32%), an important share was held by the free segment of professionals (34.15%), in the mining and industrial activities worked about 11% and 17.37% were classified as daily workers.

In the nineteenth century, the issue of the elites and their ethnic or religious origin appeared for the first time. The elites thesis, according to which elites came mainly from certain ethnic structure can also be analyzed using the indicator of occupational structure. We can see from the next table, in the two major ethnic groups in Bukovina (Romanian and Ruthenian), that the proportion of people working in agriculture was about 90%.

Table 84 *Employees according to the economic sector (1910)*

Occupational domain	Jews	German	Ruthenian	Romanian	Polish
Agriculture	5,361 **13.3%**	14,607 **48.2%**	156,989 **89.3%**	139,831 **89.7%**	5,610 **35.5%**
Industry	9,827 **24.3%**	7,344 **24.2%**	5,346 **3.0%**	4,289 **2.8%**	4,683 **29.7%**
Commerce & transportation	16,818 **41.7%**	1,957 **6.5%**	4,001 **2.3%**	2,328 **1.5%**	2,075 **13.1%**
Profession in the public sector (law, medicine etc.).	8,360 **20.7%**	6,411 **21.1%**	9,504 **5.4%**	9,431 **6.0%**	3,420 **21.7%**
Total	**40,366 100.0%**	**30,319 100.0%**	**175,840 100.0%**	**155,879 100.0%**	**15,788 100.0%**

Source: *Österreichische Statistik*, NF, Vol. 3, No. 10: 1916: 226 f.

We can see, also, the orientation of Ruthenians and Romanians with predilection to agriculture, and of the Jews to trade activities (41.7%), while the largest share of population employed in industry was among the Polish (29.7%).

The agricultural labourers of Bukovina are of a very primitive type, and most of them were illiterate. The average wage of 40-50 hellers[18] for a ten hour working day[19], being the lowest in the Empire. They are usually in the hands of Jew money-lenders. (Peace Handbooks: 1920: 26)

The low wages were justified by the fact that large-scale modern agricultural methods were not implemented in the region (partly because of small properties) and productivity of workers was lower.

Bukovina was, at the beginning of the XXth century, on the east-west axe of migration. In fact the cosmopolitan aspect of Bukovina was an effect of migration. At the beginning of the XXth century the number of emigrants was of about 3,000 per

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[18] 100 halers equal 1 koruna Slovakia
[19] At that time ten hours not eight.

year. Some of them were seasonal, working for a short period of the year in Germany and returning. Later at the beginning of the XXth century Germans started to emigrate in large numbers to US. In 1920, the total loss by emigration was 4.82%. (Peace Handbooks: 1920: 26)

The impact of migration on population growth is illustrated by its ethnic structure, which can usually be determined after the language of communication:

Table 85 *Bukovina's structure by the language of communication (1880-1910)*

Nationalities	1880		1890		1900		1910		1930
Ruthenian	239,690	42.16%	268,367	41.77%	297,798	41.16%	305,101	38.38%	32.9%
Romanian	190,005	33.43%	208,301	32.42%	229,018	31.65%	273,254	34.38%	41.1%
German	108,820	19.14%	133,501	20.78%	159,486	22.04%	168,851	21.24%	11.0%
Jews	-	-	-	-	-	-	-	-	8.7%
Polish	18,251	3.21%	23,604	3.68%	26,857	3.71%	36,210	4.56%	3.3%
Hungarian	9,887	1.74%	8,139	1.27%	9,516	1.32%	10,391	1.31%	
Slovaks Bohemia Moravia	1,738	0.31%	536	0.08%	596	0.08%	1,005	0.12%	
Slovenian	38	0.01%	28		108	0.02%	80	0.01%	
Italian	24		18		119	0.02%	36		
Serbs & Croatian	0		1		6		1		
Total	**568,453**		**642,495**		**723,504**		**794,929**		**97.0% 854,000**

Source: Brix: 1982: 449; Romanian Encyclopaedia: 1938: 152

In 1910 the ethnic German population reached over 20%, while Ruthenian were over 40% of the total.

In the first years of the XXth century there was a slight decreasing trend in the proportion of certain categories of population: the German part of the population lost from 1900 to 1910 about 0.8%, the Hungarians lost 0.01% etc. These weights were kept quite until after World War I, when the union with Romania caused substantial demographic changes. The Romanian population segment recorded an increase from 33.43% to 41.1%. It is important to notice that in only 50 years the total population grew with almost 300,000 people.

From the religious point of view, from a region with an overwhelming majority of Orthodox Christians (in 1775), Bukovina had in 1910 only 69.4% Orthodox. The structure of the population was strongly influenced by the new administrative status of the province, and by the massive immigration process.

Table 86 *Inhabitants belonging to a religion/confession in Bukovina*

Religion	1910		1930
	Number	%	%
Christian orthodox	547,603	69.4	71.9
Jews	102,919	12.9	10.9

Religion	1910		1930
	Number	%	%
Roman Catholics	98,565	12.3	11.5
Greek Catholics	26,182	3.3	2.3
Augsburg confession	20,029	2.5	2.4
Lipovans	3,232	0.4	-
Armenian Catholics	657	0.1	0.4
Lutherans	484	0.1	-
Armenian orthodox	341	-	-
Other tips of Catholics	14	-	-
Muslims	8	-	-
Anglicans	1	-	-
Mennonite	1	-	-
Without a religion	62	-	0,1
Total	**800,098**	**100.00**	**(99.5%)[20] [n=854,000]**

Source: *Die Ergebnisse der Volks- und Viehzählung vom 31. Dezember 1910 im Herzogtume Bukowina nach den Angaben der k.k. statistischen Zentral-Kommission in Wien, Mitteilungen des statistischen Landesamtes des Herzogtums Bukowina, Vol. 17 (Cernăuți, 1913), page 54f, 80f;* Romanian Encyclopaedia: 1938: 154

The share of people of other religions or confessions increased continuously. Thus, in 1910, the population of Bukovina had Jews (12.9%), Roman Catholics (12.3%), and Greek Catholics (3.3%). The structure remained similar in the following years, in 1922 *Charles Upson Clark* pointed out in his book *Greater Roumania* that there were 68% Greek Orthodox, 13% Hebrews, 12.3% Roman Catholics, 3.3% Greek Catholics and 2.6% Protestants.

In the second half of the nineteenth century, Bukovina continued to have the lowest literacy rate in the Empire (with the exception of Dalmatia). In 1862 there were 122 rural schools and until 1871 other 51 were opened. However, although progress was evident, 179 communes had in 1871 no educational establishment.

Table 87 *Pupil's nationality – primary schools (1871)*

Nationalities	Boys	Girls
Romanian	1,740	354
German	2,354	1,836
Ruthenians	1,810	220
Polish	677	436
Hungarian	240	111
Total	**6,821**	**2,960**

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[20] The rest of 0.5% was formed of Adventist - 0,1%, Baptist – 0,1% and other groups smaller than 0,1%.

In the academic year 1871, only 10.9% of the school age children in Bukovina followed the courses of a public elementary school, the percentage being higher in the primary schools. Among school age children (a total of 56,162; 28,466 boys and 27,696 girls), 17.42% were enrolled in an institution, there was, however, an apparent gender inequality (23.96% of all boys attending school, compared to only 10.69% of girls).

Table 88 *Schools after language of study in 1911*

Language of the school	Number
Ruthenian	216
Romanian	179
German	82
2 ore more languages	54
Total	**531**

In 1911, there were 531 schools, from which 216 used Ruthenian, 179 Romanian, 82 German and 54 used 2 or more languages of study.

In 1912, the percentage of literates was of 24.55 % for men and 16.9% for women with some differences between the ethnic groups. While the Romanian population had a share of about 35% of the total population, only 21% of primary schools pupils were Romanian. The same situation could be observed with the Ruthenian inhabitants, where disparity was even greater. A reverse situation was recorded with German and Polish population, which, although had a lower share in the total population (about 20% and 3-4%), had a much higher schooling frequency (45% for Germans and 12, 5% for the Polish).

Until the World War I, this deficiency was remedied. For example, in the school year 1913-1914 only 3% of the school age children were not part of a system of instruction. However, by 1910, the percentage of illiterate people continued to be 60, 39% among Romanians and 61, 03% among the Ruthenians. This situation was mitigated in time.

In 1920, the situation of the 5,600 pupils from the middle schools was the following one: 2,946 were German, 1,194 Ruthenian, and 1,193 Romanian. In real schools, there were 700 pupils, 86 Romanians and Germans. (Peace Handbooks, 1920: 26)

The University in Cernăuți had mostly German students (including Jews), and a high number Romanians and Ruthenians at the Theological (Orthodox) Faculty.

The opening of the educational system to all ethnicities is demonstrated by the comparative analysis of the structure of university students in Austrian centers. Thus,

while in Austrian system of higher education (as a whole) the overwhelming share of students was of Catholic and Jewish origin, in Cernăuţi, almost one third of the students belonged to other confessions (especially the Romanians and Ruthenians orthodox).

Table 89 *Students by religion at the University of Cernăuţi and in all Austrian universities*

	Law school			Philosophy department			Total		
	Catholics	Jews	Others	Catholics	Jews	Others	Catholics	Jews	Others
Cernăuţi									
1883/4	31,9	36,2	31,9	34,9	33,3	31,8	24,0	25,8	50,2
1893/4	29,6	40,8	29,6	34,7	30,6	34,7	25,7	33,0	41,3
1902/3	22,6	52,4	25,0	38,0	27,5	34,5	24,9	40,5	34,6
1913/4	23,3	45,3	26,4	29,8	42,3	27,9	24,2	36,9	38,9
In all the Austrian universities									
1863/4	88,1	8,8	3,1	86,1	4,8	9,1	83,6	11,2	5,2
1873/4	80,7	15,0	4,3	92,9	2,6	4,5	81,9	12,4	5,7
1883/4	79,9	16,1	4,0	81,7	8,5	9,8	73,6	19,9	6,5
1893/4	78,6	16,0	5,4	79,7	11,1	9,2	74,4	18,5	7,1
1903/4	76,1	18,0	5,5	79,5	12,4	8,1	76,2	16,4	7,4
1913/4	74,5	20,2	5,3	76,2	14,6	9,2	72,6	19,5	7,9

Source: Pliwa: 1908: 28*, Österreichische Statistik*, Vol. 17, No. 3: 1919: 4f.

In all four academic years to which we refer, the situation of Cernăuţi was different from the one of other Austrian universities. Here, the proportion of Catholics was almost four times lower than in the rest of the empire, that of Jews was two to three times higher and of students of other religions (or denominations) even seven-eight times higher than the average in the empire.

5. CONCLUSIONS

After achieving independence in the Empire Bukovina continued to develop in all areas: economic, social, political, etc.

1. **Economically all sectors of Bukovina have grown.** Thus, after 1849, in the province the entrepreneurs opened a great number of factories, the farmers expanded the agricultural area operated and the amount of timber produced annually increased. The trend of urbanization in the region also caused a strong development in services. There was a strong expansion of trade and banking and tourism services (caused by the development of treatment centres in mountainous areas).

2. **The Orthodox Fund has strengthened its position as the most powerful economic player in the province**. After 1849, the Orthodox Fund increased

its holdings in all productive areas of Bukovina. In addition, till World War 1 the Fund was behind most of the major transactions in the market.

3. **Significant progress has been made in the educational sector**. Opening schools and broadening the selection of children determined a significant decrease in the level of illiteracy.

4. **There was an increase in the proportion of specialized labour force after the opening of the University of Cernăuţi**, which allowed a greater number of locals to have higher education. The improving of the labour force quality was felt in the productive and unproductive activities of the province.

5. **Overall development of the province has made it more attractive for migrants from other provinces**, so that, in time, there has been a significant change in the ethnic and confessional structure of Bukovina, which drew its name of **Europa Minor**.

6. **The war had catastrophic effects on the province.** Not just the fighting in the province resulted in a significant reduction in the population, but there were strong economic effects caused by the destruction of many factories. Also, the dismantling by the Russian army of factories amplified the effect.

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Ha-Joon Chang, 23 *Things They Don't Tell You About Capitalism*, London, Penguin Books, 2010

Reviewed by Doris MIRONESCU[*]

Ha-Joon Chang's 2010 book deserves probably to be called the *Inconvenient Truth* of today's economics, although its reception has so far been scarce, compared to the Nobel Peace Prize and Academy Award that the above-quoted book/documentary brought to the former vice-president of the United States, Al Gore. Hidden behind the ironic, conspiracy theory kind of title *23 Things They Don't Tell You about Capitalism*, there is a warning concerning the ills that a malfunction of capitalism or the misunderstanding of some basic principles of the market can bring about.

Ha-Joon Chang is a Reader in the Political Economy of Development at the University of Cambridge, Great Britain, a fellow of the Centre for Economic and Policy Research in Washington, D.C., and the author of several important books on economic policy, such as *Kicking Away the Ladder: Development Strategy in Historical Perspective* (2002) and *Bad Samaritans: The Myth of Free Trade and the Secret History of Capitalism* (2008). He is praised as one of the most influential economists of the heterodox persuasion, drawing his approach both from being specialised in institutional economics, and also from having a first-hand experience of capitalism in other parts of the world that the West. He was born in South Korea in 1963 and only came to Britain in the 1980s, therefore he can appreciate the different paths followed by these two economies not only in the field of statistics, but also on the "battlefield" of the market. He does not refrain from using his own memories when it comes to appreciate the various expressions of development in Great Britain and Korea, for instance remembering that in the 80s, the British had the singular practice of allowing the buyer to return a product to the store with full refund even

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when the product as such had no defects, which existed almost nowhere else in the world. But his personal background is very relevant for the orientation of his economic thinking. Being born in a country with one of the fastest growing economies in the last 50 years, one of the "Asian tigers", Ha-Joon Chang is a proponent of an alternative version of capitalism, and it might be relevant to remember that such an alternative state capitalism was put into practice by firm-hand Korean leaders, above all Park Chung-hee, the president of Korea between 1961 and 1979 and the architect of his country's economic miracle. Of course, the Korean-born Cambridge don does not support the idea that contemporary European economies should abandon their tradition, which in fact created the world economy as we know it, and embrace an "Asiatic" type of doing business. But his enlarged perspective on the limits of the market and on the efficacy of well-guided state intervention, especially in developing economies, may at least partly be due to his home experience.

Perhaps the best summary of the author's position is made in the concluding pages of the book: "paraphrasing what Winston Churchill once said about democracy, let me restate my earlier position that capitalism is the worst economic system except for all the others. My criticism is of free-market capitalism and not all kinds of capitalism […] There are different ways to organize capitalism. Free-market capitalism is only one of them – and not a very good one at that. The last three decades have shown that, contrary to the claims of its proponents, it slows down the economy, increases inequality and insecurity, and leads to more frequent (and sometimes massive) financial crashes […] So capitalism, yes, but we need to end our love affair with unrestrained free-market capitalism, which has served humanity so poorly, and install a better-regulated variety. What that variety would be depends on our goals, values and beliefs".

The present book is hiding behind a vaguely paranoid title that feeds on our reading reflexes: we always love to read books which "unveil" some hidden truth, we sympathise with the revolutionary meek, rather than with the majorities in power. In this case, the arch-fiend is the group of economists which Ha-Joon Chang deems "free-market thinkers", the intellectual coalition which not only subjugated the Western academia, but also directly influenced the politics of the world in the last half century or so, through world institutions such as the International Monetary Fund or the World Trade Organization. Their capital sin seems to be the incessant, unrepentant support for an unbound "freedom of commerce" that, instead of stimulating, inhibited growth in most non-Western countries where it was applied. Ha-Joon Chang's considers that "free-market capitalism" is also to blame for the

great financial crisis of 2008. He implies that the recommendations of the classical economists in the 19th century, which had been devised for 19th century societies, may have become dogmas in the meantime and that their application during the latter half of the 20th century has been a disaster. The author's conclusion is that we should severely re-examine the concept of "the free-market" we work with, lest we find out, at some point, that it diverged a lot from its original sphere of meaning. His approach is, therefore, a pragmatic, historically-informed one, drawing attention to some possible errors of the past that we might perpetuate nowadays because we ignore their full historical meaning and origin.

Ha-Joon Chang builds his argument in 23 chapters, or "Things" one should better examine in today's world of capital in order to better understand the world we live in and the kind of economy it produced. He posits that the world of today is not that much different from the world of yesterday as we like to think, that the "post-industrial society" some critics so fervently hailed is actually a fiction. And that many of our economic beliefs are not "God-given", but only developed at some point during the historic evolution of capitalism, without being essential to its nature. These are the myths of capitalism, exposed by the author in his earlier book, *Bad Samaritans*, and they may not necessarily find their place anymore in today's world. In what follows, I shall enumerate the author's insights and proposals.

Even though Ha-Joon Chang claims that he has 23 different things to tell us, one should not be too surprised knowing that these things may very well be grouped in four or five categories, which make up the core of the author's theory. The first and more general one, from which all the others derive, is that "there is no free market", the author's way of telling us that the free market hailed by Adam Smith as a self-regulating mechanism, working under an "invisible hand", may not be as true to its definition as one would hope. A series of examples drawn from all countries and all historical moments of the modern age serve to clarify this thesis. The early Victorians debated seriously whether children's "natural" right to work shouldn't be preserved, and at about the same time the Americans were arguing whether black people should be "naturally" considered slaves and become assets to be sold or bought accordingly. Nowadays, as Ha-Joon Chang points out, the "freedom" of the market implies heavy restriction on the circulation of the work force, notably through regulations which ban foreign workers from flooding highly developed, high-income economies. So regulation by the state exists even in the most "free" economies in the world.

If free market is a fiction, the legitimacy of its time-honoured proceedings should be put into question. For instance, the idea that the capital redistributes itself

in society, the profit of the rich "trickling down" the social ladder, is nonsense, as the author puts it. This is why the welfare of companies is not the same thing as the welfare of the people. Here, Ha-Joon Chang puts a sting to his criticism, especially towards the managers of Western corporations who "get paid more than they deserve" and act with impunity, managing to collect handsome wages even when their performance is doubtful. Some of them were directly responsible for the huge financial crisis of 2008, mostly because they devised highly ingenious financial instruments that went out of their hands. This is why one of the recommendations the author makes for the present-day economies is that financial markets should become less inventive and more predictable.

The second object of the author's criticism is capitalism as it is largely understood in America. His argument is that the United States do not have the highest income in the world and that this situation needs to be acknowledged. Some of the richest countries in the world, for instance the North-West European countries, enjoy a lavish welfare state and perceive higher taxes, thus making the productivity-based, low-tax, no social security type of state embodied by the USA less of a mandatory role model for all the developing states in the world. But maybe rich countries are difficult to imitate in the poorer regions of the world, where the state is also poor and therefore unable to provide for all its citizens. This is where Ha-Joon Chang invokes the experience of the Asian economies that emerged spectacularly on the world stage in the 70s and 80s, Japan, Singapore, Taiwan, Hong Kong, (of course) Korea, and, more recently, China. All these countries are examples of state-driven national success, of capitalist planning and centralised entrepreneurship. But they did not innovate too much: Britain and the United States, in their early stages of expansion of the 18th and 19th centuries, had adopted similar economical models of protectionism, banning of foreign investment, industry subsidies and sometimes nationalisation. Therefore, it is a fact proved by history that some degree of state intervention, especially in its infancy, may be good for the economy. Furthermore, a powerful government has more chances to make people accept change in their lives and encourage them to engage in new professional enterprises.

Thirdly, there is the situation of poor countries, of countries seeking development after a history of modest growth and general stagnation. Ha-Joon Cheng tends to dismiss the explanations that include invariants such as one people's or group of people's "culture of underdevelopment", the infelicitous geography or the "institutional history" of the region – all these labels being often used in reference to Sub-Saharan Africa. The continent is not condemned to underdevelopment, informs us the author. And it does not lack entrepreneurship, since the people in

these areas (and others) are always ready to earn money, often by inventing jobs that did not exist before. Indeed, people in poor countries are forced to develop better skills than their counterparts in richer countries, because their work is harder and more prone to unpredicted detours. For instance, a Swedish bus driver's job would be far easier than an Indian driver's job, since the latter has not only to drive the bus, but also to dodge the occasional cow in the crowded street. It comes as a conclusion, then, that the poor are not to blame for their country's economic failure, and that, of course, the rich are more responsible for the lack of performance they so readily attribute to their poorer compatriots. And "the rich" are those which choose the economic model their country must adopt. Ha-Joon Chang's data shows that growth in Africa has not always been feeble. In the 1960s, these countries have grown with 1.5% per year, which is not a negligible figure. But then, in the 80s, free-market policies were imposed as a result of the intervention of Western powers, and the growth disappeared. The facts speak for themselves.

The final point, and one of the strongest cases made by Ha-Joon Chang, is that "we do not live in a post-industrial world". The jubilant voices of the 1990 which claimed "the end of history" and the public feeling of elation for the future of mankind brought about by the Internet Revolution have been twice silenced in the first decade of the new millennium: in the wake of the 9/11 attacks, and during the financial crisis of the West in 2008 which was exported further East in 2009 and 2010. However, the author proves with statistical data that the introduction of the Internet has not changed the world that much. The distances were more abruptly "abolished" in the 1860s, when the telegraph was first used, and the society was more swiftly and efficiently changed for the better by the invention of the washing machine, which suddenly gave an immense number of women an alternative in choosing their profession. Therefore, we should not imagine the world of today as fundamentally different from yesterday. We do not live in a "knowledge society" that does away with all known rules of production and of the economy. For instance, it is not true that economies can nowadays survive only on services, leaving aside industry. Heavy production will always be necessary, and a scarcely industrialized developing country will never achieve growth by skipping straight to an economy based on services. At the same time, the idea that more education is sufficient in itself to make a country richer is invalidated by the author's example of young people in Korea who direct their efforts to an unprecedented level towards going to medical school, because that line of work is not prone to unemployment. Their education will not bring profit to their country's economy, a sharp refutation of the inherent superiority and inevitable advent of the "knowledge society".

The author is also critical of the "post-historic" view that we live in a borderless world of global companies that embody the dissipation of our older frames of reference and urge us to "re-invent" ourselves in a new world, within a new scientific paradigm. Capital has not lost its nationality, Ha-Joon Chang warns us, and the original country of multinational corporation still get the lion's share from the company's profits. The state still exists and will exist as a major economic player. That is why the regulation of economic life by the state should be acknowledged and directed in the most sensible and moral manner.

Ha-Joon Chang's warnings and ideas bring us an insight into the world of today, help us better appraise its successes and try to explain its failures. His idea of comparing various types of contemporary capitalism from all continents and from the past centuries is inspiring, as it provides developing countries with alternative models of economic growth which might in the future be more efficient than those used in the past. This eminently readable, highly instructive book left me, however, with a bitter aftertaste. I finished reading *23 Things They Don't Tell You about Capitalism* with a melancholy feeling: what if Ha-Joon Chang had directed his attention to the economic debacle of the Eastern European countries, with their totalitarian socialist heritage and their teetering capitalist options post-1989? What would his recommendations have been?

Branko Milanovic, *The Haves and the Have-Nots: A Brief and Idiosyncratic History of Global Inequality,* New York: Basic Books, 2011

Reviewed by Alexandra OPREA[*]

"In a world of increasing inequality, the legitimacy of institutions that give precedence to the property rights of "the Haves" over the human rights of "the Have Nots" is inevitably called into serious question", says Harvard economist David Korten[1]. In our personal lives, inequality permeates every conversation, rearing its ugly head behind every career move, family planning or housing decision. Yet the field of economics has been slow to find the "serious question" that needs to be asked regarding inequality. Branko Milanovic's "The Haves and the Have-Nots" provides economists with the questions they need to ask about inequality.

The book is structured into three substantive chapters reviewing the way economists have addressed inequality between citizens within a country, between countries and among people as citizens of the world. Each chapter is rich in vignettes applying the concepts to topics as diverse as marriage, philosophy, soccer, the Roman Empire and the financial crisis. Part I *Unequal People* and Part II *Unequal Nations* serve to reorient existing research on poverty and growth respectively to answer questions about inequality, while Part III *Unequal World* provides a new research agenda on global inequality. I shall address these contributions in turn.

The relationship between inequality and economic development is not a stable one. This may explain why it is difficult to divert energy towards the study of inequality. However, conceptually, Milanovic disentangles "good" and "bad" inequality with their independent effects on GDP growth. The bright side of inequality relies on providing incentives for people to study and work hard, then save

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and invest part of their incomes. The rich tend to put aside more of their accumulated wealth, which then gets transferred through the banking system to entrepreneurs in need of capital for productive endeavours. The dark side of inequality comes out in its monopolistic element. The desire of individuals at the top to ossify their position within the social hierarchy compels them to divert income away from productive gains and towards creating barriers to social mobility. By investing money in the political process to block reforms that would allow more open access to education and resources, the rich can hamper economic progress. While it is difficult to empirically demonstrate which aspect of inequality predominates at given point in time, Milanovic observes that for countries at a high level of economic development "education must be widespread, and widespread education is tantamount to less inequality", pointing to a potential virtuous circle.

Inequality also affects a country's continued development by putting pressure on the political system. The Soviet Union consisted of 15 republics with high interregional differences in average income. At the time of its dissolution in 1991, the richest republic (Russia) had a per capita income 6 times higher than the poorest one (Tajikistan)![2] While data from the Soviet period is unreliable, this interregional inequality had been increasing since the end of the Second World War to the point where it became entirely unsustainable to maintain the unity of the nation. Milanovic proceeds to point towards China's precarious income distribution situation by posing the question "Will China survive in 2048?" The five richest Chinese coastal provinces of Shandong, Jiangsu, Zhejiang, Fujian and Guangdong are responsible for more than 40% of GDP, while the three poorest provinces of Guizhou, Gansu and Yunnan have a per capita income equal to half of the national average. The ratio of interregional inequality between these provinces has increased to 10 to 1 in 2006, anticipating a difficult political climate for China in the not so distant future.

The connections between growth theory and inequality represent the focus of Part II: *Unequal Nations*. Milanovic's first vignette of this part is both philosophically and historically relevant: Why was Marx led astray? Just as Marx was writing, a surprising reversal of world inequality patterns invalidated his insights on the coming Proletarian Revolution. "Class differences" represent the inequality *within* countries between different groups such as workers and capitalists. "Locational differences" represent the inequality *between* countries, regardless of one's personal social status within. Starting with the late 1800s, global inequality

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[1] http://www.thirdworldtraveler.com/Authors/Quotations_page_3.html
[2] This ratio is calculated by dividing the average per capita income of inhabitants within the richer region (Russia) by the per capita income of inhabitants within the poorer region (Tajikistan).

became more a matter of location, instead of a matter of class. "Proletarians and capitalists of the developing world, unite!" proclaims Milanovic with historical evidence to support his claim.

The locational differences pose a significant challenge to the principles of equality of opportunity our societies hold so dear. Knowing an individual's citizenship (place of birth) and the income class of his parents explains 80% of his lifetime income. With 80% of your income determined at birth, it is difficult to argue that claims of desert in terms of studying and hard work are appropriate grounds for the wealth of the rich. At a less philosophical level, this distribution of income explains the wave of migrants towards the developed world. When measuring per capita GDP in PPP[3], all citizens of the United States have a higher income than *all* citizens of India or Mexico. The best way to increase one's expected income thus becomes simply to switch countries, which increasing numbers of citizens of the developing world have been trying to do. Milanovic captures both the desperation of illegal border crosses in his vignette on the *Harranga* – citizens of Northern Africa who burn their documents in their perilous sea-journey to the European Union in order to prevent their forceful repatriation – and the political resistance from the developed world in his vignette on gated-communities.

The analysis of Part II offers a segway into the key question posed by Part III: *Unequal World*: Why should we care about global inequality? Milanovic provides a powerful political economy rationale in addition to the claims of moral responsibility for one's fellow human beings. The globalization trilemma asks how the world can sustain three incompatible trends: globalization, increasing differences in mean incomes across countries and limited international mobility of labour. Since opening the West's borders to migrant workers is not a politically sustainable option, the developed world itself has a stake in reducing global inequality and thus the demand for international labour mobility. In addition, local political instability caused by high inequality can produce negative externalities on the rest of the world, as the example of Somali pirates disrupting trade flows illustrates.

The new research agenda of global inequality, though currently underdeveloped, has the potential to provide answers to a number of fascinating questions. Of particular interest is Milanovic's insight into the roots of the global financial crisis. Looking to the real economy, the spectacular increase in the income share of the top 1% of the population in the United States provided the economy with a "huge pool of available financial capital". This was the "good" side of inequality at

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[3] Purchasing Power Parity

work. However, this expanded demand for investment opportunities may have overcome the supply of safe and profitable investment opportunities, extending its reach to more and more risky ventures. More importantly, the stagnation of American middle class income incentivised politicians to create the illusion of wealth for their constituents by providing them with easier access to credit. As Milanovic puts it, "a way to make it seem like the middle class was earning more than it did was to increase its purchasing power parity through broader and more accessible credit". A deeper look at the mechanisms through which the real sector of the economy and inequality influence the financial sector is warranted and, based on this preliminary glimpse, promising.

The key challenges of the 21st century according to Milanovic are "how to bring Africa up, how to peacefully bring China in, and how to wean Latin America off its self-obsession and bring it into the real world". *The Haves and the Have-Nots* equips its reader with tools to begin addressing these problems. Perhaps most importantly, it draws one's thoughts in this direction. As Robert Lucas once said about growth, one can say after having read Branko Milanovic's book that once you start thinking about these issues, it is very hard to think about anything else[4].

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[4] The reference is to Robert Lucas (2004) *Lectures on Economic Growth* "Once you start to think about them [issues of growth], it's hard to think about anything else."