

## **The Intermediate Community-2**

### **A behavioral / bargaining win-win-win papakonstantinidis Approach for conflict resolution and Acceptance at the Local Level**

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#### **Abstract**

The paper explores the Nash' equilibrium in the bargain, through the disagreement and conflict situations, in the case of the local development process

Special focus is given to the empathy within and during the bargain in the frame of the tripartite win-win-win perception, i.e [identity-social justice, community justice] with the Community in the Role of the "Intermediate", among bargainers

Social trust and social cohesion conditions (sensitization process) within the Community develop the necessity of building social capital at a local level. That presupposes that the local community builds up a "new local standard," based on local people's sensitized instant reflection behaviour. By its turn, sensitized behaviour must be considered in the frame of any "bargain", between two, taking place inside the Community. "Instrumental rationality" has been proved to be the main obstacle toward the socio-sensitized behaviour in the bargain process. Hence, a scientific dialogue in the socio-philosophical level has been developed on how "instrumental rationality" should co-exist with the "sensitized behaviour" at local levels leading to a "society of citizens."

Thus, the resulted behaviour leads into the absolute cooperation, which steps on the same rules of globalization. The paper, then, argues that this resulted behaviour reflects the end point of the local development process.

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## **1. Introduction- the purpose**

The purpose of this paper is threefold. First, to point out the interaction between local development, as a part of social capital building in local areas and the games theory, especially, the Nash “non Cooperative Game Theory” including the bargaining problem and focusing on conflict interests within local community, second, to formulate a quick overview on the empathy and the disagreement as main win-win-win factors in the bargain and during the bargain highlighting the welfare economics vs normative economics and third, to create a base for alternative local development approach, coming from the above mentioned synthesis, so called the “win-win-win papakonstantinidis model”

Finally, through the conditions of rejection and acceptance, but also the social conflict, disagreement - and especially the benefit from disagreement - become catalysts for the formulation of a win-win-win proposal.

### **1.1 Local Development/Welfare Economics and the Bargain**

Over past decades, the concept of local development, as well, as the “equivalent” social capital at the local level seemed to be out of the scientific dialogue, for the reason that Regional Development Science, coming from the decade of 50’s(Walter Isard, 1956) was the dominant approach of the peripheries economics. Local development, mainly based on social capital building and social networks, has developed in the recent literature. Having its origins in Latin America, current interest in the concept of social capital in the field of national development stems from the limitations of an exclusively economic approach toward the achievement of the basic developmental goals: sustained growth, equity, and democracy (Alejandro Portes, Patricia Landolt, 2000) The record of application of neoliberal adjustment policies in less developed nations is decidedly mixed, even when evaluated by strict economic criteria. It was the dominant reason that a scientific dialogue open, on Normative and Welfare Economics

In the first half of the twentieth century, most leading economists [(Pigou,1928), (Kaldor,1939), Samuelson, 1985) etc] devoted a significant part of their research effort to normative issues, notably the definition of criteria for the evaluation (Samuelson, 1977) of public policies. The situation is very different nowadays. “Economists do not devote a great deal of time to investigating the values on which their analyses are based. Welfare economics is not a subject which every present-day student of economics is expected to study”, writes (Atkinson, 2001) who regrets “the strange disappearance of welfare economics”. Social capital and social cohesion at the local level with respect to physical, architectural and cultural environment,( Wilkinson K, 1991) may be proved to be the key-point for the local development process At the same time, local people have to continuously negotiate (bargain) each-other expected to derive individual profit from this bargain So it is necessary, costs and benefits of these negotiations be measured (Gannon A, 1991).

## 1.2 Interaction between bargain and behavior (behavioral approach)

Dewey and Bentley<sup>2</sup>, 1949 wrote that: “ *A behavior is always to be taken transactionally: ie., never as of the organism alone, any more than of the environment alone, but always as of the organic-environmental situation, with organisms and environmental objects taken as equally its aspect*”.

In this frame, is there any correlation between bargain and behavior in the bargain and during the bargain?

In his excellent book under the title “Behavioral Game Theory: Experiments in Strategic Interaction” (Colin F. Camerer,2003)<sup>3</sup> defines the behavioral games theory: “Behavioral game theory is about what players *actually* do. It expands analytical theory by adding emotion, mistakes, limited foresight, doubts about how smart others are, and learning to analytical game theory. Behavioral game theory is one branch of behavioral economics, an approach to economics which uses psychological regularity to suggest ways to weaken rationality assumptions and extend theory. Interaction bargain-behavior is the main assumption in this paper Bargainers behavior, is shaped by many factors, but instrumental rationality may be the dominant criterion. At any case, recent literature provides us with the relation between knowledge and behavior So, an overview is attempt (Papakonstantinidis L.A: (2005)“, as to find the relation between “knowledge transfer and knowledge creation”, in the frame of the “Modern Innovation Theory- M.I.T” (M.M Fischer, 2006 Nonaka and others) Behavior thus may resulted from this knowledge types’ synthesis, as the table

Table  
Knowledge Creation/ Information/ Types of Behavior

Type of knowledge-1	Type of knowledge-2	Synthesis	Resulted Behavior
tacit	tacit	Sympathetic	Socialization
tacit	codified	Conceptual	Externalization
codified	tacit	Procedural	Internalization
codified	codified	Systemic	Networking
<b>sympathetic</b>	<b>systemic</b>	<b>Conceptual</b>	<b>Sensitization</b>
systemic	systemic	Procedural	<b>Strategic</b>

Papakonstantinidis, 2003

The different examples of knowledge types synthesis and the resulted 1-1 behavior leads us to understand the bargain-behavior assumption, based on information given. From the other hand, bargainers information may be the dominant result of this cross-related knowledge types.

<sup>2</sup> John Dewey, Arthur Bentley, (1949). *Knowing and the Known*. Beacon Press, Boston.

<sup>3</sup> Colin F. Camerer(2003) Behavioral Game Theory: Experiments in Strategic Interaction (The Roundtable Series in Behavioral Economics) First Edition. Princeton University Press, Mar 17, 2003

Despite Nash “complete bargainers information” Harsanyi distinguishes between complete and incomplete information, that each player has from the others bargaining behavior

Thus, the hypothesis of bargain-behavior interaction is very important in building the suggested “Intermediate Community” model: Following the Harsanyi’s Bayesian Theorem original game can be replaced by a game “where **nature** first conducts a lottery in accordance with the basic probability distribution” (Harsanyi (1966-revised 1967). Suggested model is mainly based on this point: In my mind, the suggested in the paper “Intermediate Community” and its “win-win-win papakonstantinidis” methodological tool is fully aligned with the “Harsanyi’s transformation”, with a difference: original bargain between 2 can be replaced by a game, where **intermediate community** first conducts a lottery in accordance with the basic probability distribution. In addition, “Intermediate Community” (the “C” factor) should be seen as the result of a “new” suggested bargaining behavior, coming from sensitization process locally Papakonstantinidis L.A:2005) In this frame, Intermediate Community is given in terms of a continuous sensitization process, tending to sensitization itself, inside the community

## 2. Assumptions

1. The main hypothesis is that development (especially, local development) may be sighted as the output of the bargaining trends.
2. Social interactions regularly lead to mutually beneficial transactions that are sometimes puzzling
3. Bargaining is strongly correlated with bargainers behavior (as above mentioned)
4. We could imagine the intra-community relations as a continuous bargain between 2- It is rather a dynamic “winning strategies instant reflections” game, based on competitive interaction relations
5. All players have complete information about the game being played.- J. F. Nah, “instrumental rationality”, 1950
6. Sensitization is a kind of “information”, making the given information complete – Papakonstantinidis, 2002)
7. Each player has a subjective probability distribution over the alternative possibilities – (Harsanyi, 1967),
8. If a type is associated with several states but cannot distinguish between the states, it assigns a probability distribution over the set of types. If a type is associated with only one state, then that type believes with certainty that it is in that state (Ben Danford, 2009) .
9. The main assumption(Papakonstantinidis, 2004): Introducing the “Intermediate Community”, as the third bargainer in a bargain between 2 ,a new state is resulted thus converting a binomial probabilities distribution (Nash win-win equilibrium) into trinomial probabilities distribution, so that each of the three(including the community) to win [**win-win-win**]

10. The assumption that local development is based on a continuous “sensitization process”, trending to the limit end of the process (Papakonstantinidis, 2004), through the **bargain**: There is an interaction between people’s (involved in each of the bargains) behavior and the bargain itself. A dynamic evolution characterizes the interaction which will pass in next generations by the memes (Richard Dawkins 1976)
11. The limit of this continuous process may be proved to be the absolute players’ sensitization, leading **to the absolute cooperation**, which is the best strategy for all the involved players in the bargain (under the Harsanyi’s condition of a perfect players information)

## 2.1 A quick overview on Nash equilibria in the frame of a bargain

In Social Sciences, we have to define a Rule such as to meet the majority needs, without neglecting the minority needs: In math terms, we have to define a differential equation in a model, setting the “Nature”, “State” in the centre and then finding losses and benefits resulted by deviation from this function-rule. This analysis provides us with knowledge in real as well as in non real situation (Papastathis, 2004). The bargain is highlighted as a “game”, Decisions are concerned as “instant reflection winning strategies”. Payoffs are weighting by individual probabilities distributions, by taking into consideration that **each player has a complete information** about the other player’s information conducted their bargaining behavior (Common Knowledge of Rationality- **C.K.R**, Varoufakis Y, 2001).

### 2.1.1 The Nash non cooperative game (Nash J. F . (1951)

During the decade of 40’s John von Neumann and Oscar Morgenstern had developed the “zero sum two players game” theory based on “maximin-minimax” strategic decision, as the reaction to a given winning strategy, coming from the other player: Maximizing the minimum profits and/or minimizing the maximum losses. This was a full competitive idea (win-loose) useful only for the war decision making but not for piece period.

Despite the maximin-minimax Neumann approach (Neumann von J., Oscar Morgenstern, 1944) John Forbs Nash proposed in 1951 (“Non Cooperative Game Theory”-Annals of Mathematic, 1951) a "solution" to the problem of how rational players would play, to win - now called Nash equilibrium. According to Nash, a priori coalitions must be excluded, *as they do not generate “pure individual strategies”*. In the opposite, a game (bargain) based on *“instant reflection strategies”* may be accepted as it generates pure individual strategies

Following the literature (Kuhn W.H –Nasar S, 2001), Nash's idea, based on the idea of equilibrium in a physical system, was that players would adjust their strategies until no player could benefit from changing. All players are then choosing strategies that are best (utility-maximizing) responses to all the other players' strategies (Colin F. Camerer, 2003). Nash equilibrium is a solution concept of a game involving two or more players, in which each player is assumed to know the equilibrium strategies of the other players, and no player has anything to gain by changing only his own strategy unilaterally. If each player has chosen a strategy and no player can benefit by changing his

or her strategy while the other players keep their unchanged, then the current set of strategy choices and the corresponding payoffs constitute a Nash equilibrium (win-win situation) A game may have multiple Nash equilibria or none at all (Aumann, Robert J. 1976). (each strategy in a Nash equilibrium is a best response to all other strategies in that equilibrium (von Ahn, Luis, 2008)  
Formal definition of Nash equilibrium (B. D. Bernheim, B. Peleg, M. D. Whinston, 1987),

Let  $(S, f)$  be a game with  $n$  players, where  $S_i$  is the strategy set for player  $i$ ,  $S = S_1 \times S_2 \times \dots \times S_n$  is the set of strategy profiles and  $f = (f_1(x), \dots, f_n(x))$  is the payoff function for  $x \in S$ . Let  $x_i$  be a strategy profile of player  $i$  and  $x_{-i}$  be a strategy profile of all players except for player  $i$ . When each player  $i \in \{1, \dots, n\}$  chooses strategy  $x_i$  resulting in strategy profile  $x = (x_1, \dots, x_n)$  then player  $i$  obtains payoff  $f_i(x)$ . Note that the payoff depends on the strategy profile chosen, i.e., on the strategy chosen by player  $i$  as well as the strategies chosen by all the other players. A strategy profile  $x^* \in S$  is a Nash equilibrium (NE) if no unilateral deviation in strategy by any single player is profitable for that player, that is

$$\forall i, x_i \in S_i, x_i \neq x_i^* : f_i(x_i^*, x_{-i}^*) \geq f_i(x_i, x_{-i}^*).$$

A game can have either a pure-strategy or a mixed Nash Equilibrium, (in the latter a pure strategy is chosen stochastically with a fixed frequency). Nash proved later that if we allow mixed strategies, then every game with a finite number of players in which each player can choose from finitely many pure strategies has, at least, one Nash equilibrium Later (1995) R. Aumann, 1999) and Brandenburger, show that, if players' payoffs are mutually known, their rationality is mutually known, their beliefs (or "conjectures") about other players' actions are commonly known and they have a common prior, then, for each player  $j$ , the conjectures of all the other players about  $j$ 's action agree and the  $n$ -tuple of such conjectures (one conjecture about each player) form a Nash equilibrium when viewed as a mixed strategy profile.

Besides,

If the payoffs are commonly known to all bargainers, then the Common Knowledge of Rationality (CKR), is the main Nash assumption. Harsanyi, suggested later (Harsanyi, 1967) that "Complete information requires that every player knows the strategies and payoffs available to the other players **but not necessarily the actions taken**. Games of incomplete information can be reduced, however, to games of imperfect information by introducing "moves by nature"

Bargain may lead either in agreement or disagreement Utility expresses the constraint or the "fear factor" (Papakonstantinidis L.A., 2002, 8/14) of disagreement for the negotiator who desires negotiations to be led in agreement more than the other one. Who needs more, negotiation to be led in an agreement expects more utility, but –probably he has to lose in terms of "shares", due to risk lack In the opposite, who is indifferent about "agreement" or expects less utility /per unit, has to win in "shares" under the dogma "*the more risk, the more profit*" Each of "negotiators" has, therefore to think twice (2-person anticipation) according to his & the other's expectations so both to win, maximising the outcome of negotiation (**win-win**)

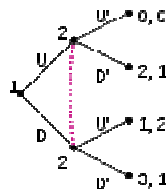
### 2.1.2 John Harsanyi: From Incomplete to Imperfect information (sub-game)

**John Harsanyi** made a major contribution to welfare economics by two different interventions:

The first one is often called the “impartial observer argument”. An impartial observer should decide for society as if he had an equal chance of becoming anyone in the considered population. This is a risky situation in which the standard decision criterion is expected utility.

The second Harsanyi’s argument, worldwide as the “**aggregation theorem**”, is about a social planner who, facing risky prospects, maximizes expected social welfare and wants to respect individual preferences about prospects.

The key step in (Harsanyi’s,1955) Harsanyi’s argument, based on Bayesian, or conditional probabilities distribution was the claim “...that expected social welfare would be the weighted sum of expected individual utility functions, assuming that whenever all individuals are indifferent between any two probability distributions over social states, then so is society..” (Stanford Encyclopedia, 2001) Players have initial beliefs about the type of each player (**where a belief is a probability distribution over the possible types for a player**) and can update their beliefs according to Bayes' Rule as play takes place in the game. In a Bayesian game, the incompleteness of information means that at least one player is unsure of the type (and so the payoff function) of another player (see below)



**Harsanyi** grappled with the analysis of “incomplete information’s” games, where the players are uncertain about games situation parameters (or even some of them, as payoff functions, or about the other players’ information about the game situation etc) Harsanyi's approach for modeling a Bayesian game in such a way, **allows** games of incomplete information to become games of imperfect information

Games of “incomplete information” (between C- games and I-games) must not be confused with “games of imperfect information”, although they have been extensively discussed in the literature:

The first case concerns games where the players are uncertain about some important parameters of the game situation, such as the payoff functions, the strategies available to various players, the information other players have about the game, etc.

The second case concerns games in which the history of the game is not available to all players.



Besides, “complete information” requires that every player knows the strategies and payoffs available to the other players but not necessarily the actions taken. Games of incomplete information can be reduced, however, to games of imperfect information by introducing “moves by nature”

According to Harsanyi, each player has an objective probability distribution over the alternative possibilities: in this framework, probability distributions for each player is assumed to be mutually consistent or, they can be considered as conditional probability distributions derived from a **certain “basic probability distribution”** over the parameters, which are unknown to different players, even if it was assumed (by literature) that these probability distributions entertained by the different players are mutually “consistent”, in the sense that they can be regarded as conditional probability distributions derived from a certain “basic probability distribution” over the parameters unknown to the various players. However, the theory meets also those cases where the different players' subjective probability distributions fail to satisfy the above assumption (the condition of mutually consistency for the players' probability distributions). According to Harsanyi J. (Harsanyi, 1967), in cases where the consistency assumption holds, the original game can be replaced by a game **where nature first conducts a lottery in accordance with the basic probability distribution**, and the outcome of this lottery will decide which particular sub-game will be played. However, every player will know the “basic probability distribution” governing the lottery.

Following Harsanyi's concept, a Bayesian game can be modeled by **introducing Nature as a player in a game**. Nature assigns a random variable to each player which could take values of *types* for each player and associating probabilities, In this **nature** randomly **chooses** a type for each player according to the probability distribution across each player's type space). Finally, Harsanyi utilitarian theorem (Stanford Encyclopedia, 2001) states that the **social welfare function** is the weighted sum of individuals' utility functions if: **(i) society maximizes expected social welfare; (ii) individuals maximize expected utility; (iii) society is indifferent between two probability distributions over social states whenever all individuals are.**

Formal definition (Harsanyi, 1967),

The game is defined as:  $G = \langle N, \Omega, \langle A_i, u_i, T_i, \tau_i, p_i, C_i \rangle_{i \in N} \rangle$ , where

1.  $N$  is the set of players.
2.  $\Omega$  is the set of the states of the nature. For instance, in a card game, it can be any order of the cards.
3.  $A_i$  is the set of actions for player  $i$ . Let  $A = A_1 \times A_2 \times \dots \times A_N$ .
4.  $T_i$  is the types of player  $i$ , decided by the function  $\tau_i : \Omega \rightarrow T_i$ . So for each state of the nature, the game will have different types of players. The outcome of the players is what determines its type. Players with the same outcome belong to the same type.
5.  $C_i \subseteq A_i \times T_i$  defines the available actions for player  $i$  of some type in  $T_i$ .
6.  $u_i : \Omega \times A \rightarrow R_i$  is the payoff function for player  $i$



### 3. Bargaining theory

Bargaining theory is the branch of game theory dealing with the analysis of bargaining problems, in which some parties bargain over the division of certain goods. A solution to a bargaining problem means the determination of such a division. Examples of simple as well as more complex applications of bargaining theory to economic, political and social situations abound. Essentially, one may apply an axiomatic approach to bargaining problems, i.e., postulate some axioms concerning a potential solution, and then investigate its existence and properties resulting from the adopted axioms. One may also apply a different approach to bargaining problems, called the dynamic or strategic approach, which involves the representation of a bargain as a non-cooperative game and the investigation of solutions from among the equilibria of the game<sup>4</sup>.

A payoff allocation in a bargaining problem is midpoint dominant if each player obtains at least one th of her ideal payoff. The egalitarian solution of a bargaining problem may select a payoff configuration which is not midpoint dominant. We propose and characterize the solution which selects for each bargaining problem the feasible allocation that is closest to the egalitarian allocation, subject to being midpoint dominant. Our main axiom, midpoint monotonicity, is new to the literature; it imposes the standard monotonicity requirement whenever doing so does not result in selecting an allocation which is not midpoint dominant. In order to prove our main result we develop a general extension theorem for bargaining solutions that are order-preserving with respect to any order on the set of bargaining problems<sup>5</sup>.

Cooperative bargaining is a process in which two people decide how to share a surplus that they can jointly generate. In many cases, the surplus created by the two players can be shared in many ways, forcing the players to negotiate which division of payoffs to choose. Such surplus-sharing problems (also called bargaining problem) are faced by management and labor in the division of a firm's profit, by trade partners in the specification of the terms of trade, and more.

The present article focuses on the normative approach to bargaining. It studies how the surplus should be shared, by formulating appealing axioms that the solution to a bargaining problem should satisfy. It is useful when both parties are willing to cooperate in implementing the fair solution. The five axioms, any Nash Bargaining Solution should satisfy are Pareto Optimality (PAR), Individual Rationality (IR), Independent of Expected Utility Representations (INV), Independence of Irrelevant Alternatives (IIA) and Symmetry (SYM). While SYM and PAR restrict the behavior of the solution to only a specific bargaining problem, INV and IIA require consistency of solution across bargaining problems in Game Theory. Such solutions, particularly the Nash solution, were used to solve concrete economic problems, such as management– labour conflicts, on numerous occasions<sup>6</sup>

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<sup>4</sup> <http://www.coalitiontheory.net/research-areas/bargaining-theory>

<sup>5</sup> Dominik Karos, Shiran Rachmilevitch 2019 The midpoint-constrained egalitarian bargaining solution-ELSEVIER

<sup>6</sup> Thomson, William (1994-01-01), "Chapter 35 Cooperative models of bargaining", *Handbook of Game Theory with Economic Applications*, Elsevier, 2, pp. 1237–1284, retrieved 2021-02-05

An alternative approach to bargaining is the positive approach. It studies how the surplus is actually shared. Under the positive approach, the bargaining procedure is modelled as a non-cooperative game. The most common form of such game is called sequential bargaining.

**3.1 Utility and disagreement (threat) functions: the win-win-win equilibrium**

Players develop their strategies in any interactive decision, behavior, thinking and living

Basically, there are two interactive actions”

- A. people form behaviors within the bargain based on personal, family, moral and even knowledge
- B. People are gradually acquiring more permanent behaviors, ethical, transactional customs, from the Bargain, gradually passing on their thinking. For this reason we are referring now to the market society<sup>7</sup> and not the market of the society, that means a market integrated into society
  - During the bargain, individuals develop ethics and generally behavior that influence their life
  - At any bargain, disagreement (or threat) point has a crucial role:
    - i. in a market society, disagreement point  $d$  is the value the players can expect to receive if negotiations break down
    - ii. in a social bargain, disagreement point  $d$  denotes the value the players can expect to receive if negotiations break down AND the frames of the 2 bargainers’ ethics

*players..A..and...B....strategies / choices  
 (each.of...them,..with..his / her...own..DISEGREEMENT..POINT..d<sub>1</sub>..d<sub>2</sub>*

*Social..behavior : DISAGREEMENT.(or...threat)..POINT..  
 beyond...individual...disagreement...*

*(u(x)–u(d)).and  
 (v(y)–v(d))....players, A, B..try..to..max ..x..and..y*

$$\max \dots \text{profit} \dots = \dots \max U_A \cap U_B = \max U_A \times U_B \Rightarrow \frac{d}{du} f = 0$$

.....max(u(x)–u(d))(v(y)–v(d))

<sup>7</sup> A society based around a market economy, especially one in which political and economic life are dominated by ideas of individual freedom and self-interest. [https://www.lexico.com/en/definition/market\\_society](https://www.lexico.com/en/definition/market_society)

## Analysis

- ✓ In all bargains, there is usually a set  $S$  of alternative outcomes and both parties must agree on some element of this set. Once an agreement is reached, the negotiation ends and both sides can get their respective returns. If they do not reach an agreement, the result is usually the status quo. So if  $(t_1, t_2)$  are the odds of a point of disagreement, then the interesting part of  $S$  consists of those outcomes that give both sides odds greater than those of the odds. So we can define a trading problem as follows
- ✓ A two person bargaining problem (or game) consists of two people or players 1 and 2, a set  $S$  of alternative outcomes, and a utility function  $u_i$  on  $S$  for each player  $i$ , so that:

$$u_1(s) \geq t_1 \dots u_2(s) \geq t_2, \dots, \forall s \in S$$

Suppose that

$u(x), v(y), C(z)$  are utility function of the bargainers,  $A - B$  and the COMMUNITY  $(C)$

AND

$u(d_1), v(d_2), C(d_3)$  are their disagreement – or threat – functions

then,

$$\begin{aligned} &u(x) - u(d_1) \\ &v(y) - v(d_2) \\ &C(z) - C(d_3) \end{aligned}$$

form a new function of differences i.e....

$$u(\delta_1), v(\delta_2), C(\delta_3)$$

- ✓ Each of them defines the margin between utility (or grade of satisfaction) AND their disagreement point

$$\begin{array}{l} \dots \\ u(\delta_1) = 0 \\ \text{In the case of } v(\delta_2) = 0, \dots \text{ that means} \\ C(\delta_3) = 0 \end{array}$$

$$\begin{aligned} &u(x) - u(d_1) = 0 \\ &v(y) - v(d_2) = 0 \\ &C(z) - C(d_3) = 0 \end{aligned}$$

that characterize unelastic societies with fixed preferences and relations

- ✓ In the case of  $u(\delta) \approx 0$ ..or..near..to..a..fixed..price, (that means, the individual  $I_u$  will VETO at any time the result of the bargain does not exactly satisfy his/her own preferences) there is no room for social sensitivity, or even better, the  $I_u$  individual does not let any margin for “social bargaining”
- ✓ The farther away from the level of personal  $u(x)$ ..v(y) and the social satisfaction  $C(z)$  the point of disagreement / threat of disruption to negotiations, far is the more degrees of freedom there are in the negotiation and the greater the probabilities of agreement.
- ✓ This is all the more so if the parties are three (including the Community as the third and catalytic power in the negotiation:
  - ✓ a. the community works for both parties as a point of reference - eg the legal framework of the contracts
  - b. The community "requires" its own "satisfaction" which coincides with the satisfaction of the general population of the community
  - c. overall satisfaction is divided into three and not two parties, so the hot decision-making pressure is less and more balanced
  - d. New data are put on covering the "claims" and perspectives of the three-and not two-parties of the negotiation
  - e. avoid collusion, which may be easier in negotiations between 2 and not the three parties
  - f. It is not accidental that powers in a democratic society are divided between legislative, executive, and judicial powers.
  - g the inclusion of the community in the win-win-win-win [as social cohesion, as a moral, as a culture, but also as a whole of its population] and not as a court, is based on its actual immediate interest which is the interest of many who may not are directly involved in the bargain
  - h. The tendencies that develop in such a trilateral negotiation thus form a "memory" state (something like court jurisprudence, or "good business ethics"): The difference here is that many forces are mobilized that shape a flexible behavior and not a strict relation established by case law

#### 4. Intuition-Empathy

- a. Intuition is the ability to acquire knowledge without recourse to conscious reasoning. Different fields use the word "intuition" in very different ways, including but not limited to: direct access to unconscious knowledge; unconscious cognition; inner sensing; inner insight to unconscious pattern-recognition; and the ability to understand something instinctively, without any need for conscious reasoning

Modern psychology

In more-recent psychology, intuition can encompass the ability to know valid solutions to problems and decision making. For example, the Recognition Primed Decision (RPD) model explains how people can make relatively fast decisions without having to compare options. Gary Klein found that under time pressure, high stakes, and changing parameters, experts used their base of experience to identify similar situations and intuitively choose feasible solutions. Thus, the RPD model is a blend of intuition and analysis. The intuition is the pattern-matching process that quickly suggests feasible courses of action. The analysis is the mental simulation, a conscious and deliberate review of the courses of action

Instinct is often misinterpreted as intuition and its reliability considered to be dependent on past knowledge and occurrences in a specific area. For example, someone who has had more experiences with children will tend to have a better instinct about what they should do in certain situations with them. This is not to say that one with a great amount of experience is always going to have an accurate intuition.

Intuitive abilities were quantitatively tested at Yale University in the 1970s. While studying nonverbal communication, researchers noted that some subjects were able to read nonverbal facial cues before reinforcement occurred. In employing a similar design, they noted that highly intuitive subjects made decisions quickly but could not identify their rationale. Their level of accuracy, however, did not differ from that of non-intuitive subject

- b. Empathy is essentially the "extension" of a person's sense beyond his personal emotion. An emotion is defined as anything a person feels when evaluating an event in a particular way and usually leads to changes in the human body or behavior. Thus, all emotions are essentially prompts for action. So emotions lead to actions that we can perceive. Emotions have either internal or external origins. Sometimes they are caused by thoughts, beliefs and sometimes by external events, situations, and people. Empathy typically refers to the emotional identification that one experiences with another person's mental state, at the same time combined with the effort to decode and understand his behavior and motivations. In simple words it is the conscious effort and ability to be able to enter your place and understand how you feel.

Are we born or become?

This skill, although innately embedded in our DNA, is a product of learning and experiential experience.

Our parents, our primary caregivers, the people we met later in life, across the spectrum of our interpersonal relationships and compromises, sometimes positively, sometimes neutrally and sometimes disparagingly and with a "frozen" emotional charge our ability to we feel!

From the above we conclude that although we are all biologically programmed for this extraordinary ability, only a few have had the opportunity to "learn" it early in life.

The rest of us are less fortunate to have the opportunity and the "debt" to work and conquer it now.

Empathy does not necessarily mean that I am experiencing or have experienced the same emotion, it means that I want and can understand what it is like for someone else to experience it and to choose clearly and validly how I want and how I need to respond effectively.

In this way I increase the chances of receiving a similar treatment. So it is not only altruistic, it is also positively utilitarian, in the good sense. If we all practiced this skill the lives of all of us would be substantially better.

What is difficult for us

But to see what prevents us from consolidating and applying emotional contact and communication attitudes.

\* Labeling: The labels we put on ourselves and others.

\* Arbitrary conclusion: we lead to arbitrary conclusions based on individual facts, without having sufficient data (big picture, exceptions, what has happened in similar / corresponding cases).

\* Learning.

\* Standards.

\* Past experiences (positive and negative).

\* Strengthening and defending dogmas.

\* Excessive / morbid / compulsive need for control and insecurity.

\* We are often unaware that we always carry our subjective views, opinions, prejudices, which prevent us from seeing clearly the views, thoughts and feelings of others.

\* We often forget that the same thing happens to others or the other.

\* We do not often choose to reconcile with skilled emotional people, since we do not recognize the need or the benefit!

\* We are purely egocentric... without caring about how others feel and think...

All of the above need to be redefined and adjusted or even changed. In their place it is enough to try to establish a conscious and obvious effort to understand and care for the other person's feelings.

c. The win-win-win papakonstantinidis model

This model is a combination of intuition and empathy

The win-win-win papakonstantinidis model

1. **I** identity
2. **sj** social justice
3. **cj** community justice

$$\forall x_i \in (I - SJ - CJ) \ni x_i^* : \dots f(x_i^*) \geq f(x_i), \dots f(x_i) \geq SL,$$

$x_i$  = behavior..of ....A.in.negotiation

$x_i^*$  = behavior..of ....B.in.negotiation

$SL$  = Survival..Level

.....

For each behavior  $x$  of the bargainer  $i$  ( $x_i$ ) included in the standard  $(I - sj - cj)$

i.e. in a win-win-win behavior, there is a better behavior of the  $i-1$  bargainers  $f(x_{i-1})$  function, i.e. a better collective behavior function  $f(x_{i-1}^*)$

All of these, are better than the Survival Level




### 4.1 Acceptance function

So far, I have not found an acceptance function that expresses the gap between "ideals and practice" or, in other words, between prosperity and satisfaction and hence between satisfaction and acceptance.

The gap between ideals and practice can be understood and challenged through a better understanding of the social functions of acceptance with prosperity

Functionality is a sociological example, which is based on the assumption that the subsystems of society support each other.<sup>8</sup>

That is, their relationship is additive

$$\sum_i^n \sum_j^m \frac{\partial W}{\partial S_i} \frac{\partial S_i}{\partial Acc_{ij}} dAcc$$


*i = grade..of ..accept....for...individual ....j*

*j = grade..of ..accept.ance..for ..the..individual ,,,i*

Όπου,

*∂W ,...partial..Welfare..derivative*

*∂S<sub>i</sub>,...partial...Satisfaction..derivative*

*∂Acc,...partial..Accept.ance...derivative*

- This means that an infinitesimal change in the degree of acceptance for the i person has an infinitesimal change in the degree of satisfaction of the same person who in turn has an infinitesimal change in his well-being.
- Adding these infinitesimal changes (increases or decreases) we conclude that the changes in the acceptance of individuals by society, entails corresponding changes in the degree of their satisfaction and ultimately in the well-being of the whole society of i individuals.

<sup>8</sup> David Kollosche(2018) "Social functions of mathematics education: a framework for socio-political studies" Educational Studies in Mathematics volume 98, pages287–303(2018)

- Ultimately, it can be demonstrated on a practical level - see research at the end of volume b - that social acceptance is one of the most basic conditions of social well-being in the community.
- Social acceptance leads to an increase in Human self-esteem, which in turn leads to greater productivity which, by improving quality, leads to an increase in the well-being of the community.

## 5. Proposal

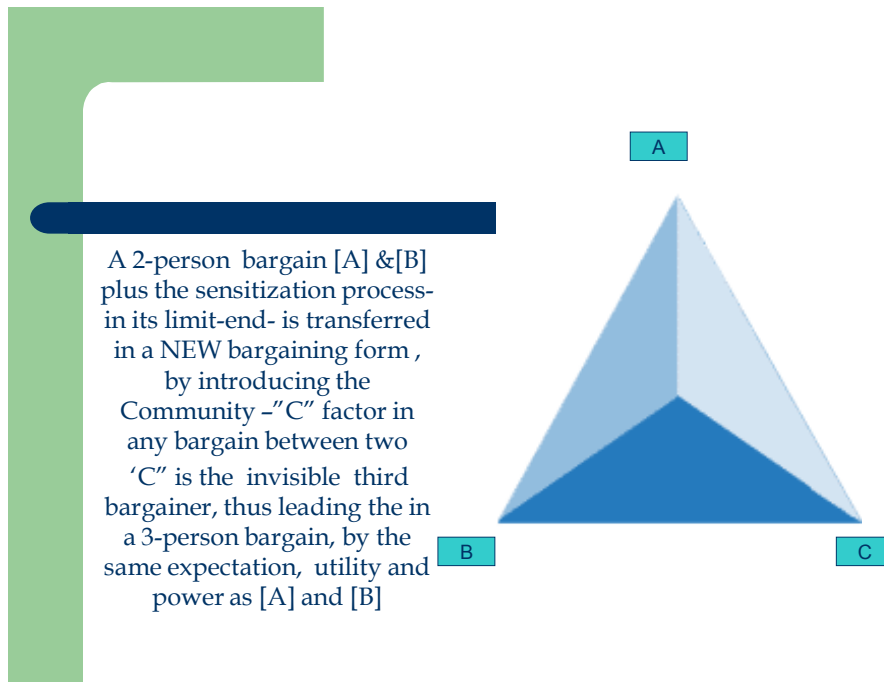
Starting from the Harsanyi's refinement concerning the Nash equilibrium, the objective of this paper was to formulate an argument on how it should be possible to provide appropriate tools for local development, taking into consideration the suggested "sensitization process" (behavioral analysis) and its interaction with the bargain and during the bargain. For this purpose, we have to suggest the "Intermediate Community" in a bargain between 2, but not as the result of transferring a game of incomplete information to a game of imperfect information. According to the paper's proposal, the "Intermediate Community" (Nature as a player in the Game which first conducts a lottery in accordance with the basic probability distribution) must be seen as conscious choice, taken by local people in the frame of sensitization process: Sensitized people should conduct their bargaining behavior in a "new" type of bargain, less competitive, more cooperative, even if adopting the "Non Cooperative" instant reflection winning strategies' concept for modeling a Bayesian game in such a way, **allows** competitive games of incomplete information to become more cooperative games of perfect information: sensitization, may be one of factors influenced this sep-by-step change at the local level (see the LEADER EU Initiative's application in Greece (Papakonstantinidis L.A, 2003), during the 1991-1994 period

The limit of the continuous sensitization process defines a new behavioral status, in the bargain between 2, which trends from pure competition to the absolute cooperation, which is the best of all instant reflection, individual winning strategies

The suggested "Intermediate Community model" (see at the triangle relation scheme below) or "win-win-win papakonstantinidis model"( as any of the 3 parts of the negotiation has to win from this) is the end/purpose of this paper's contribution

Especially,

- Introducing the "Intermediate Community" – ("C" factor) as the THIRD (invisible) part in a bargain between 2 provides us with a "sensitization measure" to go the local development on Bargaining belief, in that case, should be continuously strengthen, thus tending to the limit of a pure and absolute cooperation, especially in an Inequality Age, due to capital accumulation (Amin Samir, 1970)
- Defining the Intermediate Community in terms of a continuous sensitization process, at the local level with social and endogenous characteristics. These may be seen as the output of the continuous sensitization process AND perfect information (the sensitization)



Now, we have to reproduce the Harsanyi Bayesian game’s formal definition, with some difference which is the paper’s contribution: introducing the “Intermediate Community” as the 3<sup>rd</sup> imaginary part of the negotiation between 2, as well as weighting of certain variables with coefficients, it should be possible to define the suggested “win-win-win papakonstantinidis model”

The (sensitized) game is defined as:

$$G^{**} = \langle N, \Omega^*, \langle A_i, u_i, \varphi T_i, \tau_i, p_i, C_i \rangle_{i \in N} \rangle$$

1.  $N$  is the set of players.
2.  $\Omega^*$  is the set of the states of the “Intermediate Community”, depended on local people bargaining intra-community behavior
3.  $A_i$  is the set of actions for player  $i$ . Let  $A = A_1 \times A_2 \times \dots \times A_N$ .
4.  $T_i$  is the types of player  $i$ , decided by the function  $\tau_i : \Omega \rightarrow T_i$ . So for each state of the nature, the game will have different types of players. The outcome of the players is what determines its type. Players with the same outcome belong to the same type.
5.  $C_i \subseteq A_i \times T_i$  defines the available actions for player  $i$  of some type in  $T_i$ .
6.  $u_i : \Omega \times A \rightarrow R_i$  is the payoff function for player  $i$

7.  $\phi$  : the **sensitization** coefficient of  $T_i$  : Each state of the Community (Nature, Local Community, Physical Environment etc) must be (according to model definition) weighted by the " $\phi$ " appropriate sensitization coefficient of  $T_i$ , thus providing behavioral convergence towards community prevailing ethos (John Friedman, Clyde Weaver, 1979)

Finally,

- Nash equilibrium is based on binomial probabilities ( $p, 1-p$ ) distribution, corresponding 1-1 with those utility functions "prices" (disagreement fear factor). In its extension, the author hypothesizes that the **Intermediate Community** (the "C" factor) produces a new behavioural type that converges the interests of both sides at a local level. By converting a binomial distribution ( $p, 1-p$ ) into a trinomial distribution, ( $p_1, p_2, 1-p_1-p_2$ ) combined with 3 utility function "prices", the dynamic behavioural sensitization process may converge into the integrated local development limit-end.
- Paper focus on local level's behavior by a rural, social and ecological development's methodological tool, worldwide known as **win-win-win papakonstantinidis model**, taking into consideration the **memes approach** (Blackmore Susan, 1999) influenced biological and cultural "behavior" for the next generations (Dawkins Richard, 1976)
- Paper adopts the Bayesian Nash equilibrium (Harsanyi) which defines the strategy profile and beliefs specified for each player about the types of the other players that maximizes the expected payoff for each player given their beliefs about the other players' types and given the strategies played by the other players.
- Sensitization" may concerned as information, thus changed the 2parts imperfect information, into a complete information as Harsanyi conditional probabilities claims
- Each of players following his/her best individual instant reflection winning strategy, having perfect information, as well as initial beliefs about the type of each player where a belief is a probability distribution over the possible types for a player) can update his/her beliefs as play takes place in the game (according to Bayesian Rule)
- Introducing the "Community" as the "third" part in a bargain between 2, we can imagine a "new bargain type" in which the "Community" ( Nature, common values, ethic etc) is included
- That is reflected in bargainers behaviour, tending to the sensitization, in its limit-end (perfect sensitization, at the local level)
- Coming from the above, the resulted behaviour leads into the absolute cooperation, which steps on the same rules of globalization. The paper, then, argues that this resulted behaviour reflects the end point of the local development process. That is the end of sensitization process
- Acceptance and empathy form a new frame in the bargaining theory
- The win-win-win papakonstantinidis model introduces a tripartite perception, in and during the bargain, i.e "what is the best for me"(individuality) "what is the best for the other bargainer (social justice) and "what is the best for the community"(community justice)

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