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Venezuelan Economic Laboratory
The Case of the Altruistic Economy of
Felipe Pérez Martí

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ABSTRACT

Felipe Pérez Martí, who was the Venezuelan Minister of Planning and Development in the government of Hugo Chávez, proposes an economic model that he calls the *altruistic economy* or *fourth way*, which leads cooperative game theory to its logical extremes postulating a *pure communism*. Here we sustain that, first, it is impossible in the model of Pérez Martí to marginally allocate non-primary goods to those most in need or who most value them, facing a problem of defective economic calculation, and second, in order to achieve equality, he would have to replace his *atomic local planners* by a central planner, who would be unable to overcome the problem of imperfect and incomplete information.

Key words: altruism; Nash equilibrium; game theory; planning; communism; equality.

JEL Classification Codes: B5, D5, D7, D8, O2, P2.

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Introduction

In the heat of the so-called 'twenty-first century socialism', Latin America has become a laboratory for the creation and testing of new ideas about the design and operation of a post-capitalist society. From this cauldron of ideas comes the work of Felipe Pérez Martí, who was the Venezuelan Minister of Planning and Development in the government of Hugo Chávez in 2002 and 2003. The research of Pérez Martí forms a part of cooperative game theory, and it proposes an economic model that he calls the *altruistic economy* or *fourth way*.

The purpose of this paper is to develop a critique of the theoretical model of Pérez Martí, which falls within the research programme inspired by the 1994 Nobel Laureate in Economics John Nash. Instead of extensively reviewing other sources on altruistic economics, we will expound the development of the programme of Nash and how it–in principle–departs from Pareto equilibrium. How our critique applies to other models of the altruistic economy is a question that we shall not tackle in this paper, and hence will remain open for now.

We will go on to show how the model of Pérez Martí leads cooperative game theory to its logical extremes, postulating a *pure communism*, where the community gains from each person to the extent of her ability, and where each person receives as her needs require; this according to Pérez Martí is a feasible formula which corresponds to the famous aphorism of Marx (1891, 24): 'From each according to his ability, to each according to his needs!'

Our critique will consist in explaining, first, why it is impossible in the model of Pérez Martí to marginally allocate non-primary goods to those most in need or who most value them, facing a problem of defective economic calculation, and second, why in order to achieve equality, Pérez Martí would have to replace his *atomic local planners* by a central planner, who would be unable to overcome the problem of imperfect and incomplete information. To achieve our aims, we will rely on the method of praxeology, which consists of a verbal deduction from the axiom that human beings act in accordance with ends of their choice.

From Pareto Equilibrium to Nash Equilibrium

A contemporary and realistic definition of Pareto equilibrium would include the following: it is an ideal state of distribution of the subjective satisfactions of consumers and producers, from which it is impossible to move away without affecting the satisfaction of at least one individual, and at which it is possible to arrive assuming that production and trade are conducted in *classical environments*, which according to Hurwicz (1973 and 1987) are characterised by: the absence of externalities, no local saturation of preferences, absolute divisibility of factors of production, convexity or absence of increasing returns to scale, and temporal homogeneity. Under these assumptions, it is easy to admit that the mechanism best able to position the equilibrium point over the production possibility frontier is the market-fiction described by the theory of Vilfredo Pareto. Pareto himself was aware of the fictitious nature of this equilibrium, which represents the height of the satisfaction of a community, and he defined it as follows:

> We will say that the members of a collectivity enjoy *maximum ophelimity* in a certain position when it is impossible to find a way of moving from that position very slightly in such a manner that the ophelimity enjoyed by each of the individuals of that collectivity

increases or decreases. That is to say, any small displacement in departing from that position necessarily has the effect of increasing the ophelimity which certain individuals enjoy, and decreasing that which others enjoy, of being agreeable to some and disagreeable to others. (Pareto 1909, 261)

In equilibrium, producers and consumers get the maximum of ophelimity, because the value of the marginal physical product of all exploitations equalises its price, and in this situation, the scale of production of all exploitations would be the maximum possible. The deliberate reduction in the scale of production to increase the relative scarcity of useful effects, along with the charging of a price–which will be pocketed by private producers–more than the value of the marginal physical product, is not a feature of the market-fiction of neoclassicals, but of the real market that we all experience to some extent.

That the market-fiction of neoclassicals does not find a feasible alternative other than that of market socialism is a different kettle of fish. Here we only are interested in stressing that the welfare of the community would be divided between producer surplus and consumer surplus, which represent the satisfaction measured in units of utility which can not be compared interpersonally, reaching a maximum in equilibrium thanks to the individual pursuit of profit through voluntary trade, and under the conditions listed above.

The road to Nash equilibrium took its departure from a critique of Pareto equilibrium, and began to be forged in the autumn of 1940 when John von Neumann proposed to Oskar Morgenstern to work together on a paper. Four years later, this became their groundbreaking joint work *Theory of Games and Economic Behavior (1944)* (See Morgenstern 1976), although its background could be traced back to the nineteenth century work of Augustin Cournot (See Myerson 1999).

Morgenstern was an economist trained in the tradition of the Austrian School. He was thus aware of the dynamic properties of the real market, which make it impossible to equalise prices to marginal costs in a capitalist economy without collapsing the market, as the expectations of

producers would be frustrated by failing to make a profit. One of his appraisals on the market-fiction of neoclassicals runs as follows:

> In the current equilibrium theory, there is nothing of this true kind of competition: there are only individuals, firms or consumers, facing *given* prices, *fixed* conditions, each firm or consumer for convenience *insignificantly* small and having *no influence* whatsoever upon the existing conditions of the market (rather mysteriously formed by tâtonnement […] and therefore solely concerned with maximizing *sure* utility or profit–the latter then being exactly zero. The contrast with reality is striking; the time has come for economic theory to turn around and to "face the music." (Morgenstern 1972, 1164)

Game theory was intended to address the consequences of the naive utopia built by neoclassicals, but the project was methodologically defective. Instead of relying on the method that has accompanied the development of Austrian economics up to the present day, praxeology, game theory was built upon the positivistic foundations offered by mathematics.

The limitations of game theory to understand institutional real-world phenomena were evident in Morgenstern (1972, 1171), when he noted that the neoclassical assumption of the agents' *perfect foresight* would be replaced in his theory by that of *perfect and complete information*; in his own words, this is because 'these concepts are used in a specific manner in game theory and without contradiction.' This led to the development of the theory of expected utility and thus, investment and consumption decisions could allegedly be satisfactorily addressed from the likely outcomes an individual faces when making decisions in an atmosphere of rivalry.

Previously, Morgenstern (1948, 16) had referred to the most common objection to this issue: 'You may also ask how one could be sure of the existence of a solution for all conceivable games.' But instead of answering with a reference to the *entrepreneurial uncertainty* that permeates investment and consumption decisions in the real world, he confined himself to extolling the rigor

in the treatment of *actuarial risk*, which is the only one that can be addressed by game theory[1]. 'But aside from the intuitive appeal these ideas may or may not have,' he said, 'they find rigorous mathematical formulation and were subjected to the most painstaking scrutiny of which modern logic is capable' (Morgenstern 1948, 16).

Against this background, it was not surprising that such a gifted mathematician as John F. Nash, instead of a social scientist, ended up establishing himself as one of the most important game theorists. But the definitive break with Morgenstern's critique of neoclassical economics was reached with Nash's reintroduction of Pareto equilibrium in game theory. As stated by Harold W. Kuhn (in Nobel Seminar 1994, 179-180), by bringing Pareto efficiency among his axioms, Nash radically broke with the tradition that the bargaining problem is indeterminate.

But Morgenstern was concerned about the determination of an optimum game strategy, which he understood as radically different from determining the general equilibrium that requires too demanding conditions. Thus, Morgenstern (1972, 1174) wondered how neoclassical economists were so audacious as to postulate a stable economic system, if the stability of a much simpler system as the moon's orbit around the earth still could not be proved. He described the difference between his vision of game theory and the general equilibrium as follows:

> Now it is one of the decisive steps in the theory of games to show that one is not confronted with maximum problems (unless dealing with an absolutely isolated Robinson Crusoe, and its formal equivalent) but with a fundamentally different situation. […] Where is the difference? It lies in the fact that the theory of competition assumes that the individual or firms are in full control of all the variables that determine the outcome of any transaction undertaken. (Morgenstern 1948, 11)

But what does Nash equilibrium entail? To illustrate this, there is no better source than *A Beautiful Mind*, the Academy Award-winning film by Ron Howard, based on the unauthorised biography of

Nash by Sylvia Nasar. The scene takes place in a bar near Princeton University, where Nash pursued his doctoral studies. Amid the bustle and cigarette smoke, Nash is seemingly able to pursue his abstract formulations in front of a table filled with his books and annotations. Some friends of his arrive, followed seconds later by some girls who capture their attention. One of them, a blonde, stands out in particular, and sparks a discussion among the men on the best strategy to approach her. The part of the dialogue we are interested in to illustrate Nash's eureka is as follows:

Hansen: Have you remembered nothing? Recall the lessons of Adam Smith, the father of modern economics.

Saul: In, uh, in competition…

Group: …individual ambition serves the common good.

Hansen: Exactly.

Nielssen: Every man for himself, gentlemen.

Bender: And those who strike out are stuck with their friends.

Hansen: I'm not gonna strike out.

Saul: You can lead a blonde to water, but you can't make her drink.

Hansen: Uh, I don't think he [Adam Smith] said that.

Saul: All right, nobody move. She's looking over here. All right, she's looking at Nash.

Hansen: Oh, God. All right, he may have the upper hand now, but wait until he opens his mouth. Remember the last time?

Bender: Ah yes, that was one for the history books.

Nash: Adam Smith needs revision.

Hansen: What are you talking about?

Nash: If we all go for the blonde, we block each other, and not a single one of us is going to get her. So then we go for her friends, but they will all give us the cold shoulder because nobody likes to be second choice. But what if no one goes for the blonde? We don't get in each other's way, and we don't insult the other girls. That's the only way we win. That's

the only way we all get laid… Adam Smith said, the best result comes from everyone in

the group doing what's best for himself, right? That's what he said, right? Incomplete!

Incomplete! Because the best result would come from everyone in the group doing what's

best for himself and the group.

If Pareto equilibrium is defined as the situation where no bargainer can increase his well-being with

an additional exchange without harming the well-being of another bargainer, who will therefore

refuse to make such an exchange, Nash equilibrium requires the contrary: a cooperation among a

sub-group of bargainers, who agree not to compete because they have rationally found that

decisions taken unilaterally, and without the consent of the other bargainers, could affect the well-

being of the deserter, who had irrationally chosen not to cooperate. In Nash's own words:

> A TWO-PERSON bargaining situation involves two individuals who have the opportunity
>
> to collaborate for mutual benefit in more than one way. In the simpler case […] no action
>
> taken by one of the individuals without the consent of the other can affect the well-being of
>
> the other one. (Nash 1950, 155)

Following McCloskey (1985, 437) in the way to illustrate the prisoner's dilemma that cartels face,

we can represent the scene from the film as follows. If Nash and Hansen (to simplify the example)

both decide to compete for the blonde, they hamper each other and both earn her rejection. If they

turn their attention to the other girls, they are also rejected, as the girls do not want to be 'second

choice'.

This is the state of competition shown in Figure 1, Part I by the intersection point 1, and in

Figure 1, Part II by the lower right-hand box. There, Nash and Hansen would have to settle for a

gratification equal to $B_{ii} + C_{ii}$, which represents neither of them getting any girls. For those readers

trained in the currents of institutional economics, this outcome will probably be counterintuitive,

because competition would allegedly produce the highest possible welfare surplus. But we have to remember that in the market-fiction of neoclassicals, the prices of goods equalise their marginal costs, reducing profits to zero, as shown in one of the most reputable microeconomics textbooks, e.g., Varian (1987, 403).
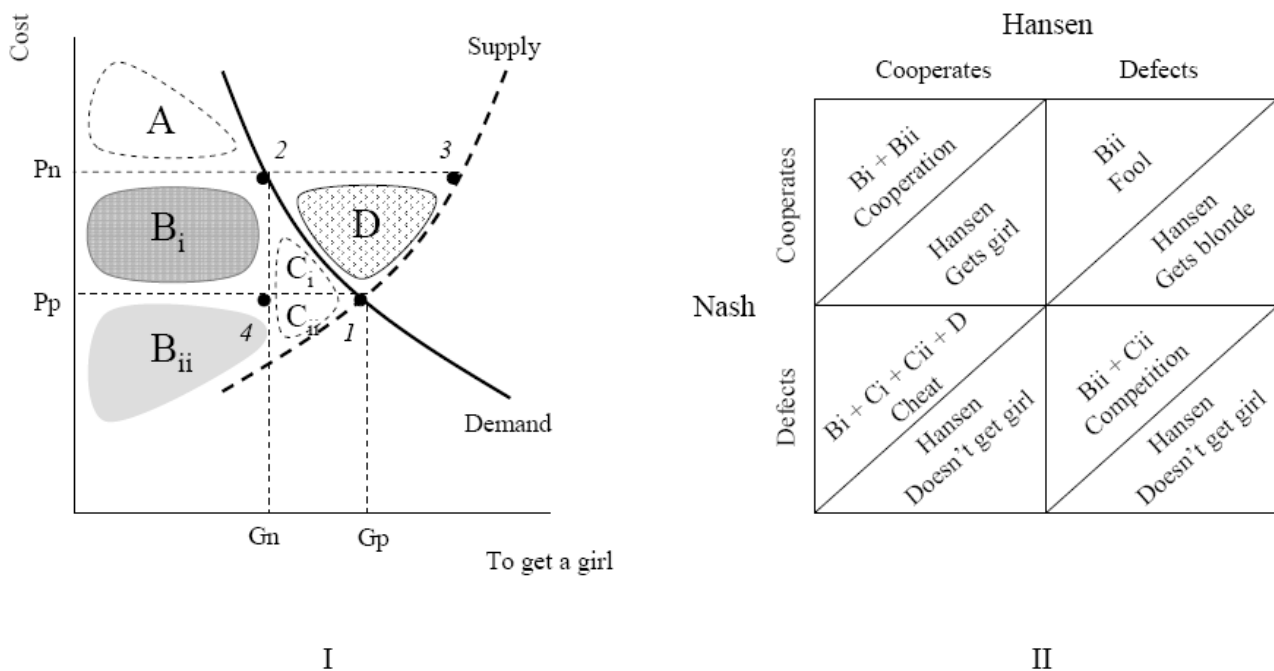

Figure 1: Part I depicts curves of supply and demand and the different points of equilibria depending on whether Pareto optimum or cartel formation. Part II depicts a matrix of payoffs from cooperation and defection. Nash's payoffs is the upper left of each box, Hansen's the lower right.

In fact, the ideal of the maximum expansion of producer and consumer surpluses only finds a feasible alternative in a model of market socialism, which drops the utilitarian grounds and the positivistic premises of the modern neoclassical economics. Here, using the separation between ownership and control which is opened up in advanced capitalism, the state on behalf of the community could administer a system of incentives that leads public enterprises to compete with each other to offer the best choices of consumption and investment for the citizens, pricing goods in the short term according to their marginal costs (See Agafonow 2008).

Then, the profits that are privately appropriated under capitalism would be returned to the citizens under this market socialism in the form of an expansion of the scale of production, consistent with the relative scarcity and the free preferences of consumers. In the real-world market, this expansion of production does not occur, because a part of the resources that are manifest in the form of surpluses are privately appropriated, producing a general increase in the relative scarcity and in the prices of goods.

If Nash and Hansen, despite feeling very attracted to the blonde, both agree to ignore her, they will not block each other, and moreover the other girls will not 'strike them out,' feeling offended and thinking that they are second choice. As Nash says in the film, 'That's the only way we all get laid.' This is the Nash equilibrium characterised by cooperation, shown in Figure 1, Part I by the intersection point 2, and in Figure 1, Part II by the upper left-hand box. There, Nash and Hansen get the best gratification equal to $B_i + B_{ii}$, which represents them both getting girls.

But the fact that it is the best situation for them does not mean that it is the best situation for the whole group, since in the case of our example, assuming that this is a conservative group, getting a girl means running the risk of: 1) a bad reputation, 2) venereal disease, or 3) an unwanted pregnancy. This is precisely the case of a local equilibrium, as rightly pointed out by Guerrien (1998, 149), and it is characteristic of monopolies and oligopolies, as recognised by Morgenstern (1972, 1171) when he stated that if the cooperation takes place, *tâtonnement* would not reach the Pareto equilibrium.

Rationality in the Model of Pérez Martí

Characteristic of Nash equilibrium is that altruism, which is manifest in the cooperation, is a product of the rationality of the bargainers. Undoubtedly, Nash and Hansen would succeed cooperating since they would both get a girl, in contrast with competition, where the marginal value

of the product of their efforts equalises its price, reducing their profits to zero, which is just like neither of them getting any girl, having blocked each other in pursuit of the blonde and offended the other girls. According to this theory, the stability over time of this cooperation lies in the capability of rational individuals to identify the alternatives that will bring more benefits, which always will coincide with the cooperation. In the words of Pérez Martí:

> […] if selfish people could change their preferences at will, when markets fail because of lack of insurance mechanisms and the existence of public goods, selfish people would consider it worthwhile to do so and would be more kind to each other. Also, once they changed their personalities, they would not return to being selfish, since from the perspective of the new situation, the outcomes of selfish relations would make them worse off. (Pérez Martí 2000a, 55. See also Pérez Martí and Marhuenda 1999, 02, 11-12)

As has happened in the economic literature developed from the work of John Nash, Pérez Martí aims to harmonise the general equilibrium with the local equilibria promoted by cooperation, away from the healthy scepticism of Morgenstern (1972, 1174 and 1948, 11) with respect to general equilibrium. Also, as Oskar Lange led neoclassical economics to its logical extremes in the 1930s, postulating a market socialism where the Walrasian auctioneer is embodied by a central planner which responds to prices freely determined in a consumer market, Pérez Martí leads cooperative game theory to its logical extremes, postulating a pure communism where the collectivity would gain from each person as much as her abilities can offer, and assign to each person as her needs require, constrained by the possibilities of production:

> In this case altruism is conceived, not as a complement to the market or the state, but as a pure, self-sufficient and self-sustaining mechanism. A theorem of this kind would be the formal basis of a pure communism, which advocates social relations in which there is no

market or state. In a society like this, people would voluntarily produce what they better know to produce, without expecting something in return ('From each according to his ability'). In addition, the output would marginally go to those most in need or who most value it ('to each according to his needs'). The requirement for the complete efficiency would be a certain degree of altruism in each individual, an analytic resort of the 'subjective conditions' of the Marxist literature or of the 'new man' of Christian theology. (Pérez Martí 2000b, 68)

Pérez Martí introduces an original difference in terms of the rationality of the agents. If, in the research programme of Nash, individuals are able to know–because they are rational–that cooperation and not competition will yield greater benefits, Pérez Martí interprets this as equivalent to the problem of the planner or Walrasian auctioneer, who in the Arrow-Debreu model has perfect information. In Lange's own model (1936 and 1937), this assumption is less demanding but certainly colossal, since it implies that this planner has to gather a complete inventory of the quantities and qualities of all factors of production to ensure, outside the jurisdiction of catallactic competition, the combination of factors which minimises the average cost across the whole economy.

Pérez Martí confronts this problem, accepting that individuals are indeed irrational, but able to love their fellow men. If this loving condition is limited to the neighbourhood of each individual, everyone would only have to worry about his or her own neighbours, and the problem of the information necessary to make efficient exchanges disappears:

One of the problems of altruism as a mechanism of allocation is the excessive rationality required from each individual, if everyone is going to consider in their decisions the rest of the society. It would have then the same problem of the central planner, but multiplied by the entire population. Faced with this problem, it can be assumed that each individual is

concerned only about her neighbours […] The result of the complete efficiency would have one condition: 'heroes' are needed in the society, people who love their neighbours more that themselves. The less rational individuals are, in general, the more appreciation of their neighbours (and somehow, faith) will be required to reach such a level of efficient allocation of resources. (Pérez Martí 2000b, 68-69)

Thus, Pérez Martí and Marhuenda (1998, 02-03) move away from the *egotistic cooperation* that characterises Nash equilibrium and qualify the status of rationality of the bargainers, postulating a *true altruism*. Here, the stability over time of this cooperation does not lie in the ability of rational individuals to identify alternatives which will bring more benefits to themselves, as with Nash equilibrium, but in true altruists' consideration of the well-being of their neighbours as a condition for increasing their own well-being.

Public Goods in the Model of Pérez Martí

Samuelson (1954 and 1955) was the first mathematical economist to offer a theory of collective consumption goods in the way it is nowadays presented in textbooks of microeconomics, moving away from the idea of public goods that the development of mixed economies and the welfare states had given rise to in practice–It is this latter idea that fortunately remains dominant today in both law and the collective psyche. Margolis (1955, 348) rightly stated that this new concept was based on the hope of mathematical economists, as pure theoreticians, to create a science free of value judgments. As Samuelson (1955, 352-353) himself recognised, mathematical economists can only judge the *best* results once supplied with a social welfare function that is politically or ethically determined. Thus, this new concept of public goods was limited to goods whose consumption by an

individual does not reduce the consumption of any others, with national defence as the paradigmatic case.

Because the science of economics is built mostly upon a utilitarian philosophy, utility has been the psychophysical unit of welfare privileged in this discipline. Therefore, if we want to provide an optimal amount of public goods, most economists would argue that it should also meet the optimum condition of Pareto equilibrium, i.e. that the marginal satisfaction provided by the public good to each person equalises the marginal subjective cost which each person had to incur to finance this good.

This condition is not difficult to meet for private goods, since their consumption by an individual implies the exclusion of all others, i.e. if I eat a mango, ride a bicycle, or wear a pair of shoes, no one else can join this consumption without reducing the amount of good which I intend to consume. The nature of these goods allows the market to ration their consumption from a revelation of our preferences adjusted by our disposable income. I approach a store, see the price of some shoes that I like, and if in my opinion it is worth paying that much for the satisfaction I think this good will provide, compared to the alternatives that other shops offer, a seller will charge me the stipulated price.

But how to do this with goods whose nature prevents such individualised rationing? How do we offer some amount of national defence, scenic beauty or clean air to every person, with the certainty that they will pay according to the subjective well-being that each one gets from the public good in question? If individuals are selfish, they will seek to hide and distort their true preferences to obtain a subjective satisfaction above the subjective marginal cost of paying for these goods, so that others bear the burden of overfinancing public goods. Since Pérez Martí is a mathematical economist, he accepts the definition of Samuelson, but takes a step forward into political economy to propose what is in his opinion a *better* alternative for the provision of public goods:

The situation could change with altruistic agents. The incentive to live at the expense of others disappears, at least in part, because people are concerned about the negative consequences of their actions on others. Additionally, it can be assumed that the altruistic mechanism offers adequate information about the people involved, since they at least know their 'neighbours', either by physical proximity, ease of communication or kinship. Due to their refusal to comply with the results of the market mechanism, people could spontaneously organise themselves to provide the public good, and thus improve welfare in this way. (Pérez Martí 2000b, 66. See also Pérez Martí and Marhuenda 1999, 02)

This alternative would solve the problem depicted in Figure 1, Part I by the intersection point 3, and in Figure 1, Part II by the lower left-hand box. There, Nash decides to cheat and leaves the agreement reached with Hansen not to compete for the blonde. If Hansen is not aware that Nash is deceiving him and courting the blonde behind his back, Nash gets a gratification equal to $B_i + C_i + C_{ii} + D$, i.e. he manages to win the heart of the blonde (Otherwise, Hansen wins the heart of the blonde and Nash ends up with a gratification equal to B_{ii}, which is depicted by the intersection point 4, and the upper right-hand box). Whereas if Hansen is aware of the breakdown of the agreement, they both return to the state of competition represented by the intersection point 1.

The Limitations of the Model of Pérez Martí

Pérez Martí conceives altruism in two ways. First, he views it as a complement to the market and the state, which finds many manifestations in current mixed economies. He has used this theoretical framework to analyse the case of the free software GNU/Linux (See Pérez Martí n.d. and Pérez Martí and Marhuenda 1999). Second, he conceives it as a pure, self-sufficient and self-sustaining

mechanism. Our concern is related to two problematic aspects of the pure altruistic model of Pérez Martí, which we call the problem of economic calculation and the problem of equality.

Economic Calculation in the Model of Pérez Martí

Enrico Barone and Vilfredo Pareto warned in the early twentieth century that a central planner would be unable to solve the system of equations of a large economy. Pareto (1909, 178) was more specific when he argued that in the simplified case of 100 individuals and 700 kinds of merchandise, a system of 70,699 equations would have to be solved, a task which exceeds the human mind's capacity of algebraic analysis. This approach was substantially refined by Robbins (1938) and Hayek (1940 and 1945) from an Austro-liberal point of view, and by Dickinson (1939) from a liberal-socialist point of view. They went more deeply into specific aspects of the colossal challenge of monitoring and responding appropriately to the changes of circumstances in every instance of time, place and industry, highlighting the virtues of the coordinative properties of public information carried by market prices[2].

Pérez Martí (2000a, 54, 57) is fully aware of this problem and, as we explained above, he argues that the problem of the necessary information to make efficient exchanges disappears if individuals are able to love each other, because each one only has to worry about his or her own neighbours. So Pérez Martí cleverly replaces the central planner, with his inability to calculate, with *atomic local planners*, embodied by ordinary individuals who empathise with the small number of individuals in their own setting in order to obtain accurate information about their preferences:

> The model of preferences proposed could be interpreted as an analysis of relations among 'atomic local planners' who, to formulate their wishes, take into account not only their own preferences and resources but also those of others. They are atomic in the sense that their

wishes do not necessarily turn into reality because of their low power. They are local because they care about their neighbours, and not necessarily the whole society as in the case of the central planner. (2000b, 67. See also Pérez Martí and Marhuenda 1999, 03, 05)

However, the efficient allocation of resources requires an additional condition which Pérez Martí has neglected. If these atomic local planners produced and exchanged based on feelings of *love* rather than *commercial interest*, it would be impossible for the product to be 'marginally allocated to those most in need or who most value it', as Pérez Martí (2000b, 68) hopes will happen. The degree of precision of a *capitalist or socialist market*, reaching marginal levels of satisfaction, is only possible if the exchange of non-primary goods takes place in response to the demand of the highest bidders, and not to the love of the supplier.

Let's suppose that at a price fixed at the time t_0, the liquidation of inventories increases so much that queues or waiting lists are created for purchasing a good. This indicates that the marginal sacrifice for the transfer of a part of the income of consumers who are willing to stand in a queue, is lower than the marginal utility which the consumption of this good provides. The allocative virtue of the market lies in the fact that those persons who choose to queue up or join a waiting list will be the most in need or who most value the good in question, because they think the marginal sacrifice of income will be offset by the utility that the good will provide to them.

On the contrary, if at a higher price fixed at the time t_1, the liquidation of inventories decreases together with queues or waiting lists, this indicates that the marginal sacrifice for the transfer of a part of the income of consumers who leave the queues, is greater than the marginal utility which the consumption of this good provides. In this case, the allocative virtue of the market lies in the fact that, when increasing the sale price of this good, those persons who decide to leave the queue or the waiting list will be those who are less in need or who less value the good, because they think the marginal sacrifice of income would not be offset by the utility provided to them by the consumption of the good.

But if the exchange of non-primary goods takes place as a response to the love of the supplier, she will prefer to deliver the good to a consumer who is not willing to stand in a queue or put her name down in a waiting list at the time t_0, or she will prefer to deliver the good to a consumer who left the queue at the time t_1. The requirements for delivering this good would no longer be the revealed preference in the act of standing in a queue or paying a higher price, but the bonds of neighbourhood that feed the relationship between supplier and demander. That is, suppliers would be willing to waive a portion of the profit that the sale of their product would normally bring, while demanders could not see their most urgent preferences satisfied unless they traded with a member of their small community of neighbours.

The consequences of the pure communism of Pérez Martí would be devastating to economic growth and the expansion of the production possibility frontier. Altruism is essential as a complement to the market and the state, but when it is conceived as a 'pure, self-sufficient and self-sustaining mechanism' as in Pérez Martí (2000b, 68), it is impossible for non-primary goods to be marginally allocated to those most in need or who most value them.

Equality in the Model of Pérez Martí

On the other hand, the satisfaction of the principle of equality in the pure communism of Pérez Martí (2000b, 68) depends on the closure of the network formed by individuals to connect all members of the society, resulting in a domino effect. Equality promoted in this way depends on the proportionality of resources controlled by what we might call *local monopolies*, consisting of groups of neighbours who, thanks to love, profess mutual loyalty to each other.

This network can be represented as Figure 2, where we have three groups of neighbours identified by the letters A, B and C. Each circle represents an individual, and the size of the circles indicates the amount of resources controlled by individuals, while letters indicate their affiliation

with each group. The relations among individuals within each group, and the relations among groups are represented by lines connecting the circles to each other.
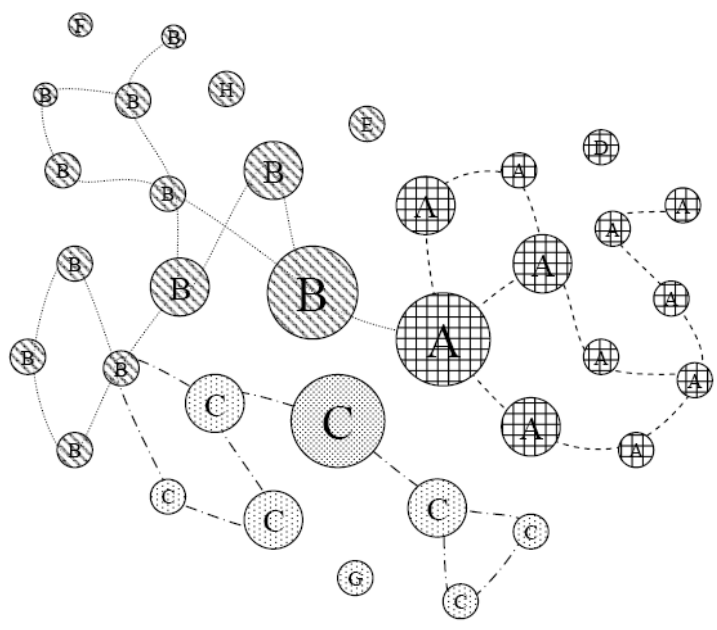

Figure 2: Social network which represents three groups of neighbours identified by the letters A, B and C.

These relations are contingent, depending on the capacity of each individual to empathise with others, regardless of whether they are all altruistic. Moreover, relations among groups will depend on the geographical and cultural barriers that separate them. The contingency of these relations allows us to represent some isolated individuals at the margins of the network. Therefore, in our view there is no reason to think that equality would be reached. Naturally enough, each group would control different resources to varying degrees, and proportionality would only be guaranteed within subgroups, where relations are more tightly-knit and better structured.

After all, Nash equilibrium is simply a local equilibrium characteristic of monopolies and oligopolies, and the hope of harmonising general equilibrium with local equilibria brought about by cooperation is impossible, as keenly anticipated by Morgenstern (1972, 1171). The proportionality of resources that leads to equality would not occur in the pure communism of Pérez Martí, because

the supplier is willing to favour exchanges with her neighbours at the expense of neglecting the preferences revealed in the act of standing in a queue or paying a higher price, regardless of who shows these preferences.

In order to extend proportionality to the rest of society by closing the network, the requirement imposed by Pérez Martí would have to be violated to overcome the central planner's problem of imperfect and incomplete information. That is, individuals would no longer be conceived as atomic local planners, since they would have 'to consider the rest of society in their decisions.' But then, this pure communism faces 'the same problem of the central planner, only multiplied by the entire population', as Pérez Martí indeed fears (2000b, 68).

Conclusions

First, the pure communism of Pérez Martí can only perform very defective economic calculations, being unable to achieve marginal levels of satisfaction. This deficiency occurs when he replaces commercial interest with love as the main motivation for conducting trade; the prototypical supplier in this model would give up a portion of the benefits normally brought by the sale of her product, in return for favouring exchanges with members of her neighbourhood, regardless of their willingness to pay a higher price. This would in turn prevent the most urgent preferences of the demanders from being met if they are not part of the community of neighbours, and it would therefore be impossible to marginally allocate goods to those most in need or who most value them.

This inefficient allocation of non-primary goods would be avoided if the supplier kept to the signals that the market provides to carry out a proper pricing. If this were the case, the supplier would trade in response to the preferences revealed in the act of standing in a queue or paying a higher price, instead of the bonds of neighbourhood that nurture the relationship between supplier and demander.

Second, altruism as a pure mechanism in the model of Pérez Martí could not achieve equality without resorting to a central planner, who suffers from the problem of imperfect and incomplete information (if the appropriate computer technology is not used). The distribution of resources among individuals would be conditioned by their capacity to empathise with others, as well as by geographical and cultural barriers.

Equality only would be achieved within subgroups where relations are more tightly-knit and better structured, because wherever bonds of neighbourhood are weaker, suppliers would sacrifice profitable exchanges in order to favour their own neighbours. To achieve equality in the whole society, the atomic local planners would have to take the rest of the individuals into account in their decisions, beyond their community of neighbours, but in doing so each one would become a central planner who lacks the information to allocate resources efficiently.

Notes

[1] *Entrepreneurial uncertainty* has been one of the cornerstones of Austrian economics, whereas neoclassical economics has been developed upon the concept of *actuarial risk*. For a deeper account of the differences between the concepts, see Mises (1949, Ch. VI.) and Rothbard (1962, 552-555).

[2] However, the thesis of the impossibility of socialist economic calculation itself was originally expounded independently by Brutzkus (1920), Mises (1920) and Weber (1922). They denied that a *natural economy* could carry out any economic activity without the help of an accounting unit, which in market economies is provided by money. Countless heterogeneous resources would be beyond the capacity of a human mind to determine the most profitable productive combinations in a large natural economy. Similar objections were raised to a *labour time accounting economy*. Nevertheless, as Cockshott and Cottrell (1993) have shown, this impossibility can be overcome in a labour time accounting economy by means of modern supercomputers. Although their socialist model continues to suffer from the impossibility of dynamic efficiency (See Agafonow 2008).

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