

## Microeconomics

## A Type of a Rational Production Function

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**Abstract:** The article deals with a particular rational production function of two factors with constant scale return. It were determined from the compatibility conditions with the axioms of production function all the cases for a such function.

**Keywords:** production function; marginal productivity; average productivity

**JEL Classification:** D00

## 1 Introduction

In what follows we shall presume there is a certain number of resources, supposedly indivisible needed for the proper functioning of the production process.

We define on  $\mathbf{R}^2$  – the **production space** for two resources: K – capital and L - labor as  $SP = \{(K,L) \mid K,L \geq 0\}$  where  $x \in SP$ ,  $x = (K,L)$  is an **ordered set of resources** and we restrict the production area to a subset  $D_p \subset SP$  called **domain of production**.

It is called **production function** an application  $Q: D_p \rightarrow \mathbf{R}_+$ ,  $(K,L) \rightarrow Q(K,L) \in \mathbf{R}_+$   $\forall (K,L) \in D_p$ .

For an efficient and complex mathematical analysis of a production function, we impose a number of axioms both its definition and its scope.

1. The domain of production is convex;
2.  $Q(0,0) = 0$  (if it is defined on  $(0,0)$ );

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3. The production function is of class  $C^2$  on  $D_p$  that is it admits partial derivatives of order 2 and they are continuous;
4. The production function is monotonically increasing in each variable;
5. The production function is quasiconcave that is:  $Q(\lambda x + (1-\lambda)y) \geq \min(Q(x), Q(y))$   $\forall \lambda \in [0,1] \forall x, y \in R_p$ .

In a preceding paper ([5]), one of the authors define a rational production function with constant return to scale as:

$$Q: D_p \subset \mathbf{R}^2 \rightarrow \mathbf{R}_+, (K, L) \rightarrow Q(K, L) \in \mathbf{R}_+ \quad \forall (K, L) \in D_p$$

$$Q(K, L) = \frac{P(K, L)}{R(K, L)} \quad \forall K, L > 0$$

where P and R are homogenous polynomials in K and L,  $\deg P = n$ ,  $\deg R = n-1$ ,  $n \geq 2$ .

The compatibility conditions for that function to be of production were (from theorem 2):

$$\begin{cases} w_L'(\chi) > 0 \\ w_K'(\chi) < 0 \\ w_L''(\chi) < 0 \end{cases}$$

where  $\chi = \frac{K}{L}$  and  $w_L$ ,  $w_K$  are the average productivity relative to L and K respectively.

## 2 A Type of a Rational Production Function

Let now:

$$Q(K, L) = \frac{aK^2 + bKL + cL^2}{dK + eL}, \quad a, d \neq 0$$

We shall suppose that  $d=1$  with loss of generality, after a simplification of the ratio with d.

$$\text{Therefore, let: } Q(K, L) = \frac{aK^2 + bKL + cL^2}{K + eL} = L \frac{a\chi^2 + b\chi + c}{\chi + e}.$$

The average productivity relative to K and L are:

$$w_K(\chi) = \frac{Q(K,L)}{K} = \frac{a\chi^2 + b\chi + c}{\chi(\chi + e)}, \quad w_L(\chi) = \frac{Q(K,L)}{L} = \frac{a\chi^2 + b\chi + c}{\chi + e}$$

The first and the second derivatives are:

$$w_K'(\chi) = \frac{(ae - b)\chi^2 - 2c\chi - ce}{\chi^2(\chi + e)^2}$$

$$w_L'(\chi) = \frac{a\chi^2 + 2ae\chi + be - c}{(\chi + e)^2}$$

$$w_L''(\chi) = 2 \frac{ae^2 - be + c}{(\chi + e)^3}$$

The compatibility conditions become:

$$\begin{cases} \frac{a\chi^2 + 2ae\chi + be - c}{(\chi + e)^2} > 0 \\ \frac{(ae - b)\chi^2 - 2c\chi - ce}{\chi^2(\chi + e)^2} < 0 \\ 2 \frac{ae^2 - be + c}{(\chi + e)^3} < 0 \end{cases}$$

or after simplifying:

$$\begin{cases} a\chi^2 + 2ae\chi + be - c > 0 \\ (ae - b)\chi^2 - 2c\chi - ce < 0 \\ (ae^2 - be + c)(\chi + e) < 0 \end{cases}$$

Let now the transformation:  $\phi = \chi + e$ , therefore  $\phi > e$  and also:  $g = ae^2 - be + c$ .

The conditions become:

$$\begin{cases} a\phi^2 - g > 0 \\ (ae - b)\phi^2 - 2g\phi + ge < 0 \\ g\phi < 0 \end{cases}$$

Case 1:  $g > 0$

From the third inequality, we have that  $\phi < 0$ . From the first:  $a\phi^2 > g > 0$  therefore  $a > 0$ . Also:  $\phi \in \left(-\infty, -\sqrt{\frac{g}{a}}\right) \cup \left(\sqrt{\frac{g}{a}}, \infty\right)$  and because  $\phi < 0$  we get:  $\phi \in \left(-\infty, -\sqrt{\frac{g}{a}}\right)$  or  $0 < \chi < -e - \sqrt{\frac{g}{a}}$ .

But  $0 < -e - \sqrt{\frac{g}{a}}$  is equivalent with:  $\sqrt{\frac{g}{a}} < -e$  therefore  $e < 0$  and  $be > c$ .

Analysing the inequality:  $f(\phi) = (ae - b)\phi^2 - 2g\phi + ge < 0$  we have first  $\Delta = cg$ .

If  $c < 0$  then  $\Delta < 0$  therefore  $\text{sgn}(f(\phi)) = \text{sgn}(ae - b) = \text{sgn}\left(\frac{g - c}{e}\right) = -1$ . In consequence:

$$(ae - b)\phi^2 - 2g\phi + ge < 0 \quad \forall \phi \in \mathbf{R}.$$

If  $c > 0$  then  $\Delta > 0$ . The roots of the equation  $(ae - b)\phi^2 - 2g\phi + ge = 0$  are:

$$\phi_{1,2} = \frac{g \pm \sqrt{cg}}{ae - b} \quad \text{therefore if } ae > b \text{ then: } \phi \in \left(\frac{g - \sqrt{cg}}{ae - b}, \frac{g + \sqrt{cg}}{ae - b}\right) \text{ which is possible}$$

because  $\phi < 0$  if  $\frac{g - \sqrt{cg}}{ae - b} < 0$  that is:  $e(ae - b) < 0$  which is true. In this case:

$$\phi \in \left(\frac{g - \sqrt{cg}}{ae - b}, 0\right) \text{ or } \chi \in \left(\frac{c - \sqrt{cg}}{ae - b}, -e\right).$$

If now  $ae < b$  then:  $\phi \in \left(-\infty, \frac{g + \sqrt{cg}}{ae - b}\right) \cup \left(\frac{g - \sqrt{cg}}{ae - b}, \infty\right)$ . Because, in this case:

$$g > \sqrt{cg} \quad \text{we finally find that: } \phi \in \left(-\infty, \frac{g + \sqrt{cg}}{ae - b}\right) \cup \left(\frac{g - \sqrt{cg}}{ae - b}, 0\right) \quad \text{or}$$

$$\chi \in \left(\frac{c - \sqrt{cg}}{ae - b}, -e\right).$$

If  $ae = b$  then:  $\phi > \frac{e}{2}$  which is true because  $e < 0$ . In this case:  $0 < \chi < -e - \sqrt{\frac{g}{a}}$ .

Case 2:  $g < 0$

From the third inequality, we have that  $\phi > 0$ . From the first:  $a\phi^2 > g$ .

If now  $a > 0$  the inequality holds for all  $\phi \in \mathbf{R}$ . From the relation:  $(ae - b)\phi^2 - 2g\phi + ge < 0$  we have  $\Delta = cg$ .

If  $c > 0$  we obtain  $\Delta < 0$  therefore if  $ae < b$  then the inequality holds for all  $\phi \in \mathbf{R}$ . If  $ae > b$  then:  $\phi \in \emptyset$ .

If  $ae = b$  then:  $g = c > 0$  – contradiction.

If now  $c < 0$  we have:  $\Delta > 0$  therefore, if  $ae > b$ :  $\phi \in \left( \frac{g - \sqrt{cg}}{ae - b}, \frac{g + \sqrt{cg}}{ae - b} \right)$  or  $\chi \in \left( \frac{c - \sqrt{cg}}{ae - b}, \frac{c + \sqrt{cg}}{ae - b} \right)$

If  $e \geq 0$  then  $\chi < 0$  therefore  $\chi \in \emptyset$ . If  $e < 0$  then  $\chi \in \left( 0, \frac{c + \sqrt{cg}}{ae - b} \right)$ .

If now  $ae < b$ :  $\phi \in \left( -\infty, \frac{g + \sqrt{cg}}{ae - b} \right) \cup \left( \frac{g - \sqrt{cg}}{ae - b}, 0 \right)$  that is:  $\chi \in \left( -\infty, \frac{c + \sqrt{cg}}{ae - b} \right) \cup \left( \frac{c - \sqrt{cg}}{ae - b}, -e \right)$ .

If  $e \geq 0$  then  $\chi < 0$  therefore  $\chi \in \emptyset$ . If  $e < 0$  then:  $\chi \in \left( 0, \frac{c + \sqrt{cg}}{ae - b} \right) \cup \left( \frac{c - \sqrt{cg}}{ae - b}, -e \right)$ .

If  $c = 0$  then  $\Delta = 0$  and we must have  $ae < b$  and  $\phi \neq \frac{g}{ae - b}$  or  $\chi \neq 0$ .

Let suppose now that  $a < 0$ . In this case, from the first:  $a\phi^2 > g$  therefore  $\phi \in \left(-\infty, -\sqrt{\frac{g}{a}}\right) \cup \left(\sqrt{\frac{g}{a}}, \infty\right)$  and because  $\phi > 0$  we get:  $\phi \in \left(\sqrt{\frac{g}{a}}, \infty\right)$  or  $\chi \in \left(-e + \sqrt{\frac{g}{a}}, \infty\right)$ .

For the inequality  $(ae - b)\phi^2 - 2g\phi + ge < 0$  we have  $\Delta = cg$ .

If  $c > 0$  we obtain  $\Delta < 0$  therefore if  $ae < b$  then the inequality holds for all  $\phi \in \mathbf{R}$ . If  $ae > b$  then:  $\phi \in \emptyset$ .

If  $ae = b$  then:  $g = c > 0$  – contradiction.

If now  $c < 0$  we have:  $\Delta > 0$  therefore, if  $ae > b$ :  $\phi \in \left(\frac{g - \sqrt{cg}}{ae - b}, \frac{g + \sqrt{cg}}{ae - b}\right)$  or  $\chi \in \left(\frac{c - \sqrt{cg}}{ae - b}, \frac{c + \sqrt{cg}}{ae - b}\right)$

If  $e \geq 0$  then  $\chi < 0$  therefore  $\chi \in \emptyset$ . If  $e < 0$  then  $\chi \in \left(0, \frac{c + \sqrt{cg}}{ae - b}\right)$ .

If now  $ae < b$ :  $\phi \in \left(-\infty, \frac{g + \sqrt{cg}}{ae - b}\right) \cup \left(\frac{g - \sqrt{cg}}{ae - b}, 0\right)$  that is:  $\chi \in \left(-\infty, \frac{c + \sqrt{cg}}{ae - b}\right) \cup \left(\frac{c - \sqrt{cg}}{ae - b}, -e\right)$ .

If  $e \geq 0$  then  $\chi < 0$  therefore  $\chi \in \emptyset$ . If  $e < 0$  then:  $\chi \in \left(0, \frac{c + \sqrt{cg}}{ae - b}\right) \cup \left(\frac{c - \sqrt{cg}}{ae - b}, -e\right)$ .

If  $c = 0$  then  $\Delta = 0$  and we must have  $ae < b$  and  $\phi \neq \frac{g}{ae - b}$  or  $\chi \neq 0$ .

Finally we have the following cases for all combinations of parameters:

1.  $ae^2 - be + c > 0, a > 0, e < 0, c < 0, be > c, 0 < \chi < -e - \sqrt{\frac{g}{a}}$

2.  $ae^2 - be + c > 0, a > 0, e < 0, c > 0, be > c, ae > b, \frac{c - \sqrt{cg}}{ae - b} < \chi < -e$
3.  $ae^2 - be + c > 0, a > 0, e < 0, c > 0, be > c, ae < b, \frac{c - \sqrt{cg}}{ae - b} < \chi < -e$
4.  $ae^2 - be + c > 0, a > 0, e < 0, c > 0, be > c, ae = b, 0 < \chi < -e - \sqrt{\frac{g}{a}}$
5.  $ae^2 - be + c < 0, a > 0, c > 0, ae < b, \chi > 0$
6.  $ae^2 - be + c < 0, a > 0, c < 0, e < 0, ae > b, 0 < \chi < \frac{c + \sqrt{cg}}{ae - b}$
7.  $ae^2 - be + c < 0, a > 0, c < 0, e < 0, ae < b, \chi \in \left( 0, \frac{c + \sqrt{cg}}{ae - b} \right) \cup \left( \frac{c - \sqrt{cg}}{ae - b}, -e \right)$
8.  $ae^2 - be < 0, a > 0, c = 0, e > 0, ae < b, \chi > 0$
9.  $ae^2 - be + c < 0, a < 0, c > 0, ae < b, be < c, \chi > -e + \sqrt{\frac{g}{a}}$
10.  $ae^2 - be + c < 0, a < 0, c > 0, ae < b, be \geq c, \chi > 0$
11.  $ae^2 - be + c < 0, a < 0, c < 0, e < 0, ae > b, 0 < \chi < \frac{c + \sqrt{cg}}{ae - b}$
12.  $ae^2 - be + c < 0, a < 0, c < 0, e < 0, ae < b, \chi \in \left( 0, \frac{c + \sqrt{cg}}{ae - b} \right) \cup \left( \frac{c - \sqrt{cg}}{ae - b}, -e \right)$
13.  $ae^2 - be < 0, a < 0, c = 0, e < 0, ae < b, \chi > 0$

### 3 The Main Indicators of the Production Function

Considering now a production function:  $Q(K, L) = \frac{aK^2 + bKL + cL^2}{K + eL}$  we have:

- the marginal productivity relative to K:  $\eta_K = \frac{\partial Q}{\partial K} = \frac{aK^2 + 2aeKL + (be - c)L^2}{(K + eL)^2}$
- the marginal productivity relative to L:  $\eta_L = \frac{\partial Q}{\partial L} = \frac{(b - ae)K^2 + 2cKL + ceL^2}{(K + eL)^2}$
- the average productivity relative to K:  $w_K = \frac{Q}{K} = \frac{aK^2 + bKL + cL^2}{K(K + eL)}$

- the average productivity relative to L:  $w_L = \frac{Q}{L} = \frac{aK^2 + bKL + cL^2}{L(K + eL)}$
- the partial marginal substitution rate of factors K and L:  $RMS(K,L) = \frac{\eta_K}{\eta_L} = \frac{aK^2 + 2aeKL + (be - c)L^2}{(b - ae)K^2 + 2cKL + ceL^2}$
- the elasticity of output with respect to K:  

$$\varepsilon_K = \frac{\eta_K}{w_K} = \frac{K(aK^2 + 2aeKL + (be - c)L^2)}{(K + eL)(aK^2 + bKL + cL^2)}$$
- the elasticity of output with respect to L:  

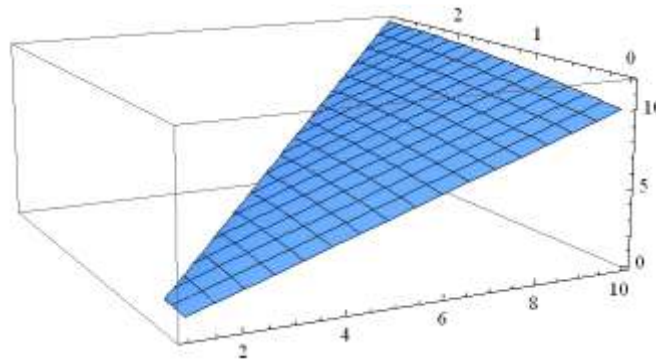
$$\varepsilon_L = \frac{\eta_L}{w_L} = \frac{K((b - ae)K^2 + 2cKL + ceL^2)}{(K + eL)(aK^2 + bKL + cL^2)}$$
- the elasticity of the marginal rate of technical substitution  

$$\sigma = \frac{\frac{\partial RMS(K,L)}{\partial \chi}}{\frac{RMS(K,L)}{\chi}} = \frac{2(ae^2 - be + c)\chi(a\chi^2 + b\chi + c)}{(a\chi^2 + 2ae\chi + be - c)((b - ae)\chi^2 + 2c\chi + ce)}$$

**4 Example for the Case 1**

$ae^2 - be + c > 0, a > 0, e < 0, c < 0, be > c, 0 < \chi < -e - \sqrt{\frac{g}{a}}$

The graph for a=2, b=0, c=-1, e=-1 is:



**Figure 1**



## **5 Conclusions**

Rational production functions may occur in the process of determining specific method of least squares (leading to relatively simple systems solved) based on concrete data. Conditions compatibility axioms production function were analyzed and obtaining 13 cases for a ratio of polinomyals of degree 2 and 1 respectively.

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## Pro-Social Behaviours: Between Altruism and Self-interest

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**Abstract:** A widely discussed attribute in the economic literature is the prevalence of self-interest. In this article we seek to analyze the concept of altruism from the economic perspective and from the general perspective of human action. We endeavour to clarify the relative confusion around it and to analyze its relation with charity and volunteering. Then, we go further and analyse what is causing such actions. Based on this, we attempt to find out whether the pro-social actions can be considered an effect of self-interest, or, conversely, of altruism.

**Keywords:** charitable activities; volunteering; altruism; mainstream economics

**JEL Classification:** A13; D01; D64

### 1. Introduction

Many aspects regarding the individual are still shrouded in mystery. Although science has made remarkable progress, many human characteristics that appear simple are still hard to understand and explain. Varied opinions occur not only within each science, but pass their particular borders. It frequently happens that different academic disciplines seek to penetrate the meanings of the same concept, even if they focus on various aspects of it. In this article we primarily intend to analyze the concept of altruism from the economic perspective and from the general perspective of human action. This led us to seek how two related concepts are explained, namely charitable giving and volunteering actions.

Starting with Adam Smith, there is an intense debate around the self interest concept as a main characteristic of the “economic man”. Widely discussed in the literature, the prevalence of self-interest is generally associated with selfishness, but not every time. However, most of the specialists believe that *homo oeconomicus*, by following in every circumstance just its own interests, leaves no room for altruism or empathy, as a manifestation of human characteristics in

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economic life. This is why economics in general (especially related to the mainstreams' discourse) tend to exclude and even deny the very existence of altruism from its theoretical backgrounds and, thus, individuals are indirectly considered amoral. However, there are two main opposite perspectives for the explanation of economic actions: either economic theories are built on the assumption of perfect rationality and the prevalence of self-interest (in the vision of the neoclassical economists), or the recognition that among the factors that guide the man in its actions, emotions are included, and therefore altruism (for example, some scholars from the field of behavioural economics).

## **2. The meaning of altruism, charitable giving and volunteerism**

**Altruism**, in general, is defined as a frame of mind that requires consideration and promotion of the interests of other persons as your own. It is frequently identified with the "Golden Rule: do unto others as you would have them do unto you" – an elementary moral rule which is present in many religious and ethical codes (Scott and Seglow, 2007, p. 2). Thus, it is an unambiguous and easy to understand the concept, a simple moral idea (or attitude). Altruism is, however, (directly or indirectly) involved in the analysis of many other related concepts. The main contemporary debate is associated with the prevalence (and even the existence) of pure altruism (in contradiction to its opposite - selfishness).

Nowadays, especially in practice, altruism is increasingly associated with two related concepts: volunteering and charity. Currently, all around the globe, there is a growing trend of involving citizens in volunteering and charity. While in some countries there is a strong tradition in such actions (e.g. the United States), in others the civil society is performing a public education campaign to promote them (e.g. the European Union has declared 2011 as the "European Year of Volunteering"). In these circumstances, of the institutionalization of these actions<sup>1</sup>, the involved social and economic effects (inclusively as a percentage of the gross domestic product) are deepening.

When considering the area of altruism, we have to determine the exact ratio between two fundamental terms which are seen as a primary manifestation of it: charity and volunteering. Are these concepts synonyms or rather their scope of coverage overlaps, but not completely? To see this we must first define the terms.

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<sup>1</sup> Currently, the infrastructure of voluntary and charitable activities includes specialized organisms (like centers, councils, forums, associations, etc.) and government institutions (e.g. some ministries, that in addition to their basic functions are involved in managing such actions); the infrastructure differs from country to country (for example, see GHK, 2010, pp. 95-98, for the representative bodies of the European Union members).

Firstly, there is no universally accepted definition of **volunteerism**. However, generally speaking a voluntary action can be defined as an activity performed by individuals (and by extension, by associations or legal entities) on their own initiative, in order to help other peers in need, and without any involvement of monetary remuneration and employment frames<sup>1</sup>. Such actions are forms of citizen involvement in the community life by offering time, labour and skills (rather than material goods and money), that allows both individuals and groups to express their concerns and humanitarian, social and environmental needs (Inter-Parliamentary Union et al., 2004, pp. 18-19). In the present context, volunteering has an important role in fighting against poverty, social exclusion and discrimination, and it also supports sustainable development and management of natural disasters. Volunteering can be formal or informal.

Secondly, in the modern age, **charity** is often associated with the donation of money, goods or facilities (see Low et al., 2007). Moreover, Becker (1978, p. 273) associated the charitable actions with philanthropic ones and defined them as benevolent contributions of time or goods made by somebody in behalf of unrelated individuals or organizations. Here, it is important to analyse the relation between charity and volunteerism. In this sense, we can notice that: “*Charity by definition must be a voluntary action* (– our own italics). To force it is to prevent the character trait (voluntary good will) that prompts it. The results of forced charity will never be what people expect” (The Incredible Bread Machine, 1974, p. 137). Thus, a charity action must necessarily be voluntary. The inverse relationship is not necessarily true, because *not every voluntary action is one of charity*. However, nowadays, people see in charity (e.g. donations) a form of volunteering. In modern societies it has become almost fashionable to get involved in charitable actions<sup>2</sup>, quite often in order to prove to others that you care about the fate of the afflicted and to gain social rewards.

Although the term charity has become frequently encountered in day-to-day speech, it departed from its true and original meaning. In its *basic sense*, charity means kindness for the poor, being synonymous with Mercy (Christian) and compassion (from Old French *carité*). Moreover, it derives from the Latin “*caritatem*”, which means esteem, affection, and even love, especially in the meaning of the Christian tradition of love for the others (Online Etymology Dictionary). However, maybe the language in which the deep and original meaning

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<sup>1</sup> It also specifies that the definitions of volunteering should be (and mostly are) adapted to the social and cultural values of the national frameworks, which partly explain the multitude of definitions that exist in the literature.

<sup>2</sup> We should take into account that the whole concept of charity is questionable. The difficulties in defining it are in a great measure a consequence of the obsolescence of its meaning over time, as we shall see further.

of charity is best caught is German: *Nächstenliebe*. Translated literally *nächstenliebe* means, in fact, love for your fellow man (*nächsten* = nearest or fellow man and *liebe* = love).

For contemporary people, however, charity is increasingly confined to the disposition of money for a so called noble cause. This sense, to which the idea of charity was reduced today, differs extremely from the original one. In the religious sphere, charity plays a central role. The Bible points out that the mere gesture of funding good causes is not enough. Thus, on 1 Corinthians 13:3 the following are specified: “And though I bestow all my goods to feed [the poor], and though I give my body to be burned, and have not charity, it profiteth me nothing.” (The King James Holy Bible, [1611] 2004, p. 659). In this vision, it is clear that even donating the entire wealth is irrelevant unless it is accompanied by love for our fellow man, therefore by charity. We can say without any doubt that the simple donation of funds or goods is not charity in the Biblical Christian sense. Charity should be accompanied by love for others. This love, which is the engine of the disinterested pro-social action of charity, can be considerate acceptable in terms of reason in general. However, it contradicts with the mainstream definition of the rationality as a main characteristic of the economic man, who is always looking to maximize his economic benefits. Charity in the biblical and original sense can be distinguished from other forms of love. Thus, *charity explicitly refers to the disinterested love of man for other people*.

Thus, although at a first look charity may appear easy to define, the difficulties that arise are a main consequence of its obsolescence of meaning over time. This is reflected inclusively in the way in which the concept is represented today. We considered necessary to clarify these small but important differences in the evolution of the meaning of these two related terms – volunteerism and charity – as it may sometimes create confusion, especially given that their current sense has been removed from the original one. However, we conclude this part with the claim that charity is probably most often associated to altruism, as a pro-social behaviour determined by it, although in this respect there is a lot of controversy.

### 3. The Main Theories of Pro-Social Behaviours

How does one explain the charitable behaviour? What determines the individuals to help their fellows? From the perspective of rational choice theory, this behaviour (which, at a first glance, is opposed to the fundamental principle of self-interest proposed by the traditional economic theory) was explained based on the benefits that people derive from charity action, like the “warm glow” effect<sup>1</sup>. Thus, instead

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<sup>1</sup> Concept developed particularly by James Andreoni to explain the so-called “impure altruism”.

of being motivated by generosity, by a selfless act or, better said, by an action that is based on a disinterested concern in (increasing) the welfare of others, the individual records some kind of utility in the act of donation, which provides a selfish motivation (Andreoni, 1990). Also in this direction Becker (1981) stated that altruism prevails within the family (which means that the utility function of a member depends directly and positively to the welfare of others) and that self-interest dominates the market transactions. On the different side, from the psychological pathway, this type of behaviour reflects the (characteristics of the) individual personality and, eventually, the orientation of organizations (especially non-profit) which activate in this area. It is seen through the pro-social, moral and altruistic characteristics; the motivations in this case are coming mostly from empathy and perceived efficacy in improving others' poor situation (Wang and Graddy, 2008, p. 26). Therefore, as in the case of rationality, the main debate between scholars is concerned with the existence (or not) of the "pure" altruism.

Here, we can add that in the last years, numerous studies have been conducted in order to outline whether and how individuals are affected by the economic situation (wealth or utility, for example) of others, and what reasons could explain the pro-social behaviour. In the literature we can broadly identify three main groups of models (Meier, 2007, pp. 53-61). A first group of theories are those based on the results of pro-social preferences, which imply that a person's utility depends directly on that of others (this category includes, for example, the theory of pure altruism, that of impure altruism and the aversion to inequality). Secondly, we can distinguish the theories of reciprocity (or conditional cooperation), which are based on the idea that individuals take into account and are lead in their actions by the intentions of other people. Thus, individuals respond in a pro-social (or friendly) way when are treated with kindness and amiability, and vice-versa. A final group of approaches emphasize on the importance of self-identity, in which the cultural norms and, in particular, the social ones play an important role. Here, for example, individuals find references on what means a "good" action.

However, most of the theories of altruism remain under the incidence of the rational theory. Khalil (2004), for example, distinguish in the literature three rationalistic or interactional theories of altruism and three normative or self-actional theories of altruism. The first category encloses an egoistic approach (altruistic preferences occur when individuals expect a reciprocal benefit), an egocentric approach (associated with the vision in which the potential utility function of the receiver is embedded in the one of the altruistic person) and an altercentric one (altruist actions are determined by a "pro-social" personality trait throughout artificial selection, which can be called a "moral gene"; in this case, the donor does not expect reciprocal benefits). The second category encloses the Kantian theory of ethics (the altruistic actions are associated to the moral dictums

which cannot be separated from the human condition), the socialization or culturalization approach (in this vision the donor can gain social recognition, approval and consideration), and the “warm glow” approach (it considers that the main cause of altruist actions are pride feelings).

Therefore, **besides altruism there may be other factors that influence the pro-social actions** of helping others, whether charitable or volunteering. For example, the explanations that are based on selfishness can be considered to be strengthened by the practical investigations, but not necessarily. A report conducted by the Member States of the European Union (which was a source of information when declaring 2011 the “European Year of Volunteering”) showed that respondents who chose to become involved in providing aid to others did it both for reasons that regard themselves and for the mere consideration of their fellows (GHK, 2010, pp. 145-152). When individuals choose this path, there are other factors that influence their decision, not only altruism. Thus, when asked what makes them take action to help their fellows, individuals invoked various reasons, which include both disinterested factors, namely the desire to help their fellow man (or, in other words, altruism) or for a “cause”, and factors that regard themselves, as the opportunities to gain professional and personal experience, to practice their own skills or to learn new ones, to feel “useful” and efficient, to gain a certain status, to participate through these actions at certain events, to feel pleasure, to respond to friendly invitations, etc. Although some of these responses seem to strengthen the claim that altruism is only apparent, they rather enhance the fact that these actions have become an “element of fashion” and of lifestyle for some individuals.

#### **4. Altruism in Economic Theory**

Regarding only the economic aspect, the altruistic action involves different costs for the individual who conducts it and generates benefits for other people. The fact that one supports these costs with no expectation in return may seem illogical from an economic point of view. Although self-interest and rationality are two fundamental human attributes, they cannot be found in a pure or complete form as the standard theory lets us believe. Man is a complex being from all considerations and his nature is one of pluralism, rather than of extremes: in him dwell both good and evil, rationality and irrationality, thinking and passion, selfishness and altruism etc. To see only one side of him means ultimately to deny his identity. Self-interest is undoubtedly a condition of survival. The question is whether this attribute is perfect and complete in every situation prevailing on the market. As shown by the neoclassical, this feature means that the individual reports himself in any situation to the alternative which increases his utility. Moreover, this also means that the

individual is not influenced in any way by the evolution of the utility of other members of a group.

Adam Smith advocated that the economic behaviour is prevalently motivated by self-interest. This is a natural characteristic of the human being which is an expression of his freedom and helps him increase his wealth. Nevertheless, the author did not deny the emotions and the capability of the individual to report himself to others throughout sympathy. This ideas promoted by Smith are often subject of debates because apparently they are conflictive. This contradiction is deepened by the fact that the author's two points of view are mostly presented in two different writings. When promoting only the prevalence of self-interest, economists mostly refer to the magnum opus *An Inquiry into the Nature and Causes of the Wealth of Nations*, and overlook the less influential work *The Theory of Moral Sentiments*. However, we believe that Smith's work should not be seen separated, but as a whole. In the eyes of the classical economist individuals are not perfectly rational agents with no feelings and just pursuing their own interests, but complex human beings who always experience an inner struggle. This internal conflict is between the impartial spectator who is self-interested, on one hand, and the emotions and sympathy for others, on the other hand. For example, even when talking about sympathy and passions the author stated that undoubtedly and above all, by his nature, every man cares "first and principally" for himself and then for others (Smith, [1759]1984, pp. 82-83).

Smith saw man primarily self-interested. Probably this is quite right, and represents a condition of fulfilment of the human being. Referring for example to altruism, as it is the main subject of this article, in order to help others the individual must have in the first place the capacity to do this and, so, he must take his own care. But besides this dominant attribute, man is also a social being. He lives surrounded by his fellow men, who arouse in him different emotions and passions and, by this, they exert a permanently influence over his decisions, whether economic or not. The man's inner struggle can easily be observed when Smith presents some ideas about inter-temporal choice. Thus, the impartial spectator has a rational inner voice; he is equipped with logical thinking and with the ability to weight at absolute levels the costs and benefits of the alternatives, without being influenced by present emotions. For this "voice" the future pleasure that the individual may experience in a day or a week or a year is as "intense" as the present one. In the same paragraph, however, after some further explanation about the impartial spectator, the economist referred also to the influence of the present emotions over decisions. He argues that the pleasure experienced by an individual in the future concerns him less compared to the one registered immediately as the power of the first is very weak compared with the violent feelings of the present moment (Smith, [1759]1984, pp. 189-190).



The reality and the concept of rationality are different from what the marginalist economists theorized. For example, parents who reduce their work hours and increase the time spent with their children could be considered an anomaly in terms of the economic traditional theory. In this case, the reason of self interest would require individuals to choose the best paid action, and not the one that brings the highest level of satisfaction according to the needs and priorities of the individual. This is because money is primarily a tool for exchange and not an objective of human actions. However, in order to support the mathematical modelling the neoclassical economists used only a simplified version of the individual and only a part of the picture outlined by Smith – they took mostly into consideration the self-interest and did not referred to the inner conflict and to the sympathy. The two major works of the classical economist are still a subject of intense deliberation in the literature. In this respect, some specialists suggest that these two characteristics of man are not contradictory, but manifest in different situations – inside and outside the market. For example, an important exponent of the experimental economics (a branch which continues the neoclassical tradition), Vernon Smith suggested, in the same line as Gary Becker, that self interest manifests in impersonal market exchange and altruism expresses in personal exchange (Smith, 1998, p. 2). Other scholars, such as Binmore and Shaked (2010, p. 88), claimed that the notion of self interest (and by analogy the utility-maximization) is not one and the same with the notion of selfishness because one of the main assumption of the conventional theory is “no accounting for taste” (even though there are other scholars who argue that this two notions are synonymous). Not last, some authors, such as Kahlil (2006, p. 4), consider that sympathy is a conception that confers to the human behaviour an interactionist view. For example, it allows accounting for diverse virtues such as self-interest, altruism (benevolence), justice and prudence which are related to the human welfare.

The critics of *homo oeconomicus* base their arguments mainly on the fact that the model ignores the social attitudes of the individual. Israel Kirzner argued in this direction that the existence of altruism should not prevent people to maximize their earnings, but on the contrary. In an “imaginary” world in which only individuals endowed with purely altruistic sentiments would prevail, one who wants to help his peers would be more motivated to maximize his own monetary gains in order to support the additional costs required for such an action (Kirzner, 2005, pp. 467-468). However, the dispute between scholars is not reduced only to the existence of altruism, but to the larger spectrum of social attitudes which the neoclassical model neglects. For example, even when the economic agents are pursuing the highest gain there are cases when they compare their own earnings to the ones of the competitors and, by this, they report to the others (even negatively, although in this article we consider only the pro-social behaviours). From this point of view, the

pursuit of the self interest cannot be separated in ultimate instance by the social relation created on the market.

## **5. Charity as a Form of Human Action**

Can we distinguish between the charitable behaviour of the individual and the one of a group? Or, in other words, can the behaviour of the individual be extrapolated to the behaviour of charity groups? This question was best clarified by Ludwig von Mises. The author noted that the actions (of any type they may be, including the charitable ones) are strictly related to individuals, who are the only ones able to produce them (von Mises, [1949]1998, pp. 11, 243). No organization, whether it is a company or public institution, can produce an action. They are formed and are represented by individuals who act. Considering that charity is an action, we can extrapolate and say that it is exclusively human and solely individual. The present significance of institutionalized charity actions is, like the actions of the state, a metaphor and a lapse of meaning. Reducing the scope of the analysis at the individual level we cannot ask: How exactly are the charitable actions made? The action is carried out to achieve a clear and precise individual goal.

Furthermore, in its original sense charity implies the existence of pure altruism and must be done unselfishly. So, the sole purpose of charitable action can only be the most unselfish possible, namely the desire to help other people. In other words, charity is made strictly out of human consideration. Fellow men are in need and the altruist individual provides it. Any other reasons, such as prestige, respect, friendship, accumulation of political capital, the highlighting of the social status and of the personal image, personal egos etc., cancels the charitable component of the charitable action. In other words, the individual acting for his fellows should not have another hidden interest. The theoretical and practical evidences are, however, ambivalent claiming either compassion or self-interest. Irrespective of the cause which determines the charity and volunteerism, this kind of actions have a growing importance in present, not only in terms of the social and cultural issues they generate, but also in terms of the economic ones. For example, in 2006 in the UK, every euro spent from public funds to support volunteering generated 30 Euros; therefore, the economic value of formal volunteering in this country has been estimated at over 65 billion Euros per year (GHK, 2010, p. 132). However, measuring the economic value of such activities is very difficult.

How natural is generosity towards other human beings? We often tend to think that generosity is natural, but we cannot help wonder about the answer to this question. In fact the inability to make notable sacrifices for others seems to be a more common characteristic for individuals in general than the reverse situation. This is

because people most often tend to forego the surpluses and, in addition, charitable activities imply ways that do not bring real economic benefits to those who do them. For example, Schopenhauer did not truly believe in selfless and disinterested acts, which aim to reduce the “troubles of others”. In his vision this sort of acts are “mystical” and represent an extension of a person’s influence in the future life of the one who is helped (Schopenhauer, 2003, p. 89).

Moreover, for an action to be charitable, it is not enough to pursue the helping of others and to be selfless. A truly charitable action, in addition to these two inalienable conditions, must be carried out in a way through which the beneficiary will not be abused. We should not be aggressive with the beneficiary because it might lead to a situation where the resulted good is inferior to the evil produced. Seeking to make good we abuse our fellow through negligence in such a way that his new general condition is inferior to the one before. How can this happen? Perhaps the best example of this is the situation of charity done in a way which causes humiliation. The resulted end will not be the expected one, this negating the positive effects of the act itself. There are individuals that refuse the help of others just because of this particular situation. Even if this example is a sensitive one and it does not find its place in the specialized literature, it still happens in reality. Modern forms of charity involve the expression of gratitude, in a form of public media, for the good which has been done. The true charity is made only through love, without expecting anything in return. How many of the modern charity events are guided only by disinterested love? Of course, we do not deny that their goal is to do well, to improve the condition of people and to generate social and economic benefits, but we must admit that they are driven mostly by selfish and self-interested motives rather than by pure altruism. In this case, the final result may be distorted from being considered a charitable action in the original sense of the notion.

## **6. Conclusions**

If we accept that altruism is the basis for philanthropy then its source is love for our fellowmen. But when one undertakes such actions he must only help other persons and not seek personal gratification (of any type it would be – economic, social, etc.), as this would negate its very purpose. True charity (if any) in its original meaning (and religious example) is characterized by scarcity and, therefore, is the most valuable way to help others because it is a totally selfless action and develops fundamental human values. Although charity is the most noble and desirable way of helping others, nowadays it has acquired other connotations. Instead, if we accept the conception that there is no pure altruism, the pro-social behaviours are motivated by forms of selfishness and aim the pursuit of a personal interest. In this

view, even with the actions which apparently are totally disinterested, individuals increase their own utility. This form seems closer to the sense that the notion of charity acquired in the contemporary society. The fact that the individuals record some selfishness benefits from it cancels the value of altruism. Anyway, whatever is the true source of charity it is an action that has a well-intended purpose. Recently attempts to promote it have been made, mainly as forms of donation. However, the modern form of charity has alienated from its profound original meaning. In a society focused primarily on material forms, the meaning of this type of actions has been distorted.

Regarding the representation of the economic man, the mainstream theory promotes mostly an image of the individual dominated by the self-interest, which lacks of altruistic actions. However, we cannot dissociate the human characteristics and ignore the link between them. We do this in order to try a more accurate analysis, but ultimately we must try to see the “big picture”. When behaving altruistic, is impossible for a person not to increase its utility or pleasure. The individual behaves in this manner motivated by the fact that his actions will conduct to an improvement of others, and this makes him “happy”. It is true that in different moments and for different people, pro-social behaviours can have different reasons. Is this motive strong enough to eliminate this concept from our analysis? Can scientist prove as an ultimate fact that altruism, empathy or love for other people do not exist at all? And if they exist, are we not on a misleading path in our researches because their influences are not considered at all? *Homo oeconomicus* is a simple, convenient and effective tool to understand the economic behaviour of the human being. We cannot ask ourselves if it's the most accurate and close to the truth possible. It is more difficult to operate outside a pattern that helps us make accurate interpretations and predictions, but we have seen that these are not as correct as we want them to be. In order to chase a phantasmal version of the perfect man, economists need to lean on the real man who acts on the market. We believe that although the actions that are considered currently in general sense charitable are based on factors related to personal interest, this does not necessarily exclude the existence of altruism.

If we challenge altruism, we probably challenge the very nature of human feelings and attitudes. Anyway explained, they are part of the individual; they are felt and they often determine his decisions. Like rationality, self-interest and altruism are not “pure” or perfect concepts. They mix in a complex matrix of human characteristics and motivators. The actions of individuals evolve between two limits: egoism and altruism.

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