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***Private Funding for Higher Education in Guatemala  
an analysis from the perspective of capital-based macroeconomics***

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## 4th Mises Seminar

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### ***Abstract***

During the past century, the academic audience around the globe was perplexed by the emergence of a new economic methodology: the praxeological method proposed by Ludwig von Mises (1881-1973), the Austrian Economist. Although this method experienced a very sad welcome on the part of orthodox economists, from the perspective of the author of this essay, the praxeological method is the true key to understand the progressive growth of the complexity of human capital that has been experienced in the Guatemalan market.

But the praxeological economics, alone, is nothing without the consideration of the impact of economic exchanges through specific period of time, and the method that has combined the praxeological principles and the analysis of the impact of human action for the future is called capital-based macroeconomics. With this methodological mixture we can produce a clear analysis of direction and magnitudes of marginal changes in the capitalization process of human labor that has been happening until today's Guatemalan market of labor.

This connection offers a new intellectual tool that is not still fully used in the research agenda of international think tanks. And with the application of praxeological economics and the capital-based macroeconomics we will discovered together, during the reading of this essay, how the private funding for higher education can increment the value of the marginal product of Guatemalan workers.

## ***Capital-based macroeconomical analysis of Human Capital Development: The case of Guatemalan Market of Labor***

### ***Praxeology: the method of Misesian economics:***

Praxeology is the method that views the key to understand the marginal changes in the market in the application of incontestable and perennial axioms of the acting individual, as Professor Mises remarked:

“We call contentment or satisfaction that state of a human being which does not and cannot result in any action. Acting man is eager to substitute a more satisfactory state of affair for a less satisfactory. His mind imagines conditions which suit him better, and his action aims at bringing about this desired state. (...) But to make a man act, uneasiness and the image of a more satisfactory state alone are not sufficient. A third condition is required: the expectation that purposeful behavior has the power to remove or at least to alleviate the felt uneasiness.”<sup>1</sup>

There are several contemporary economists that apply this method such as Professor Hans-Hermann Hoppe (University of Nevada, USA), Professor Israel Kirzner (emeritus professor, New York University, USA), Professor Peter Boettke (Professor, George Mason University) and, of course, the proposer of Austrian modern theory of capital-based macroeconomics, Professor Roger Garrison (Auburn University, USA).

Because is an axiomatic science, many people understand that the superb tool of Praxeology is a part of some theoretical school of philosophy. And, consequently, the Misesian economical approach is classified as a good example of some “pre-scientific school” of economics, which is completely misleading. Praxeology derives its full meaning in the context of Social Sciences, is a branch of the Mengerian tradition in Economics.

George Selgin, a contemporary Austrian economist described in his brief essay *Praxeology and Understanding* what is the exact meaning of the praxeological method when it is applied to economical analysis. Now, let us take a look to Selgin’s explanation:

“In countering positivism Mises took refuge in Kantian epistemology and especially in Kant’s defense of the category of synthetic a priori. What Mises regarded as crucial in Kant was, however, not Kant’s formal analysis of a priori knowledge or his epistemological idealism, but rather his conviction, contra empiricism and historicism, that reason could give universal and necessary knowledge -knowledge that was fresh and informative. In the sense in which he applied it in economics, Mises’s apriorism did not differ fundamentally from Menger’s Aristotelian essentialism.”<sup>2</sup>

The application of praxeological method is rightly thought if we see that the problem it pretends to solve is the problem of the acting human in the market process, or, more general, within any social process. But the more developed application of the praxeological method is the understanding of market process.

1 Mises, Ludwig von. *Human Action: a treatise on Economics*. Scholar’s Edition. Page 14.

2 Selgin, George A. *Praxeology and Understanding: An Analysis of the Controversy in Austrian Economics*. The Ludwig von Mises Institute, 1990. Page 13.

Thus, it is possible to conclude that the Misesian economics is really a praxeological economics, very different from the mathematical economics, statistical economics, hermeneutical economics, historical economics or any other school that do not consider the way in which every individual acts with the purpose of making better his own living standard as the principal method to understand market process.

Again, let's take a look of *Human Action*:

“Human action is purposeful behavior. Or we may say: Action is will put into operation and transformed into an agency, is aiming at ends and goals, is the ego's meaningful response to stimuli and to the conditions of its environment.”<sup>3</sup>

The starting point of this method is the fundamental axiom of human action that pretends to be universal and atemporal in order to explain every marginal change of any market at any time. So this is the most useful tool for the economist, whether empirical or theoretical, whose aim is complete understanding of marginal changes that characterizes all market phenomena.

Here, the word “axiom” means that the principles of human action are true since the very beginning of the humankind evolutionary history when the first human action happened and that this principles are applicable to any sociocultural context, no matter how different each context is from each other, because the important thing is that in all sociocultural contexts human action presents the same features, praxeological features.

### ***Time and its importance to Human Action:***

Economics is a science of complexity according to some authors, but they don't take in count that the complexity is the fruit at the end of the banquet. The marginal change in any economy is the monetary expression of the success or failure of a fundamental fact: the exchange of a specific dose of goods and services on the part of a concrete seller per a specific dose of money on the part of a concrete buyer.

This essential fact of the market, the exchange, reveals nothing without another ingredient of the analysis: time. Because this exchange is possible thanks the accurate entrepreneurial prognosis. If this prognosis is accurate, the exchange will happen, but if it is not, there won't be exchange.

Furthermore, time is a fundamental category of action:

“Two action of an individual are never synchronous, their temporal relation is that of sooner and later. Action of various individuals can be considered as synchronous only in the light of the physical methods for the measurement of time. Synchronism is a praxeological notion only with regard to the concerted efforts of various acting men.”<sup>4</sup>

In economics we have an indirect evidence of the success or failure of the anticipation to the consumer's demands: the price records that inform to empirical researcher how many exchanges really happened, the only thing that we can now. The economical exchange that simply did not happen is completely neutral for the economist. The economist is the researcher of the marginal changes in price system that happened thanks millions and millions of accurate entrepreneurial prognosis that succeed in the anticipation of consumers wants.

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<sup>3</sup> Mises, Ludwig von. *Human Action: a Treatise on Economics*. Scholar's Edition. Page 11.

<sup>4</sup> Mises, Ludwig von. *Human Action: a Treatise on Economics*. Scholar's Edition. Page 102.

### ***The Exchange and their relation to Time.***

In Misesian economics the concepts *action* and *time* have their own method to be completely understood. The logic of exchange is the subject matter of the discipline that Ludwig von Mises called *Catallactics* (very different from the traditional economical analysis), that is the proper name to what has been called the *logic of exchange*.

And the direction that this logic of exchange takes through time is the subject matter of a sub discipline that is known as *capital-based macroeconomics* as Professor Roger Garrison proposed to name it, and this capital-based macroeconomics has its roots on the Eugen Bohm Bawerk's theory of capital and interest. Garrison explained this field in the following form:

“To base macroeconomics in capital theory –or, more precisely, to base it on a theory of the market process in the context of an intertemporal capital structure –is to maintain a strong link to the ideas of the Austrian School. Entrepreneurs operating at different stages of production make decisions on the basis of their own knowledge, hunches and expectations, informed by movements in prices, wages, and interest rates. Collectively, these entrepreneurial decisions result in a particular allocation of resources over time.”<sup>5</sup>

Capital-based macroeconomics is a very useful approach for the understanding of economical process of development in terms of the complexity of production process. More complex the production process is, more capitalized the economy of a specific country is.

The market process in a capitalized country is more oriented to the far future, on the contrary, in the economy of developing countries the production is more and more oriented to immediate present. For instance, country with high rate of capital is going to produce high-tech accessories, versus the economy of low-rated capital countries which its production process is going to provide fruits and vegetables.

Again, the key is not time alone, is human action through time. While human action is more and more oriented to produce a future outcome there is more and more capital involved in this action. While human action is more and more oriented to produce for the immediate present, there is fewer and fewer capital goods involved in this action. Thus, it is fair to conclude that always present-minded action is pure consumption, and always-future minded action is pure capital.

Our analysis is more comprehensive if we added to human action logic and time-preference logic the absolute uncertainty of the market, in other words, the always risky nature of any action or the entrepreneurial element of every action. We can conclude that the macroeconomical problem of any market can be understood using three basic elements:

1. Human action principles.
2. Time preference.
3. Entrepreneurial prognosis.

The application of this two disciplines: praxeological economics and capital-based macroeconomics will allow us to understand the effect of private sector initiatives in regard to the development process of human capital in Guatemala.

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<sup>5</sup> Garrison, Roger. *Time and Money: the macroeconomics of capital structure*. Page 33.

**Three tools for the analysis: a.) Hayek's triangle, b.) Frontier of Possibilities and Supply and Demand Scissors.**

We have explained our conceptual background that is going to be used in the analysis of specific problem of creation of human capital in Guatemala, specially in the segment of human capital that is created by higher education institutions.

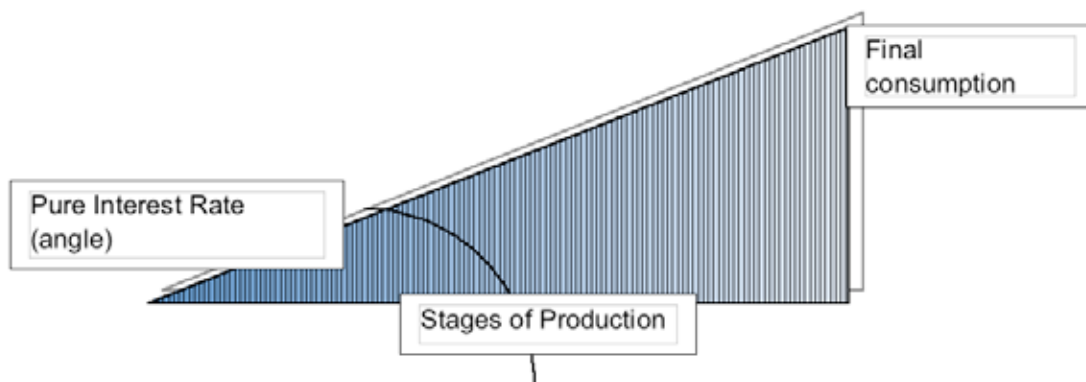
We have chosen the praxeological economics as the principal method in order to understand the marginal changes in this productive process of human capital. Finally, we have noted that this approach has its complete expression when is applied to the problem of intertemporal assignation of capital, in other words, when the praxeological economics becomes into capital-based macroeconomics.

Due to this different method that characterizes praxeological economics, there is a specific mathematical approach that is used to graphic the market process. And this special method is closer to Geometry than traditional mathematical analysis of quantitative equations. There are several reasons why we prefer triangles, circles and angles as analytical tools to describe and predict, so to speak, the complexity of the market process:

- We are interested principally in the direction of the economical and operating forces within market process.
- We are interested principally in magnitudes of intensity related to individual preferences instead of quantitative prognosis of the traditional econometrics.
- We are dealing primary with complexity of production process in which human capital is operating.

Lets take a look to our analytical tools applied to understanding of creation of human capital in higher education institutions in Guatemala via private funding. We will begin with Hayek's triangle.

### Hayek's Triangle



This analytical tool was applied by Friedrich Hayek (Nobel Prize, 1974) in order to understand the economic shock that is observed during the booms and busts of recessions,<sup>6</sup> but is not completely originated in Hayek's writings because in an earlier writing of the Austrian economists, Eugen von Böhm-Bawerk suggested the relationships expressed in this triangle in his magnum book *Capital and Interest*.<sup>7</sup> The contemporary application of this triangle to capital-based macroeconomics was

<sup>6</sup> Hayek, F.A. *Prices and Production*. A.M. Kelley, New York. 1967.

<sup>7</sup> Böhm-Bawerk, Eugen von. *Capital and Interest*. Libertarian. EEUU. 1959. Reprint.

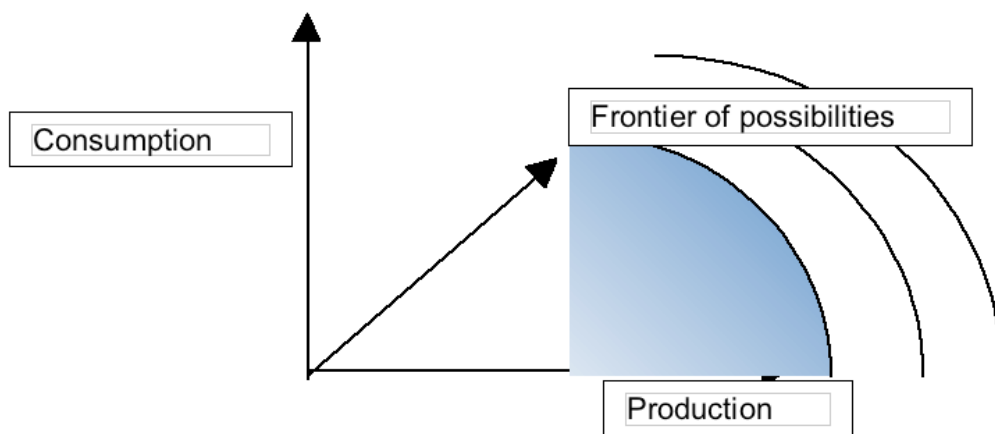
done by Professor Roger Garrison.

Hayek's triangle is a very practical and accurate tool to describe time preference changes in the market process. Its basic thesis is that the reduction of today's consumption opens the possibility to save some resources for production process oriented to farther future. This production process will require more investment in capital goods that will become into higher complexity process of production.

Today's savings necessarily produce more complex production process for the future. The relationship between today's preference and future preference is accurately expressed in the angle, the pure rate of interest. Broader angle means today's preference of consumption on the part the individuals and narrower angle means future preference of production.

But this tool is unhelpful if we do not take in count a second element: the frontier possibilities.

### Frontier of Possibilities



This tool provide the definitive diagnostic of the market capacity for production of capital goods. The consumer always want more and more *now*; but this infinite succession of today's wants does not mean that the entrepreneurs have the ability to produce all types of goods today, the production process is necessarily restricted by the simultaneous preferences of entrepreneurs that are irremediable condemned to produce that appears more profitable to their entrepreneurial prognosis. So, there is an economic process that classifies spontaneously what type and how many final goods will be produce today.

And this choices of consumption and production take place during a specific period of time after that consumers will evaluate the quality of the final output of this more and more complex process of production through buying the products or saving their money. And the entrepreneurs will evaluate the accuracy of their prognosis about the way they tried to satisfy consumer needs through utilities and losses.

The frontier of possibilities remembers to us that production and consumption are choices that, consequently, are ordered from high to low-priority in the preference scale of entrepreneurs and also in the preferences scale of consumers through specific period of time.

The frontier of possibilities teaches us an important lesson: there is an specific capacity for production of final goods today. Everybody wants everything today, but there is no capital enough to produce everything, only there is capital according to most urgent needs of today and most profitable

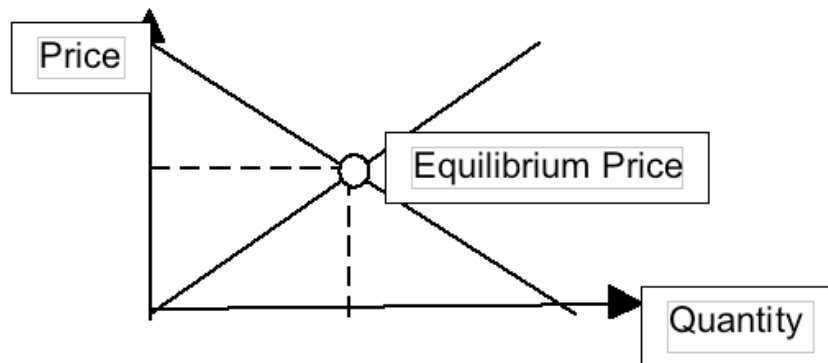
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needs of the future.<sup>8</sup>

In every textbook of macroeconomics there is an explanation of dynamic of the market process in terms of coincidence of supply and demand functions, as originally proposed by the English economist Alfred Marshall. The exact point of connection between these two functions is frequently called the *equilibrium price*.<sup>9</sup>

### Supply and Demand Scissors



The idea behind this graphic is that there is an exact point, or exact price, in which the quantity of goods that are demanded coincides mathematically with the quantity of goods that are offered in a specific market.

Obviously, this is possible just because there are several theoretical assumptions that makes logically possible this kind of market process representation. These assumptions are very well known by any economist: homogeneity of goods and services, perfect knowledge, etcetera, that are the contributions of other economists that have used the Marshallian graphic of the market process.

This graphic is very useful as a pedagogical tool, but the problem is that the assumptions that make it possible are never present in the real market exchanges, and furthermore, is a logical construction that suggest the eternal present of the market, there is no changes during a period of time, only the always present and perfect coincidence of supply and demand side of the whole market.

This is very evident when the economist tries to move the point of equilibrium price to another position in the market. When this change is operated, automatically the market conditions are rearranged to reproduce the original status of the perfect market. Thus, the future market will be identical to the present market with no chance of modifications by any other factor. We are studying a market composed by ants, not by humans, as Mises remarked years ago:

“Action is change, and change is in the temporal sequence. But in the evenly rotating economy change and succession of events are eliminated. Action is to make choices and to cope with an uncertain future. But in the evenly rotating economy there is no choosing and the future is not uncertain as it does not differ from the present known state. Such a rigid system is not peopled with living men making choices and liable to error; it is a world of soulless unthinking automa-

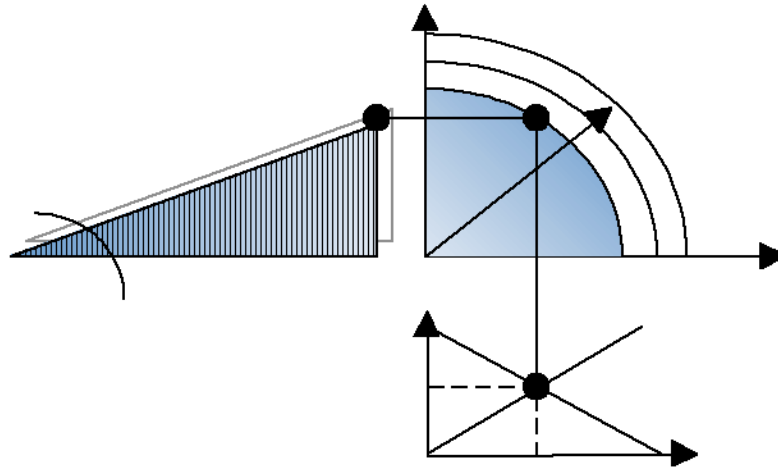
<sup>8</sup> For a complete explanation of frontier of possibilities, see chapter three of Roger Garrison’s book *Time and Money: the macroeconomics of capital structure*.

<sup>9</sup> For a complete description of this economic tool of analysis, see: Marshall, Alfred. *Principles of Economics*. 8<sup>th</sup> edition. McMillan. London. 1959.

tons; it is not a human society, it is and ant hill.”<sup>10</sup>

But the Austrians are not fatally caustic with this model of the market, instead of that some authors have proposed to correct the mistakes of this model adding the time-preference factor. And this is possible, just when we apply Hayek’s triangle and frontier of possibilities to our analysis. Let’s take a look:

### *Integration of capital-based macroeconomics to analysis of price changes*



With this integration we can analyze the impact through time on the part the choices of individuals upon the price system of any market. Now, it is clear to economically-minded thinkers what happen in the capitalization process of the market when there is a specific force acting upon the level of prices. For us, it will be interesting what is the impact of changes in the market of labor induced by exogenous forces as the deliberate private funding of higher education.

With the capital-based macroeconomical analysis it will be clearer the nature of the impact of this exogenous forces in the chain of intertemporal assignation of resources. Furthermore, in the assignation of human capital.

### ***The case of Guatemalan market of labor:***

In Guatemala, the economy is almost the same than the rest of Latin America: one of the strongest influences is the lack of investment in new business and enterprises. There is some factors that produce this lack of investment:

First, the absence of Rule of Law affects the stability of economical climate. As many Austrian economists have remarked, one of the prerequisites of capitalism is the existence and defense of system of private property and the easiness to open a business. Hernando de Soto is a Peruvian economist that wrote an extensive study about this feature of Latin-American economies in his book *The Mystery of Capital*.<sup>11</sup>

Secondly, the quality of investment is another feature to be considered. The type of businesses that are continually opened in Guatemala corresponds to the final stages of production chain. Our indus-

<sup>10</sup> Mises, Ludwig von. *Human Action: a Treatise on Economics*. Scholar’s Edition. Page 249.

<sup>11</sup> De Soto, Hernando. *The Mystery of capital: why capitalism triumphs in the West and fails everywhere else*. Basic Books. New York. 2000.

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tries are closer to present consumption than to future production.

A very quick analysis of our main segments of industry will reveal the presence of business oriented to present consumption as restaurants, credit cards, fruits and vegetables sales, etc. But, businesses oriented to long-term production as high-tech industries, cars factories or stock exchange market are relatively few in our economy, if not completely absent.

But, surprisingly, there is a boom on higher education institutions. We have at least 10 well established universities and a lot of opportunities to study postgraduate programs that are served by very high-rated foreign universities, specially in the modality of e-learning or with quick executive seminars directly in the headquarters of this institutions. So we have a growing white-collar segment in our supply side of human capital in a market that are oriented to mid-term and short-term production. This particular feature of our market deserves an explanation on the part of the economist, specially Austrian economist in Latin America.

### ***Why the professional class is growing in Guatemala?***

There are several hypotheses to be tested in order to provide a satisfactory explanation of the growth of professional class in Guatemala. The first hypothesis is the increase of demand of more qualified human resources due to the process of globalization of the market. Thus, the human capital of the country experiences the level demand that is required in the global market.

The question that arises is How has the local market of Guatemala produced the human capital with the quality required for international markets? The tentative answer to this question is that this effort has been subsidized by private sector, specially the segment of higher education. The evidence that support in part this hypothesis is the financial data that private foundations in the country have provided.

The impact of the private funding for higher education in Guatemala can be appreciated better only if we use the tool of capital-based macroeconomics. Because the nature of this impact is properly contextualized with reference over a period of time.

The private sector has provided the scholarships and financial credits that allow a very important sector of student population to access the higher education. In each private university there is a board of trustees that gave enough money to fund a scholarship and credit programs, but there is another modality through which private sector has done some difference in higher education, this another case is private foundations related to large private corporations in the country.

If we focus the analysis only in the financial aid programs in universities, we have to consider that this aid must be reimbursed partially or completely on the part of the student, but most of this financial aid is easily reimbursed in a period of 5 years or less.

If we focus the analysis in the scholarship program provided by foundations of private sector, we have to consider that this aid is never reimbursed on the part of the recipient. Thus, this programs are a very good example of private charity that impacts the development of human capital in Guatemalan market process..

But, beyond the nature of obligations that the student get in regard to reimbursement process, there is an economic analysis that is very important to do to discover the reasons behind this large funding programs.

***Present saving for future human capital: the nature of private sector impact in human development.***

In Guatemala, there is an increasing funding for higher education, as it was remarked, and there is a growing offer of higher education institutions too, in the last ten years the number of private universities increased from three to ten. In addition, there is a growing offer of e-learning programs or long distance learning programs on the part of international institutions.

The hypotheses that is proposed here is that the private sector entrepreneurs are donating their money today so that in future there will be leaders in the local market that produce economic value locally, and then, help the local enterprises to compete in the global market. Although there is no economic interest behind this funding effort, because there is no certainty that in the future this new human capital will produce labor for donor's enterprise. And this is the proof that makes charitable this private funding for higher education.

And what is the path that is opened for this human capital?. Sure, the international market will be an option to this professional class, and the probability to find a well remunerated work in the local market is increased by this specialization of human capital. The result of this effort of private funding that is happening today, and hopefully it will extend its influence for the future, is the activation of human labor in a more complex stage in the production chain.

Evidently, this activation of human capital is depending on the level of investment in new and more effective enterprises. But the point that is remarked here is that the economical effect of this support for higher education is the actualization of local human capital to the demands of globalized economy, that is more complex and more oriented toward the future..

But there are positive externalities of this educational process. Besides the higher specialization of human labor, another benefit is the change of workers mindset toward a more accurate perception of the demands of market. This mindset change is done not only by the simple exposure to market and business theory in the classroom, but also by the experience of a more complex and demanding workplace in which this new professionals are positioning.

This new mindset, market mindset, is easily communicated to the families, friends and neighbors. This positive externality can be accomplished only if the funding for education is provided by private sector, never could be done if the sources of funding would come form public sector.

***Why is better the private funding versus public funding of education?***

Several reasons persuade anyone that the private effort is better that the public effort to produce good results in this formation of human capital. Here, we have the space to explain only three reasons about this preference of private sector in the development of human capital.

The first one is an argument based on morality, specifically in the ethics of private property. As many authors have remarked since long time ago, people as Murray Rothbard,<sup>12</sup> Rothbard's assistant Hans-Hermann Hoppe,<sup>13</sup> the is no room for charitable action if there is no private property. The fundamental reason is that charity can never be done with the other's money or resources. Due to this reason is impossible to specify who is the concrete agent of change, or who is the charitable agent because there is no generous or disinterested action. As Perry Gresham remarked:

“Capitalism honors and promotes charity and virtue. True charity cannot be compelled. Niversities, hospitals, social agencies, are more satisfactory and more

12 Rothbard, Murray. *The Ethics of Liberty*. Atlantic Hihglands, EEUU. 1982.

13 Hoppe, Hans-Hermann. *The Economics and ethics of Private Property*. Kluwer Academic. EEUU.1993.

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fun when they derive from voluntary support. Money taken by force and bestowed by formula is no gift.”<sup>14</sup>

It is very easy to make gifts on behalf the government or some impersonal agency, because there is no cost to produce this gift or, it is better to say, the production cost of this gift is afforded by the working citizen upon whom this cost is finally transmitted. Gift, here, means any product or service that is provided on the part of government; education is one of this “gifts”.

Thus, this is the reason why only private sector can really makes charity in the proper sense of the word. Because the charitable action is a voluntary donation of some private portion of capital.

The second reason is an argument that comes from the economics of public goods. The externality of the public funding of any source is, logically, the extra-cost that is coactively imposed upon the citizen.

Also, there is another negative externality that is produced: the denaturalization of the process of human education for jobs that are demanded in the market. Generally, the “gift” of education on the part of government is designed according to political guidelines, not technical guidelines necessarily. If, for the party in the government some special type of education is required, evidently, is required for the achievement of political goals.

Due to this reason it is very understandable that the human capital formation is oriented to skills that are required according to bureaucratic mindset than those that are required by the market process. And this is the true negative externality of public funding of of higher education: *the destruction of economic value through formation of useless skills in human capital*. There are a lot of examples around Latin American countries that prove this point (thousands of courses that have no effective application to the market).

There is a third reason why the public education is not as effective as the private funding: there is no motivation or a real reason to test its effectiveness at the final stage of formation. Then, we have to see that the purpose in the public sector is the “execution” itself of the educational or training activity with no interest in the final output of this training process.

The situation explained here is produced by the positioning of public sector outside the market process, thus the pressure for effective results that are the norm in any market effort is simply absent in any public sector effort: *the important thing is not the effectiveness of the training process, is the “good looking” appearance of this activity in regard to political objectives*.

The monitoring function or the evaluation of the effectiveness of funding for educational programs is possible only in the private side, because the knowledge about how much does that money cost is available only for the private donator. Concluding, the opportunity cost for private donor is real and this cost motivate the evaluating process of effectiveness of training and educational process that are funding with this money. Evidently, public sector has not this kind of knowledge and then has no reason to evaluate the real impact of its training or educational programs.

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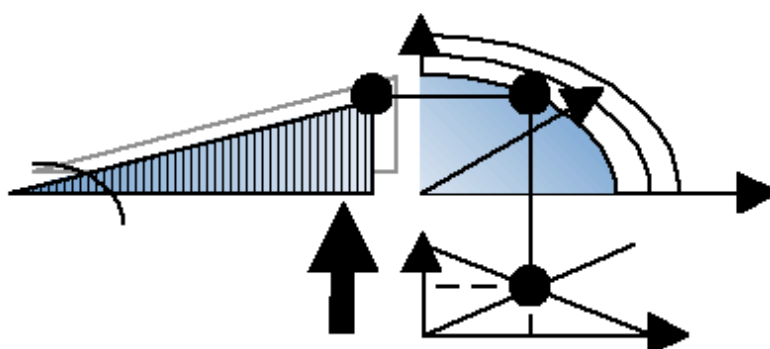
<sup>14</sup> Gresham, Perry E. *Think twice before you disparage Capitalism*, in *The Morality of Capitalism*. The Freeman Classics. The Foundation for Economic Education. Irvington-on Hudson, NY. 1992. Page 91.

***Epilogue: The Macroeconomics of Private Funding in Higher Education in Guatemala.***

It is a good thing to use the analytical tools that we explained at the beginning of this paper to represent the change that the private funding is producing in the economical quality of human capital.

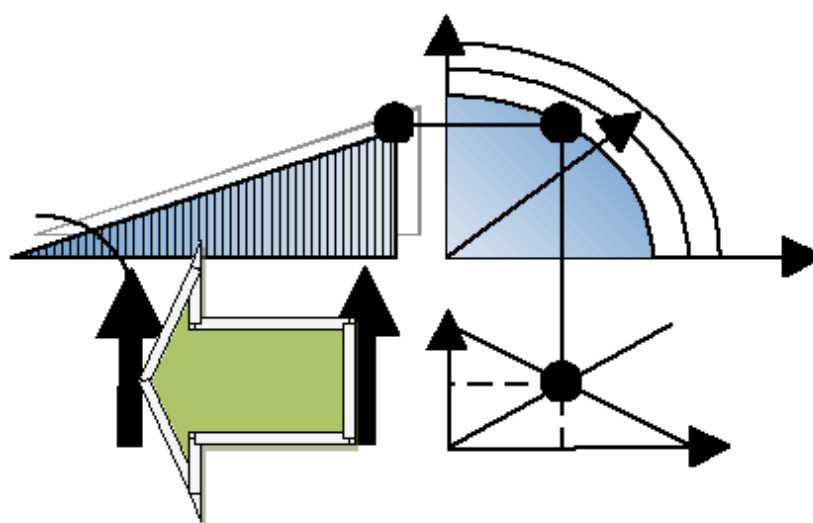
***1. The current status of Guatemalan Human capital:***

The production process is oriented to present consumption, so the value of the marginal product of Guatemala worker is low.



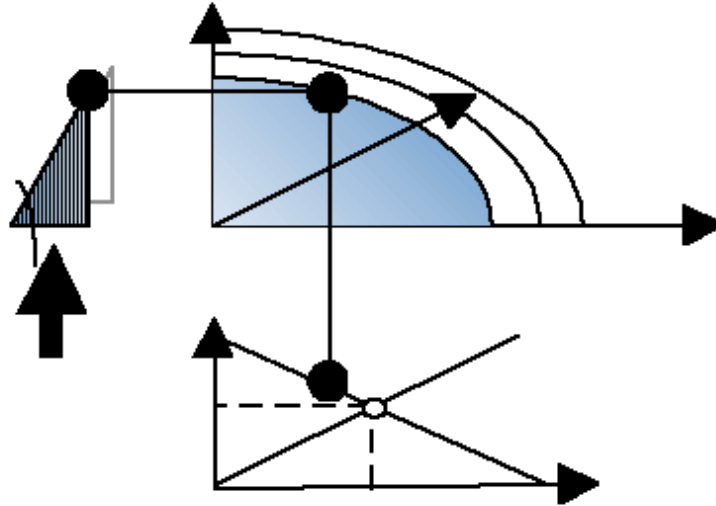
***2. The effect of private funding for higher education in Guatemala. The Change in Worker's Future.***

The value of the marginal product of the worker is increased to the future, and is prepared to be inserted in a more complex production process.



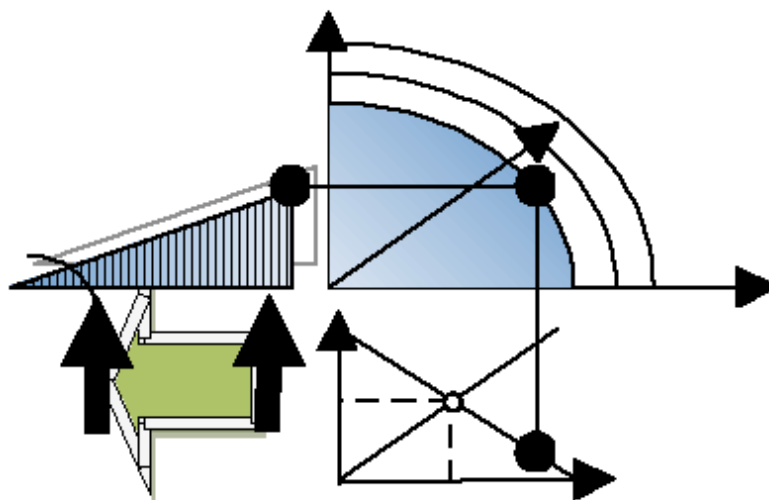
### 3. Today's status of employment level of Guatemalan worker.

If the value of the product of the worker is low, the cost of the employee for the entrepreneur is high, there is no profitable reason to pay high salaries for low valued work.



### 4. The final adjustment in employment level caused by private funding of higher education in Guatemala. Future situation of employment.

If the value of the product of the worker is high, the cost of the employee for the entrepreneur is low, so there are profitable reasons to pay competitive salaries because the cost of the employee is balanced by the value of his final product.





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