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The absolute equilibrium theory ; a new vision of the good's exchange.

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THE ABSOLUTE EQUILIBRUM THEORY:

A new vision of the good's exchange

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1-Introduction:

The economics as a science is the hardest one to explained due the lake of understanding of phenomena so what we tried to accomplish in this paper was to take some assimilation between physics and economics and try to redefine the economy and reducing the problem to its simplest form as 'goods and exchange' and rethink all over again from unusual point of view to accomplish a new vision of good's exchange. That what was presented in section 2, the assumption of fixed time value of goods each year, fixed units and percentages, was presented to assimilate the physique's definition of inertial frame of reference. The relation of time space in Einstein's relativity theory got us the time goods just units and percentages of goods also the Einstein's concept of empty space got us new goods "the empty goods \emptyset ", its characteristics has been more clarified in section 5 and 6, so new definition of goods; the original economics goods, time goods and empty goods, a long with equations of exchanges (A) and (A') has been emerged from those assimilations. In section 3, the exchange has been described as relation with five mathematical proprieties; the uniqueness, the composition, the identity exchange, the association and the association of identity just to redefine the economics in section 4 using the category theory as ECO-category with the Objects are the 'new' goods in section 2 and the morphisms are the exchanges relations. Then with those a description of microeconomic; some financial products like monopoly, gambling and bank loans, also macroeconomics; the two economic phenomena the bubble and the crisis in section 5, as result we noticed the negative utility function of the empty goods " \emptyset " so further explication was needed and that what was presented in section 6, some changes has been made to the original game theory including new definition of players, \mathbb{R}^n -utility function, preorder $<^*$, solution and dominance to fit to our definitions

of goods and exchange relations. The major conclusion in this section was when we kept the same axioms of Von Neumann and Morgenstern in this game there was no contradiction with the utility of gambling an example was included. In section 7 the Islamic financial products has been suggested as solution to avoid the empty goods from getting into the market, because the main concept of all Islamic exchanges was “not eating wealth for nothing”, so one problem was fixed but the other was the units and percentages that we already assumed in section 2, again in Islamic rules more specifically “fikh-al-muamalet” there was one formula “Zakat” which presented “nissab” as units and fixed percentages each year. As result in section 8 an imaginary state has been presented which named the absolute equilibrium state, the title of this paper, when these units and percentages are applied in the (A) equation also avoiding the empty goods during the exchange process. The main interpretation of this paper was “that there is some kind of relation between goods so they must be exchange in such coherent methods”. For conclusion in section 9 a simple opinion about all this a probability comparison between two events what we used to consider economics as certainty of crisis or what was presented in this paper a chance for an absolute equilibrium.

2-The exchange principles according to the philosophy of time-space:

2-1- Inertial frame of reference:

In physics, the motion of a body can only be described relative to something else - other bodies, observers, or a set of space-time coordinates. These are called frames of reference. If the coordinates are chosen badly, the laws of motion may be more complex than necessary. An inertial frame of reference is a frame of reference that describes time and space homogeneously, isotropically, and in a time-independent manner and is based upon the simplicity of the laws of physics in the frame. (Landau, Lifshitz, (1960)). The idea of this paper is to choose an inertial frame of reference in order to simplify the laws of economics as possible. Since the economies events like physique depends on time, it's better to choose the simplest time landmark. It was obviously for human kind to choose the sun-earth-moon movements as landmark of time

“year, month, day, hour, minute and second” and that have able us to organize time a second pass like the one before a year pass ‘almost’ like the one before and determent of space. As Russell wrote (1912-1913) “*for example, the configurations of the solar system at any two given times will be determinants*” and “*That everything must be determined.*”

2-2-Relativity theory:

Almost century ago Einstein had uncover the relation between space time in his famous theory “general relativity” (Einstein, 1954a) .whom presented a new perspective about space especially empty one, he wrote (Lawson, 1954b, p.155): “*There is no such thing as an empty space, i.e. space without field. Space-time does not claim existence on its own; but only as a structural quantity of the fields*”. So from this perspective in the fields of goods we inspired two things first the time change goods as percentage of units of goods ‘whish we all familiar with it’ and second there is an empty goods ‘ \emptyset ’ the same of Einstein’s principle of the empty space. A further explanation of when and how these goods appear and an exact dentition presented later in this paper. Also the idea of the Einstein’s theory applied in the economic has been mentioned in (Choudhury, 2011, p.33-35) although he rejected it.

2-3-Goods and exchange’s equation:

For start what we exchange? In this paper we discussed only “The economic good”, we took for example Mike Moffatt’s definition: An economic good is a physical object or service that has value to people and can be sold for a non-negative price in the marketplace. As result of that exchange we got the value of good and that what the field of economics really about, the study of value in exchange, Blaug (1968a, 1968b, p. 6) wrote:

The problem that gave rise to economics in the first place, the “mystery” that fascinated Adam Smith as much as it does a modern economist, is that of market exchange: there is a sense of order in the economic universe, and this order in not imposed from above but is somehow the outcome of the exchange transactions between individuals, each seeking to maximize his own gain. The

history of economic thought, therefore, is nothing but the history of our efforts to understand the workings of an economy based on market exchange”.

The assumption presented in this paper is that time value is a ‘constant’ in the landmark that we already chosen. This means each year the same time value increase of goods. So there exist some fixed percentages of units for each good: $n\%$ (unit) good. But time is one so its value is the same independent on any types of goods. We got this:

$$n_1\% (\text{unit}_1) \text{ good}_1 = n_2\% (\text{unit}_2) \text{ good}_2 = \dots = n_a \% (\text{unit}_a) \text{ good}_a \quad (\text{A}')$$

$$\Rightarrow n_1 (\text{unit}_1) \text{ good}_1 = n_2 (\text{unit}_2) \text{ good}_2 = \dots = n_a (\text{unit}_a) \text{ good}_a \quad (\text{A})$$

Now this is looking familiar: the (A) equation is the equation of good’s exchange. It’s represent a fixed market value of each good. And of course it’s different from Friedman exchange equations (Friedman, M. (1989)). That could even give an explanation why market values of goods are depends on one and other? If we have one price increase all the others changes along with it.

2-4- Conclusion: with the concept of Einstein’s relativity theory and his definition of empty space “which got us the empty good ‘ \emptyset ’” along with the assumption of the fixed time value of goods in a year ‘our landmark’ gives us these principles:

Definition of goods as:

2-3-i-Economic goods

2-3-ii-The empty goods ‘ \emptyset ’

2-3-iii- The time goods: a fixed percentage of units for each good “time value of good”

Also the (A) equation of good’s exchange.

Many interpretations can these principles give us for example the implication of the universalizing principle of value in time by Stigler (1970, p. 299, he wrote:

“A theory is a statement of general relationships; a theory of unique events is a contradiction in terms, and a theory of local events is simply uninteresting from the scientific viewpoint. The most pervasive problem of economic life is of course that of value and this is why the routine and undramatic problem of value has elicited the supreme efforts of the greatest theorists”. More on this pointed later.

3- Exchange relations:

We start from the definition of relation according to Bertrand Russell (1903) (p 95-100) along with his definition of cause (1912-1913), he wrote *“In all science we have to distinguish two sorts of laws: first, those that are empirically verifiable but probably only approximate; secondly, those are not verifiable, but may be exact. The law of gravitation, for example...”* to defined exchange relations as ‘scientific law’ verifies the circular causation relations proprieties. Like he explained

“No doubt the reason why the old "law of causality" has so long continued to pervade the books of philosophers is simply that the idea of a function is unfamiliar to most of them, and therefore they seek an unduly simplified statement. There is no question of repetitions of the "same" cause producing the "same" effect; it is not in any sameness of causes and effects that the constancy of scientific law consists, but in sameness of relations” So we consider the goods as defined in 2-3-i, 2-3-ii, 2-3-iii and the exchange relations noted “ \sim ” as a ‘the second type’ scientific law having these five proprieties:

3-1-The uniqueness: Let A, B, C and D be four goods and let \sim be a specific exchange relation. If $A \sim B$ and $C \sim D$ then $A=C$ and $B=D$ in other word the exchange good relations are like functions: we don’t exchange good with one good and other at the same time “ $A \sim B$ and $A \sim D$ ” just one is realized. This is not the case when exchange good with mixed goods.

3-2-The composition: Let A, B and C be three goods and let \sim and \sim' be two exchange relations. If we have $A \sim B$ and $B \sim' C$ “This means if we exchange A with B and B with C like we exchange A with C” then $A \sim C$ with $\sim = \sim \circ \sim'$

3-3-The identity exchange: Let A be a good if $A \simeq A$ then \simeq called the identity exchange “no exchange has happened to the good”

3-4-The associativity: Let A, B, C and D be four goods and \sim, \sim' and \sim'' be three exchange relations. If $A \sim B, B \sim' C$ and $C \sim'' D$. Then if we combining the first two exchange relations: $A \sim \circ \sim' C$ then the third one: $A \sim \circ \sim' \circ \sim'' D$ we get the same if we combining the last two $A \sim B \sim' \circ \sim'' C$ then the first one $A \sim \circ \sim' \circ \sim'' D$.

3-5- The associativity of identity: Let A and B be two goods and \sim an exchange relation then $A \simeq A \sim B = A \sim B = A \sim B \simeq B$.

4-The Eco-category:

To summaries what was presented in these two sections the definition of goods and the exchange relations to a general description of the economic in mathematical structure just like Debreu (1959) defined an economy in his theory of value as the topological set, “ $E = (p, q, y, R, W, Pr)$ with p denote vectors of price, q ; quantity, y ; income, R ; resource, W ; wealth, and Pr ; preferences in a multimarket agency situation” but we used category theory Fokkinga (1992). With the objects the goods “economic, empty, and time” and the morphisms are the exchange relations.

ECO-category: category of economic

* Objects = {economic goods, time goods, and empty goods}.

* Morphisms = {exchange relations}.

Verification:

The proprieties 3-1, 3-2, and 3-3 verify the type's axioms respectively: unique-Type, composition-Type and identity-Type. The proprieties 3-4 and 3-5 verify the two axioms for equality of morphisms: composition-Associativity and identity-Associativity.

We presented in the next section a description of the financial products and economic phenomena using these Objects and Morphisms.

5-Financial products and economic phenomena:

5-1-Financial products: The exchange that fits the (A) equation considered as 'normal' in other word selling and buying. For better explanation of the financial products are putted in three sections each section named after one product but includes others which have the same proprieties.

5-1-1- Monopoly: The time goods are excluded from this exchange because in monopoly time is not a factor. But this exchange was not with the exact units of the (A) equations then the empty goods appeared. In other word the exchange happened between some economics goods and some empty goods example:

Let's say this fits the (A) equation: $n_1 (\text{unit}_1) \text{ good}_1 = n_2 (\text{unit}_2) \text{ good}_2$
(1) then monopoly is this exchange:
 $n_1 (\text{unit}_1) \text{ good}_1 = n (\text{unit}_2) \text{ good}_2 + n' (\text{unit}) \text{ empty good}$ with
 $n_1 = n + n'$.

5-1-2-Gabmling: The gambling exchange also excluded the time goods and considers the exchange of goods from the group of gambler as one exchange, example: if 10 gamblers give each one of them 5\$ to an investor hi takes 50\$ and gives 30\$ to one of them, so the group of gambler lost 20\$ they are the empty goods. A further explanation of the how the exchange of goods from one gambler presented in the section "6-the game theory and utility of gambling". Now like monopoly gambling didn't fit the (A) equation again the empty goods appeared. With the same example (1) gambling exchange is:

$n_1 (\text{unit}_1) \text{ good}_1 = n (\text{unit}_2) \text{ good}_2 + n' (\text{unit}) \text{ empty}$ with
 $n_1 = n + n'$.

We must not forget any other financial products with different name but the same structure like gambling like option and futures...As Teweles and Jones (1987), p, 11. wrote: "Those who deal in "options" and "futures" contracts which is merely gambling, no matter by what less offensive name such transactions designated, neither add to the supply nor increase the demand for consumption, nor do they accomplish any useful purpose by they calling; but in the contrary they speculate in fictitious products. The wheat they buy

and they sell is known as “wind wheat” and doubtless reason that is invisible, intangible, and felt or realized only in the terrible force it exerts in destroying the farming industry of the country”. Note here what they named as “wind wheat” is exactly our empty goods.

5-1-3-Banks loans: The goods exchanged here was economic goods along with the time goods and when the percentages aren't exact of those of the principle (iii) then the empty goods appeared. Example: if the percentage of the good₁ is: $n_1 \%$ (unit₁) good₁, and the interest of the bank loans were less than $n_1 \%$ we get this equation:

$$n \%$$
 (unit₁) good₁ + n (unit) empty good = $n_1 \%$ (unit₁) good₁

Or if the interest was more than $n_1 \%$ we get this equation:

$$n' \%$$
 (unit) good₁ = $n_1 \%$ (unit₁) good₁ + n (unit) empty good.

Of course any imperfection of exchange of the other economic goods must be treated like the two situations describe it before, and we noticed a particularity about those empty goods that they presented units like others.

The question arise here how do we know these percentage and units?

Specially those time goods even if we didn't exchange them time give value to goods no matter if it was in the market or not, in other word if someone have for example gold just hiding in the closet each year pass the market value of it changes like those time goods “percentage of unit of that gold” existed after just a year time so automatically empty goods emerge even without exchange because that someone got time goods from his gold without give something in return. A solution to this dilemma presented later.

5-2-Economic phenomena:

The two major economic phenomena discussed in this paper are the bubble and the crisis. So let's see under our three definitions of goods and our (A) equation how those two are described.

5-2-1-The bubble: The market is full with the empty goods coming from the “imperfect” exchanges. Because exchanging time goods take time that give us

the ability to exchange empty goods 'Ø' more and more also with the (A) equation gives us substitutes to those empty goods we keep exchange without noticing there existing. Example: if we have this;

n_1 (unit₁) good₁= n (unit₂) good₂+ n' (unit) empty goods and from the (A) equation n' (unit₃) good₃= n' (unit) empty goods then we got this n_1 (unit₁) good₁= n (unit₂) good₂+ n' (unit₃) good₃ with $n_1=n+n'$

But somehow we could feel that something not right like the word bubble means empty inside. As Keynes ((1936) p 159) wrote: "Spectaculars may do no harm as bubbles on steady stream of enterprise. But the position is serious when enterprise becomes bubble in a whirlpool of speculation. When the capital development of a country becomes the by-product of the activities of a casino, the job is likely to be ill-done".

5-2-2-The crisis: Here the exchanges relations along with the (A) equation turned back to us the empty goods 'Ø' are as exchange result. What we putted in the market we must get it back. The (A) equation can no longer present substitutes this means that the empty goods are much more than the 'real' one the economic goods. As a result of this exchange people lose their jobs and the Bankruptcy of many banks and companies, they putted economics goods in the market like services or any others but they got nothing in return "empty goods'Ø'". But it's really nothing or something else? After the crisis there was debt. As Lawrence Summers (1989) points out: "The freeing of financial markets to pursue their casino instincts heightens to odds for crisis. ... Because, unlike a casino, the financial markets are inextricably linked with the real world outside, the real economy pays the price". Also according to Stiglitz ((2002) p 189) " What's make speculation profitable is the money coming from governments". There are many articles explaining how the 2008 crisis happened and wondering where the money have vanished, Varchaver and Benner,(2008) explained "*In just over a decade these privately traded derivatives contracts have ballooned from nothing into a \$54.6 trillion market. ...The danger, of course, is that if a hedge fund suddenly has to pay off on a lot of CDS, it will simply go out of business*". But what presented in this paper

gives an answer to the question why crisis happen in the first place we know how but do we know why?

5-3-Conclusion: A better definition of these empty goods ' \emptyset ' we exchange them as goods without realizing they units and we can get them as result of an exchange with unusual "negative-prices" or to be exact negative utility function.

The question now how can we express this in game theory?

6-GAME THEORY: THE ULILITY OF GAMBLING

The game considered in this paper is many person games one fixed and others changing "each strategy" represented by strategies and pay-off functions. The distinction between cooperative game by John Von Neumann and Oscar Morgenstern (1953) and this game is unrelated to the mathematical description of pure strategies and pay-off function for each player. Rather it depends on changing the players each strategy, solution, pay-off function of a game and dominance.

The concept of the players is redefined and the pay-off function of the player strategy, the solution non-empty goods-strategy and dominance are introduced by mathematical definition.

As an illustration of the possibilities for application a treatment of simple model of gambling is included.

6-1-definitions:

6-1-1-Players: i-Principle Player: a decision maker noted "pp".

ii- Affected player: a player who is affected by the decision of "pp". It doesn't matter if he made, he will or never makes a decision noted "ap" "who will end up getting the empty goods".

6-1-2-The game: In this paper it means an exchange between two persons, the objective of which is to gain economic profits. This game is a finite game with finite number of players. "One principle others affected" .only the principle player have a set of pure strategies noted $S = (s_0, s_1, \dots, s_e)$ a pay-off function of each strategy noted p . Then each strategy has a set of x-finite affected player $AP = (p_{1a}, p_{a2} \dots p_{ax})$ and there pay-off functions too

$P_{a_0}, P_{a_1} \dots P_{a_x}$. Finally a pay-off function \hat{R} which maps the set of all players including pp.

6-1-3-The \mathbb{R}^n -utility: The original payoff function was to fix the players and change the strategies. Here is the opposite fix the strategy of the pp then change each of the ap and put all the payoffs in one \mathbb{R}^n -utility like they suggested (Von Neumann and Morgenstern((1953), pp. 28-29 and pp 632). Keeping the same axioms, so the summation of utilities and multiplication with a real number all verified because \mathbb{R}^n along with the law “+ : Let X and Y be in \mathbb{R}^n , if $X = (x_0, x_1, x_2, \dots, x_{n-1})$ and $Y = (y_0, y_1, y_2, \dots, y_{n-1})$ then $X+Y = (x_0+y_0, x_1+y_1, x_2+y_2, \dots, x_{n-1} + y_{n-1})$ ” is an \mathbb{R} espace vector .

For $n=x+1$ we have

$$\hat{R}: S \rightarrow \mathbb{R}^n$$

$$s_i \rightarrow \hat{R}(s_i) = (p(s_i), P_{a_0}(s_i), P_{a_1}(s_i), \dots, P_{a_x}(s_i)).$$

Remarque: mixed strategies treated by the same way each one as a strategy with its own affected players.

6-1-4-The complete preorder $<^*$:

Let X and Y belong to \mathbb{R}^n . And let $<^*$ be the binary relation in \mathbb{R}^n defined by:
For $a=n-1$ we have $X=(x_0, x_1, x_2, \dots, x_a)$ and $Y=(y_0, y_1, y_2, \dots, y_a)$

Then

$$X^- = \{\text{for } 1 < i < a; \text{ if } x_i < 0\} \text{ and } Y^- = \{\text{for } 1 < i < a; \text{ if } y_i < 0\}$$

a- If $X^- \neq \emptyset$ and $Y^- \neq \emptyset$

i- If $\min X^- < \min Y^-$ then $X >^* Y$.

ii- If $\min X^- = \min Y^-$

1- if $x_0 < y_0$ then $X <^* Y$.

2- if $x_0 = y_0$ then $X =^* Y$

b- If $X^- = \emptyset$ and $Y^- \neq \emptyset$,

Then $X >^* Y$.

c- If $X^- = Y^- = \emptyset$.

i- If $x_0 < y_0$ then $X <^* Y$.

ii- If $x_0 = y_0$ then $X =^* Y$.

The relation $<^*$ is a preference relation i.e. transitive and total

Verification:

The existence of $<^$: The existence of $\min X^-$ due to the property of least upper bound in the Archimedean complete totally ordered field $(\mathbb{R}, +, \cdot, <)$ and

The completeness of $<^$: if X and Y belong to \mathbb{R}^n then we have $X <^* Y$ or $X =^* Y$ due also to the Archimedean complete totally ordered field $(\mathbb{R}, +, \cdot, <)$.

The transitivity of $<^$:

Let X, Y and Z belong to \mathbb{R}^n . For $a = n-1$ $X = (x_0, x_1, \dots, x_a)$, $Y = (y_0, y_1, \dots, y_a)$ $Z = (z_0, z_1, \dots, z_a)$ then we have $X^- = \{1 \leq i \leq a; x_i < 0\}$, $Y^- = \{1 \leq i \leq a; y_i < 0\}$ and $Z^- = \{1 \leq i \leq a; z_i < 0\}$

Suppose we have $X <^* Y$ and $Y <^* Z$

If $X^- = Y^- = Z^- = \emptyset$;

We have $X <^* Y$, that is $x_0 < y_0$ and $Y <^* Z$, that is $y_0 < z_0$. Now we have $x_0 < y_0 < z_0$ that is $X <^* Z$.

If $X^- \neq \emptyset, Y^- \neq \emptyset, Z^- = \emptyset$;

We have $Z^- = \emptyset$ and $X^- \neq \emptyset$ then $X <^* Z$;

If $X^- \neq \emptyset, Y^- = \emptyset, Z^- \neq \emptyset$;

We have $Z^- \neq \emptyset$ and $X^- \neq \emptyset$ then $X <^* Z$;

If $X^- \neq \emptyset, Y^- \neq \emptyset, Z^- \neq \emptyset$;

We have $X <^* Y$ that is

i- $\min X^- > \min Y^-$

We have $Y <^* Z$:

a- $\min Y^- > \min Z^-$

Then $\min X^- > \min Y^- > \min Z^-$

So $X <^* Z$.

b- $\min Y^- = \min Z^-$ and $y_0 < z_0$

Then $\min X^- > \min Z^-$

So $X <^* Z$.

ii- $\min X^- = \min Y^-$ and $x_0 < y_0$:

We have $Y <^* Z$

a- $\min Y^- > \min Z^-$

Then $\min X^- > \min Z^-$

So $X <^* Z$.

b- $\min Y^- = \min Z^-$ and $y_0 < z_0$

Then $\min X^- = \min Z^-$ and $x_0 < z_0$

So $X <^* Z$.

6-2- Non-empty good-strategy: For $s \in S$, s is a non-empty good-strategy if and only if

$$\text{For every } i \in \{1, 2, \dots, x\} \quad p_{ai}(s) \geq 0.$$

6-3-Dominance: If s_1 and s_2 belongs to S

$$\text{Then } s_1 < s_2 \text{ if and only if } \hat{R}(s_1) <^* \hat{R}(s_2).$$

6-5-Example: As an example of the application of this game to a realistic case a simplified gambling game is included.

First step to choose pp as the investor in gambling so his strategy s is investing in gambling and the ap here are the group of gamblers.

10 gamblers each one of them give 5 \$:

ap =the group gamblers	pp =investor
5	50(he gets)
5	30 (he give back 60%)
5	he keeps 20
.	
.	
.	
=50	

So $p(s) = 20$.

And $P_a(s) = -20$ {like they agree to give 20\$ without any good in return "losing 20\$" means the exact empty good \emptyset in this case equals to 20\$}.

Then our $\hat{R}(s) = (20, -20)$.

We conclude that s =investing in gambling; makes the empty goods emerge.

Now we change the game

For pp =a gambler, s_1 =taking a chance of gambling s_2 =not taking a chance of gambling so ap_1 = the ones whom will get the empty goods in return of an exchange.

For s_1 we have:

$$p(s_1) = 1/10(25) + 9/10(-5)$$

{It is mixed strategies with the probabilities 1/10 chance to take the 30\$ but he already putted 5\$ so his gain is equals to 25\$ and the other 9/10 chance of losing his 5\$}

And $P_a(s_1) = -20$

Then $\hat{R}(s_1) = ((1/10)(25) + 9/10(-5), -20)$.

For s_2 we have:

$p(s_2) = 0$

{He didn't win or lose anything}

And $P_a(s_2) = -18$

{If he didn't gamble they give only "50-5=45" then 18 is 40% of it}.

Then $\hat{R}(s_2) = (0, -18)$.

We find that $\hat{R}(s_1) <^* \hat{R}(s_2)$ implies that $s_1 < s_2$.

That means the strategy of not gambling is better than the strategy of gambling. In other words not gambling makes less empty goods in the system "market" even when there were others are gambling.

6-6-Conclusion:

First thing and the most important that must be mention that this utility of gambling fit without contradiction to (3-A: Complete ordering) and the (3-C: Algebra of combining) axioms of J.Von.Neuman and O.Morgestern((1953), p 26) as verification we consider then same example and the (3-C-b: "prosperity that caused the contradiction" for any numbers α and β ($0 < \alpha < 1$ and $0 < \beta < 1$) and u, v as utilities then $\alpha(\beta u + (1 - \beta)v) + (1 - \alpha)v = \mu u + (1 - \mu)v$ with $\mu = \alpha\beta$. We chose $\alpha = 1/2$, $\beta = 1/3$, u =utility of gambling and v = utility of not gambling then we get $\alpha(\beta u + (1 - \beta)v) + (1 - \alpha)v$

$$= 1/2 (1/3(1/10(25) + 9/10(-5), -20)) + ((1 - 1/3) (0, -18)) + ((1 - 1/2) (0, -18))$$

$$= 1/2((1/30(25) + 3/10(-5), -20/3)) + (0, -12)) + (0, -9)$$

$$= (1/60(25) + 3/20(-5), -20/6) + (0, -6) + (0, -9)$$

$$= (1/60(25) + 3/20(-5), -20/6 - 6 - 9)$$

$$= (1/60(25) + 3/20(-5), -20/6 - 15).$$

Or $\mu u + (1 - \mu)v$

$$= 1/6((1/10(25) + 9/10(-5), -20)) + 5/6(0, -18)$$

$$= (1/60(25) + 3/20(-5), -20/6) + (0, -90/6)$$

$$= (1/60(25) + 3/20(-5), - 20/6 -15).$$

Second the ex post value equals the ex ante value because they related to the concept of time inconsistency (Cukierman, 1994; Machina, 1989, P, 1637) and this is not the case under our assumption.

Third the concept of two- person zero-sum game or any two-person strictly competitive game wish was proving to be the same from strategic point of view by (Friedman, 1990, pp. 79-80; Binmore, 1994, pp. 276-277) in this game theory is in fact a simple exchange of those empty goods and wish affects others. As Tumpel-Gugerell (2003) expressed : “*This result is a random, zero sum, large volume redistribution of wealth which affects all types of market participant, including those whose motivation to invest in the real economy*” .

Finally the not empty good strategy can fits to the benevolence behavior when someone take his strategy without causing other to lose like Axelrod (1984, p. 190) expressed : “*We are used to thinking about competitions in which there is only one winner, competitions such as football or chess. But the world is rarely like that. In a vast range of situations mutual cooperation can be better for both sides than mutual defection.*” Also Brandenburger and Nalebuff (1996, pp. 3-5) wrote: “*there are few victors when business is conducted as war. The typical result of a price war is surrendered profits all around. ... In fact, most businesses succeed only if others also succeed. ...It’s a mutual success rather than mutual destruction. It’s win-win. ... In business, your success doesn’t require others to fail–there can be multiple winners. ... You don’t have to blow out the other fellow’s light to let your own shine.*”

The question now we got that almost every financial product caused those empty goods, so what’s the alternative if there is one?

7-The Islamic financial products and Zakat formula

7-1-The Islamic financial products: It’s not to purpose of this paper to describe the Islamic financial techniques or not there ethical application, for historical development and more explanation (Subhi Y. Labib (1969a),

(1969b)) (Jairus Banaji (2007), pp. 47–74) (Robert Sabatino Lopez, Irving Woodworth Raymond, Olivia Remie Constable (2001)) Timur Kuran (2005) (Samir Amin (1978) Said Amir Arjomand (1999)) Badr, Gamal Moursi (Spring 1978) (Timur 2004). Nomani, Farhad; Rahnema, Ali. (1994). Sait, Siraj; Lim, Hilary (2006). The Islamic principle behind most illegal contracts is eating others' money for nothing Al-Suwailum ((2006) p 97-109), he wrote "*This will make risk transfer a zero sum game and thus a form of eating wealth for nothing, which is strictly and explicitly prohibit by the Quran ... Hedging could be also carried out through not-for-profit arrangement*". So other words no exchange of empty goods and there designed products fits with this principle 'as possible' ones are more successful than others, but they keep improving (IBFD, wed site) and making alternatives in banking sector and insuring also another form of modern finance like microcredit and microfinance.

The question now if Islamic techniques prevented the empty goods in other word verify our assumption of the fixed value of time, they must presented the exact units and percentage that we already assumed existing?

7-2-Zakat formula: The only percentage and units in fiqh-al-mumalat are in Zakat, one of the Five Pillars of Islam, which is taxation each year of some goods given to poor people. Kuran, Timur (1996),(2010)) Tamimi, Azzam (2001). Bogle, Emory C. (1998) Tripp, Charles (2006). But just for second remember the dilemma in (5-1-3) when we described the value of time as goods as result of time changing and how the empty goods emerges automatically.

The situation is like this; imagine the time gives goods so we must give back something in return as result of exchange to prevent the empty goods. But give what? And give it to whom? It's simple, give the exact percentage of units of the good to someone whom haven't any time goods. A person doesn't have time goods means he haven't any goods in the first place maybe like the poor, elderly, orphans, widows, and the disabled one could works. Now compare it with Zakat formula (Sheikho and Al-Dayrani (2014)). There are our units as 'Nissab' and the percentages of each good. In other word if the basic of Islamic

exchange was about getting something unless give in return so the Zakat was about give something without return so it's like giving what was getting automatically each year the exact same percentage each year. But why just some the necessary ones or the strategic ones but we exchange all thing the others wish units and percentage we must use?

The Nissab is interesting as unit, its present the weight of one grain of barley as the unit of weight example: the Nissab of gold is the weight of 72 grain of barley. What special about barley that has been used as unit of the Nissab? Is their specific biological characteristic, Hasunuma (2014)?

Conclusion: The Islamic financial products and the Zakat units and percentages provide a description of the Islamic economic exchanges as preventing empty goods with a fixed time value of strategic goods. So the (A) equation: $n_1 (\text{Nissab}_1) \text{good}_1 = n_2 (\text{Nissab}_2) \text{good}_2 = \dots = n_a (\text{Nissab}_a) \text{good}_a$.

Many questions arise; why not all the goods? How can we know what these 'Nissab' units and percentage represents? Can we calculate them? And that means there is some connection between goods in our world that they must be exchanged in such coherence methods?

8-The absolute equilibrium state

Let's imagine this by fixing the exchange units as Nissab and applying financial products avoid the empty goods along with Zakat percentages, leading us to a specific state which named absolute equilibrium state where there will be no bubble or crisis, the prices will be stable in all times we could know how much things will cost in many years and keep exchanging with the same prices but the most of all there will be no poverty. It's justice as Smith said about establishing balance and justice in the medium of exchange in the following words "*The universal benevolence, how noble and generous soever, can be the source of no solid happiness to any man who is not thoroughly convinced that all the inhabitants of the universe, the meanest as well as the greatest, are under the immediate care and protection of that great, benevolent, and all-wise Being, who directs all the movements of nature; and who is determined, by his own unalterable perfections, to maintain in it at all times, the greatest*

possible quantity of happiness."(Raphael and MacFie, 1984, p. 235). or as Rawls (1971) tried to achieve in his theory of justice but in different definition of morals and ethics that there is not such a benevolence actions just actions fitted the laws and equation or not causing all this mess. Also could leads to prices stabilities as Trichet and and Papademos, the president and Vice-President of ECB (2008) expressed in the following words:

"This confirms that the best contribution that monetary policy can make in order to foster sustainable economic growth and job creation is to maintain price stability. This is generally true, not just in response to productivity developments. A monetary policy that is credible in pursuing price stability and ensuring that inflation expectations remain well anchored will help to create a stable macroeconomic environment. This, in turn, will ensure the economy functions smoothly, facilitate firms' long-term planning and stimulate investment."

"Monetary policy transparency and communication are beneficial when they help the central bank to achieve its objectives by enhancing the understanding of the markets and the public of the policy aims strategy and decisions, thereby offering clear guidance for the formation of expectations as well as reducing uncertainty".

9-Conclusion

Summaring up the theory of Islamic economy could come from pure scientific theory. That's what we started from an unusual assumption of fixed time value of goods. The main question is can we know for sure if is fixed or not, hundred percent sure? What if it was? Think of it as just possibility. We have now Islamic bank, companies and Zakat percentages. We only will know for sure if we try it. It's a just simple probability comparison between two events one certainty of crisis the other a possibility of equilibrium a chance for an absolute equilibrium.

