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## Research Article

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## Mauss's Gift Theory and the Edgeworth Box Diagram



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### Abstract

In this study, the gift cycle of archaic societies is tried to be explained with the Edgeworth box diagram. The main objective of the study is to investigate whether the “giving, receiving, reciprocating” behavior works in a similar way in today's societies, based on the gift mechanism seen in archaic societies. For this purpose, Francis Ysidro Edgeworth's “Mathematical Psychics: An Essay of the Application of Mathematics to Moral Sciences”, one of the important works of economics, and Marcel Mauss's “The Gift”, one of the leading works of social anthropology, are discussed with their common aspects. Mauss's gift theory offers the opportunity to understand human behavior on exchange or trade. A significant part of the economic elements in the Gift system seen in archaic societies is similar to today's societies. Although gift-giving is not simultaneous, it is consistent with the barter system if it takes place within the framework of all its rules. The Edgeworth box diagram provides a simple model for reciprocal exchange. In the article, the diagram is used to illustrate how the agents can reach equilibrium in their preferences. It also provides an insight into loss aversion, decision making under uncertainty, social preferences and reciprocity in the gift cycle from a behavioral economics perspective.

### Keywords

Behavioral economics • Mauss's gift theory • Edgeworth box diagram

### Jel Codes

D01, D64, D91



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## Mauss's Gift Theory and the Edgeworth Box Diagram

Francis Ysidro Edgeworth (1845-1926) is considered one of the most influential figures in early neoclassical economics. Edgeworth made important contributions to various areas of economics such as contract, exchange theory and the theory of monopoly (Drakopoulos, 2015, p. 33). Edgeworth's work is now seen as an important underpinning for neuroeconomics studies using brain scans (Colander, 2007, p. 224). Edgeworth's "Mathematical Psychics: An Essay of the Application of Mathematics to Moral Sciences" forms the basis of the methodological approach in economics (Drakopoulos, 2015, p. 33). This work was an important book of its time due to its emphasis on mathematical formalism and the application of utilitarian analysis to economic and political issues (Samuels, 1992, p. 168). This work is based on the identification of the maximum energy of physics with the maximum pleasure of economic calculation (Drakopoulos, 2015, p. 37). The study also provided an integrated approach between economics and psychology (Neumärker, 2007, p. 61).

"The Gift" (1925), in which sociologist Marcel Mauss (1872-1950) analyses the phenomenon of gifts in archaic societies, is an important work of social anthropology. This work has been of interest to researchers for many years. In his work, Mauss deals with the nature of the commercial relations of pre-modern societies. Mauss also points out that the economic elements embedded in the daily life of archaic societies do not show a very different structure from today's societies. The focus of the study is on "giving, receiving and returning gift exchanges, which are voluntary in theory and obligatory in reality". It is possible to see many phenomena such as utility, property, trade, peace, profit, legal bond, division of labour, reciprocity, contract, fairness (Mauss, 2018; Özüşen & Kösekahyaoğlu, 2023; Sahlins, 2010, p. 159; Weber, 2018, p. 29), invisible hand (Douglas, 2002, p. xviii), loss aversion, decision-making under uncertainty, social preferences and rational choice in the gift mechanism.

The simplest general equilibrium model in economic theory is that of a pure exchange economy with no production. The Edgeworth box is a basic analytical tool used to examine general equilibrium in economics. In this model, there are two individuals who come face to face to exchange goods. In an economy with two consumers and two goods, it is assumed that consumers are willing to exchange goods between themselves. Edgeworth's diagram is in line with Mauss's theory of the gift as explained in his work. Even if the exchange is not simultaneous, the return of the gift will occur within a reasonable time. If the return of the gift is not a good or service, peace will be established, at least between the two parties. Gift giving is a multifaceted and complex chain of economic, legal, social and individual phenomena. This article uses the Edgeworth box diagram, a pure exchange model for the gift cycle. The article took the analysis of gift giving a little further, as proposed by Mauss (2018, p. 257). The Edgeworth box diagram provides only a simple model for explaining the complex chain of facts in Mauss's gift theory. As a matter of fact, this complexity is also the case for contemporary societies. Only this method can show the basic similarities between archaic and present-day societies in the simplest way. For this reason, in the Edgeworth box diagram, social norms, legal obligations, the spirit of the gift (*hau*), and moral or aesthetic values constitute the limitations of the study. First, Mauss's gift theory, behavioral economics and Edgeworth box diagram are explained in the article. Then, the gift cycle in archaic societies is shown in the Edgeworth box diagram. In the last part of the article, we try to provide a behavioral insight for the gift cycle, focusing on decision making under uncertainty, loss aversion, reciprocity and social preferences.

## Mauss's Gift Theory

Mauss's famous work "The Gift" explains the causes and forms of exchange in archaic societies through gifts. In his work, he clearly states that the legal and economic systems of contemporary societies are not far from the systems of archaic societies. According to him, there is no great distinction between archaic and contemporary societies. On the contrary, the questions that law and economics seek answers to can be answered in archaic societies. Mauss does not define the boundaries of his work with precise lines and leaves the researcher a field of study (Mauss, 2018). As a matter of fact, the field offered to researchers in the work has brought along the interdisciplinary feature of the work (Özüşen & Kösekahyaoğlu, 2023, p. 405). Alain Caillé also states that the obligation to give, receive and reciprocate is not unique to primitive archaic societies. Caillé explains that this cycle of obligation is constitutive in terms of social relations in order to make further analyses (2007, p. 173). Mauss indicates that the societies before us were not deprived of an economic market in their commercial relations. He aims to show how the contract and sale are made, how the exchange, how the market functioned before money, and how morality and economics are at the basis of all societies in these transactions. This idea of Mauss is seen in various parts of the work, and he summarises the subject with the following words (2018, p. 191-245-258):

*"...They are economic. The idea of value, utility, self-interest, luxury, wealth, the acquisition and accumulation of goods—all these on the one hand—and on the other, that of consumption, even that of deliberate spending for its own sake, purely sumptuary: all these phenomena are present everywhere, although we understand them differently today."*

While evaluating his work from an economic point of view, Mauss emphasises that the phenomena in the gift mechanism should be well analysed. He even stated that this analysis applies to today's societies. Mauss states that only the concepts of economic actions show a complex structure. He explains that the words necessity, luxury, savings, interest, benefit and even gift are too complex for these societies (Mauss, 2018, p. 247). However, this situation is also valid for today's societies. As a matter of fact, the concept of "utility" or "utilitarianism", which has been discussed for many years, is a chain of very complex phenomena.

Utilitarianism is the heuristic idea that utility is the basis of morality and especially of fairness. All thinkers who advocate utilitarianism have adopted this idea (Rossen, 2003, p. 1). In utilitarianism as a moral theory, an action is considered right if it produces the greatest amount of happiness for the greatest number of people (Driver, 2014). Every school of thought within the utilitarian tradition recognises, in every detail of morality, the effective and dominant power of actions on happiness (Mill, 2017, p. 54). The uncertainty of happiness, which varies from individual to individual, shows that its utility will be debated for many years to come. Due to the difficulty of distinguishing between mind and emotion, it is difficult to determine whether an individual performs an action whose goal is not utility. It follows that in the gift cycle, whether in the short or long term, utility is always encountered. According to Mauss, the gift cycle is far from being within the framework of utilitarianism. However, the fact that the gift starts to wait for its return from the moment it is given, that it is "voluntary in theory and obligatory in reality" and that the obligation increases as the period extends shows that it is not completely far from utility maximisation. Mauss's view that the gift cycle is far from the economics' understanding of utility stems from his belief that the theory of utility is based solely on self-interest (Özüşen & Kösekahyaoğlu, 2023, p. 409). For economics, however, this is only an assumption. Utilitarianism is not only a moral and political philosophy but also a philosophy of action. The thought in the utilitarian philosophy of action and the thought in utilitarian moral philosophy are exactly parallel (Baujard, 2013, p. 2). Utility is inseparable from emotion, and emotions are triggered by changes (Kahneman,

2003, p. 1457). Mauss also divides his work into ethics, economics, sociology and political economy. He tries to determine that morality and economics operate deeply in today's societies (Mauss, 2018, p. 74).

Mauss's work is based on the cycle of giving, receiving and reciprocating gifts, which in theory are voluntary and gratuitous, but in reality are obligatory and self-interested. In the mechanism of the gift, there are three principles of obligation: giving, receiving and reciprocating. Although the gift may appear to be voluntary and non-reciprocal on the appearance, over time it turns into a system of exchange that requires reciprocity within a reasonable period of time. According to Mauss, what enables this cycle is the bond of spirits formed through objects, that is, the legal bond in Maori law, which he analyses (Mauss, 2018, p. 92-156). Kant's views on goodness offer a similar explanation for the establishment of this connection. He states that a person who accepts a favour is no longer free and that the favour places the individual under obligation. According to Kant, no one can force anyone to do a favour. However, individuals still feel an obligation. The party doing the favour has an active obligation. The party who owes the favour is passively liable (2022, p. 49).

Exchange in archaic societies is a moral behavior. The return of a gift is uncertain. The person who receives the gift will decide when to return and to what extent to reciprocate, according to their own means. The return of the gift occurs over a short or long time. Regardless of this process, it favours a social relationship of balanced exchange. In the long run, it even extends to inter-tribal relations (Sahlins, 2010, s. 268). Mauss does not explicitly define market exchange, but his views indicate that market transactions involve voluntary exchange that utility both parties (Gill & Thomas, 2023, p. 75).

The generosity shown by the first party to give the gift has an economic and social significance. This behavior first shows a willingness to trade and this generosity leaves the other side behind. Even if it is not reciprocated at the moment, eventually the accounts can be balanced. As long as the gift mechanism continues within the framework of the triple obligation, the relationship is maintained, albeit with slight imbalances (Sahlins, 2010, p. 290-291). Sahlins (2010, p. 294-295) states that at the end of the reciprocity strategy, an equilibrium is determined, but it is difficult for archaic societies to determine the exact economic determinants of this equilibrium. However, he explains that "generosity" has similar properties on the rate of exchange as the elements that form the price in the market. If goods that provide more utility force the buyer to be more generous, this is equivalent to the fact that, in a market system, the price tends to increase with demand. The economic determinants of natural scarcity, difficulty of production, social utilisation of goods and substitution possibilities apply to all societies and will produce similar effects. Only the mechanisms are different.

In markets where exchange occurs simultaneously, there is a close equivalence between the two goods subject to exchange. The return of the gift should be at least the equivalent of the gift received. In this mechanism, it is usually expected that the return will be more than the equivalent of the gift. In particular, if the reciprocity is not realised within a reasonable time, it should be returned at a value higher than the equivalent. However, Sahlins (2010, p. 297) states that the exchange rate is not left to fluctuate even if the temporal rate is delayed. The fact that the gift starts to wait for its return from the moment it is given, that it is "voluntary in theory and obligatory in reality" and that the obligation to give back increases as the time is extended shows that it is not far from utility maximisation. This is also a sign that the first step has been taken for the start of trade.

In the gift cycle, we encounter an unwritten contract and Mauss calls these contracts as anonymous contracts. This contract constitutes the beginning of the commercial relationship. The contract and contractual

commercial relationship consists of a total of three obligations: obligations to give, receive and reciprocate gifts. First, the property right of the gift giver makes it obligatory to return the gift. If this obligation is not fulfilled, the commercial relationship and legal bond is not established. (Mauss, 2018, p. 73-200). In the gift cycle, although there is no written contract, there is an obligation to return "at maturity" within a reasonable period of time, and if this period is exceeded, the return is expected to be of more than equivalent value.

Mauss states that societies or individuals succeed in developing to the extent that their relations stabilise giving, receiving and reciprocating. He states that for this, it is first necessary to know how to let go of the spears. According to Mauss, there is no need to look for goodness and happiness far away. Nations, peoples, families or individuals are happy if they can sit around common wealth. He explains that joint and regular work, mutual respect, mutual generosity, redistributed wealth and peace will bring happiness. According to him, a purpose of the gifts offered to people is to provide an environment of peace with each other. Individuals and societies have succeeded in developing to the extent that they have stabilised giving, receiving and reciprocating in their relationships (Mauss, 2018, p. 103-264). A gift is the first step of a mutual relationship based on trust. Gift giving, in accordance with Kahneman and Tversky's definition (1984, p. 341), is a risk-free decision-making process. The initial giver has made a choice on the uncertainty of whether the gift will be returned or not. Perhaps it was intended to meet the expectation of minimising the risk of conflict if the gift was not returned. Conflict is an important element of loss for both individuals and societies. In this case, since losses have a greater impact on preferences than gains (Tversky & Kahneman, 1991, p. 1039), the giver of the gift chooses to avoid losses at least

According to Hume, the interdependence of human beings exists in all societies and is quite high. Hardly a human action is performed without reference to the actions of others. As people make their communication more complex, they perform various actions that they hope to be co-operated with within the framework of their own life plans. Their past experiences help them take precautions, and the gains from their current actions preserve their belief in the tendency to continue these actions (2021, p. 87-88). Smith, on the other hand, states that human nature has a tendency to exchange one thing for another. He states that this tendency will inevitably result in the emergence of the division of labour after a while. According to him, individuals obtain a significant part of the good things they need through exchange, , agreement or purchase. Through the desire for exchange, both individuals and societies acquire the products of different skills (2020, p. 35-38). What is important is that individuals or societies choose to defend their mutual interests without resorting to weapons (Mauss, 2018, p.263). As a matter of fact, Plato calls war "the source of evils" and states that war is caused by an ambition arising from acquiring more property than others (2022, p. 61). Therefore, the gift supports peace through sharing.

Mauss observes the existence of group loyalty when examining reciprocity in the gift-giving model. Beyond a dyadic relationship, Mauss reveals an intergenerational solidarity that he calls "alternate and indirect reciprocity" (Ramel, 2018, p. 165). Mauss believes that reciprocity is one of the main elements of social relations and peace. However, classical and structural anthropology has always considered reciprocity as one of the fundamental social processes that will guarantee stability and peace in human societies (Vinolo, 2015, p. 97). International ties of reciprocity have gained importance in various fields such as the environment and economic development (Ramel, 2018, p. 165). The exchange of gifts can contribute to the establishment of stable peaceful cooperation between states and individuals in the international community (Heins, Unrau & Avram, 2018, p. 129).

## Behavioral Economics

Classical economics conceptualises a rational and self-interested world (Kenning & Plassmann, 2005, p. 343). Behavioral economics, on the other hand, introduces deviations from classical economic theory and explains the interaction between economic principles and behavioral change (Reed, Niileksela & Kaplan, 2013, p. 51). Behavioral economists adopt the basic principles of modern economics and seek to develop these ideas to make them more empirically accurate. In particular, they apply psychological insights to economics (Angner & Loewenstein, 2007, p. 38). The insights generated are realised with the belief in making better forecasts. This belief does not mean a complete rejection of the neoclassical economic approach based on utility maximisation, equilibrium and efficiency (Camerer & Loewenstein, 2004, p. 5-6). Although it introduces new methods and insights, the ideas of behavioral economics go back as far as classical economics. Adam Smith's concept of the 'invisible hand' and his work 'The Theory of Moral Sentiments' offer important economic insights.

Smith begins his book with these words:

*"How selfish soever man may be supposed, there are evidently some principles in his nature, which interest him in the fortunes of others, and render their happiness necessary to him, though he derives nothing from it, except the pleasure of seeing it. Of this kind is pity or compassion, the emotion we feel for the misery of others, when we either see it or are made to conceive it in a very lively manner. That we often derive sorrow from the sorrows of others, is a matter of fact too obvious to require any instances to prove it; for this sentiment, like all the other original passions of human nature, is by no means confined to the virtuous or the..."* (2018, p. 13).

Smith's work also includes issues such as loss aversion, justice (Ashraf, Camerer & Loewenstein, 2005, p. 132), altruism and virtue, which are the focus of behavioral economics. The insights of J. Bentham (2021), who wrote extensively on the concept of utility and its determinants, has remained important until today. According to Bentham, human behavior is guided by the feelings of increasing pleasure and avoiding pain. In his work, he includes issues such as empathy, antipathy and morality that guide human actions. Despite these psychological foundations, economics ignored psychology for a long time and neglected the role of emotions in decision-making (Bechara & Damasio, 2005, p. 336-337). Today, however, behavioral economics offers new approaches to economics with evidence from psychology and neuroeconomics with evidence from neuroscience. The theories in behavioral economics are usually based on the rational model. Assumptions about cognitive limitations have been added to these theories to account for certain anomalies (Kahneman, 2003, p. 1469).

Bounded rationality (Simon, 1956), decision making under uncertainty and risk, loss aversion (Kahneman, 2022), overconfidence, self-control, fairness, and mental accounting (Thaler, 2016) are among the topics of behavioral economics. Behavioral economics also focuses on time and social evaluations while examining human behavior (Lee, 2021, p. 209). Thus, complex human behaviors are tried to be analysed.

Individuals show deviations from perfect rationality when they make judgements under uncertainty. Many decisions are based on beliefs about the probability of uncertain events due to a choice. These beliefs are expressed in numerical form as ratios or subjective probabilities. People rely on heuristic principles in tasks such as assessing probabilities and estimating values (Tversky & Kahneman, 1974, p. 1124). According to prospect theory, people are not guided by general utility expectations, but by the immediate emotional impact of gains and losses. Losses and disadvantages have a greater influence on preferences than gains

and advantages. The asymmetry of pain and pleasure is the ultimate justification for loss aversion in choice. Because of this asymmetry, for a decision maker aiming to maximise the utility experienced, it would be expected to give more weight to negative rather than positive outcomes (Tversky & Kahneman, 1991: 1039). Many applications of economic theory assume that individuals only care about their own wealth and will not make sacrifices for others (Camerer, 1999, p. 10576). However, individuals do not always prioritise their own interests and make sacrifices. They prefer fair distribution instead of unfairness (Solek, 2014, p.36). In this regard, laboratory experiments such as the ultimatum game have a distinctive feature in revealing social utility (Camerer, 1999, p. 10576).

### Edgeworth Box Diagram

Edgeworth's economic thought is about the impact of classical physics on economics. (Drakopoulos, 2015, p. 31). In the introduction to his work "Mathematical Psychics", Edgeworth proposes an analogy between the "Maximum Happiness, Utilitarian or Egoistic Principles", which constitute the first principles of ethics and economics, and the "Maximum Energy Principles", one of the highest generalisations of physics and economics. The next step provides a detailed methodological justification for the analogy between physics and the social sciences, especially economics. According to him, the first argument supporting the use of mathematical physics methods in the social sciences assumes that every social phenomenon accompanies a physical phenomenon. He argues that the lack of quantitative data and functional relationships in economics does not preclude the application of mathematical methods. (Edgeworth, 1881, p. v-5).

Edgeworth states that the purpose of economics is to maximise happiness (Ansa Eceiza & Gómez García, 2019). According to him, the central concept of utilitarian analysis is the greatest happiness, the greatest possible sum of pleasures accumulated through sensibility throughout all time. The greatest happiness is the result of the right action and means expedient (Edgeworth, 1881, s. vii). Adhering to the utilitarian philosophy, Edgeworth carried out his studies toward applying mathematics to the pleasure-trouble calculation (Kazgan, 2021, p. 178). He argued that utility was directly measurable and that new developments in "physio-psychology" would make it possible to develop a "hedonimeter" that would allow economists to develop a solid physiological basis for utility. According to Edgeworth, the calculus of pleasure is divided into two categories: economics and utilitarian ethics. Economic Calculus investigates the balance of a system of hedonic forces, each tending towards maximum individual utility. The utilitarian calculus is on the balance of a system that tends to provide maximum universal utility to each and all (1881, p.15). Edgeworth's hedonimeter also addressed the neurological underpinnings of pleasure, providing insight into how people respond to different events (Colander, 2007, p. 216).

Edgeworth states that pleasure accompanies energy. Energy is also the main idea of mathematical physics. It tries to explain the complexity in social sciences with maximum energy. According to him, there is pleasure at every moment of time, whether it is self-interested or benevolent. When these pleasures come together for rational action, they resemble the accumulation of pleasure. In a material cosmos, each particle movement is part of the maximum sum of the accumulated energy. Thus, the actions of each soul, whether selfishly or sympathetically related, may be constantly interconnected. Just as the electromagnetic force is directed towards maximum energy, the pleasure force is directed towards maximum energy. The energy produced by the pleasure force is the physical accompaniment and measure of the conscious feeling of pleasure (1881, p. 11-12).



In the first part of his work, Edgeworth attempted to demonstrate the possibility of mathematical reasoning without numerical data. He then gives a mathematical theory of a contract determined by competition in a perfect market. He argues that when the number of competitors is limited, the market is imperfect and the contract is uncertain. In the case of mergers (unionism) and cooperatives, a similar situation is likely to occur in personal service contracts (1881, p. v-vi).

While Edgeworth's work was important for the development of economic analysis, his thoughts on exchange are also invaluable for his contributions to economics. Edgeworth's indifference curves and the contract curve focus on the optimality conditions for "efficient" exchange between two individuals (Creedy, 1979, p. 163-172). The Edgeworth box diagram represents various distributions of economic resources. Humphrey (1996, s. 37) calls the box diagram "one of the most ingenious geometric structures ever devised in economics" and "a powerful tool". The diagram is used to analyse trade in goods in general equilibrium analysis (Pavlov, 2013, p.1).

### Mauss's Gift Theory with the Edgeworth Box Diagram

People start to exchange and trade when they gain mutual utility. Entering the exchange is voluntary. Economic activities realised through voluntary exchange produce "win-win" results. The assumptions of this model are that there is no fraud in the market and that the expected utility is obtained through the realisation of the transaction (Browning & Zupan, 2014, p. 161). Edgeworth's diagram shows the reciprocal utility gains from voluntary trading using indifference analysis (Beaulier & Prychitko, 2010, p. 55).

The pure exchange model is an efficient model for studying the two sides of market transactions. It is based on two goods in a given quantity, two consumers and an exchange system. The model is useful for two main reasons. First, it allows the explanation of utility, one of the most important topics in economics. This principle states that "voluntary exchange or trade is reciprocal utility to the parties involved in the transaction." The second is the principle that allows us to explain the concept of economic efficiency, which is also one of the basic principles of economics. It is the distribution of goods between consumers in a situation where a consumer may not be able to improve himself without harming another consumer. The Edgeworth model explains the preferability of such a distribution of goods and the incentive for competitive markets to promote efficiency in exchange (Browning & Zupan, 2014, p. 159).

The exchange process considered by Edgeworth consists of successive exchanges between individuals until a position is reached where no exchange is possible for the betterment of each individual (Uzawa, 1962). The Edgeworth box diagram includes all non-wasteful allocations when there are two consumers and two goods and no production. The Eaceh point in the box represents the full allocation of two goods to two consumers. Consumers have endowments and preferences and can exchange goods to increase their utility. Each of the two agents maximises their utility. In terms of the total demand of the two agents, the total demand must equal the total endowment of the two goods (Pavlov, 2013, p. 1). Each point in the Edgeworth box shows the alternative use baskets that both parties can consume (Browning & Zupan, 2014, p. 162).

The exchange rates for the diagram are derived from Sahlins' "Stone Age Economy". Sahlins explains that in archaic societies, a rate of exchange will occur, albeit through gift exchange. Exchange rates in archaic societies tend to remain constant in the short run, even when there are significant changes in supply and demand. In the long run, they change (Sahlins, 2010, p. 283).

There are two goods: bowls and bags

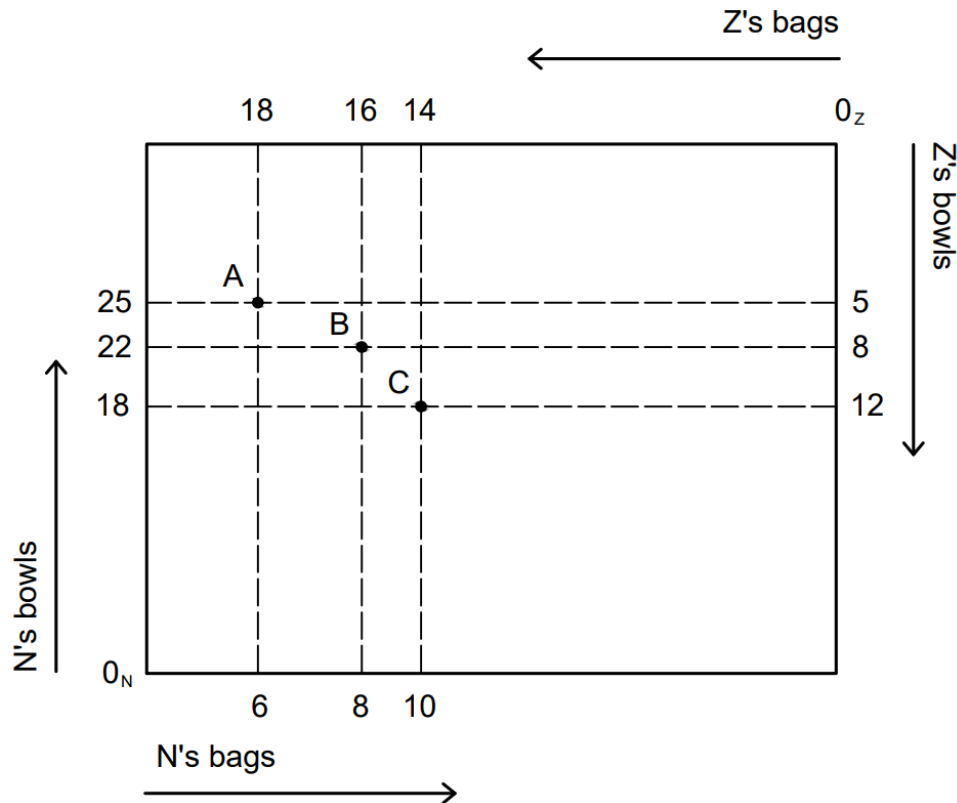
There are two agents: N and Z



The initial endowment is:  $N = (25, 6)$ ,  $Z = (5, 18)$

The lengths of the sides of the rectangular box are equal to the fixed quantities of the two goods. The width of the box indicates the total amount of bags and the height indicates the total amount of bowls.

**Figure 1**  
The Edgeworth Box



Two types of goods, bowls and bags, and the gifts to be made by the two partners on mutual visits, N and Z, were discussed. The Edgeworth box is used to analyse the allocation of a fixed total quantity of two goods between two consumers. The box can show all possibilities of allocating 30 bowls and 24 bags between N and Z. The vertical dimension of the box shows the quantity of 30 bowls and the horizontal dimension shows the quantity of 24 bags. "O<sub>N</sub>" is the origin of the diagram used to measure the bowls and bags owned by N. "O<sub>Z</sub>" is the origin point of the diagram used to measure the bowls and bags owned by Z.

Point A shows N's market basket of 25 bowls and 6 bags and Z's market basket of 5 bowls and 18 bags. Point A also represents the initial state. In the first round, N visits Z and gives him the first gift of 3 bowls. Subsequently, within a reasonable time in the gift exchange, Z gives N 2 bags as a gift. At the newly formed point B, N has 22 bowls and 8 bags, and Z has 8 bowls and 14 bags. In accordance with the nature of the gift, 2 bags are more valuable than 3 containers. However, the return is not always expected to be of greater value, especially if the return is achieved within a reasonable time.

#### **Initial Market Basket**

N/25 bowls + 6 bags

Z/5 bowls + 18 bags

### **After-Gift Market Basket (1st round)**

N/22 bowls + 8 bags

Z/8 bowls + 16 bags

In the gift cycle, the gift may not be reciprocated at a value greater than the equivalent of the gift or after a certain point, there may not be a more valuable gift. As a matter of fact, Sahlins also proceeds from the fact that in this relationship in which the rate of exchange can be determined, the gift may not always be received with more than its equivalent. It is expected that N will give 3 more bowls to Z in the next round. Assuming that the gift will not always be met with more than its equivalent, Z gives 2 more bags to N in return for the 4 containers that N gives to Z. At the end of the second round, N had 18 bowls and 10 bags, and Z had 12 bowls and 14 bags.

### **After-Gift Market Basket (2st round)**

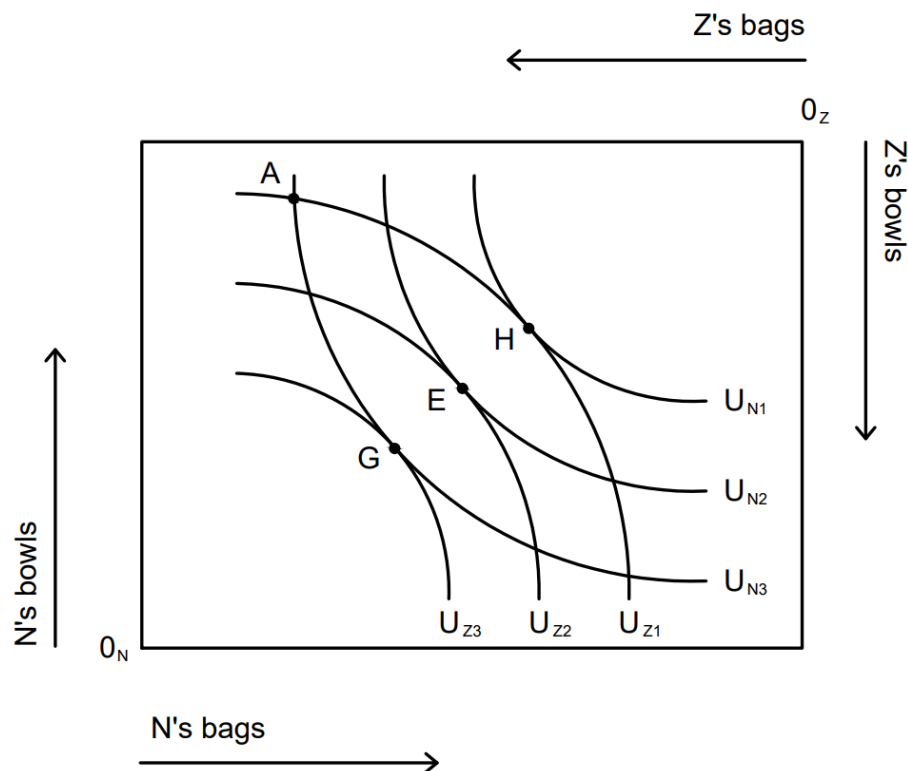
N/18 bowls + 10 bags

Z/12 bowls + 14 bags

Sahlins states that although the reciprocity strategy is quite complex, an equilibrium can eventually be determined. The exchange rate is the result of a compromise between the parties. During the reciprocity process, it becomes clear at which rate the trade should continue. If there is a misunderstanding, the partnership will be broken (2010, p. 292). Here, the exchange ratio is set at 2:1. This example is only one of the possible results of determining the exchange ratio.

**Figure 2**

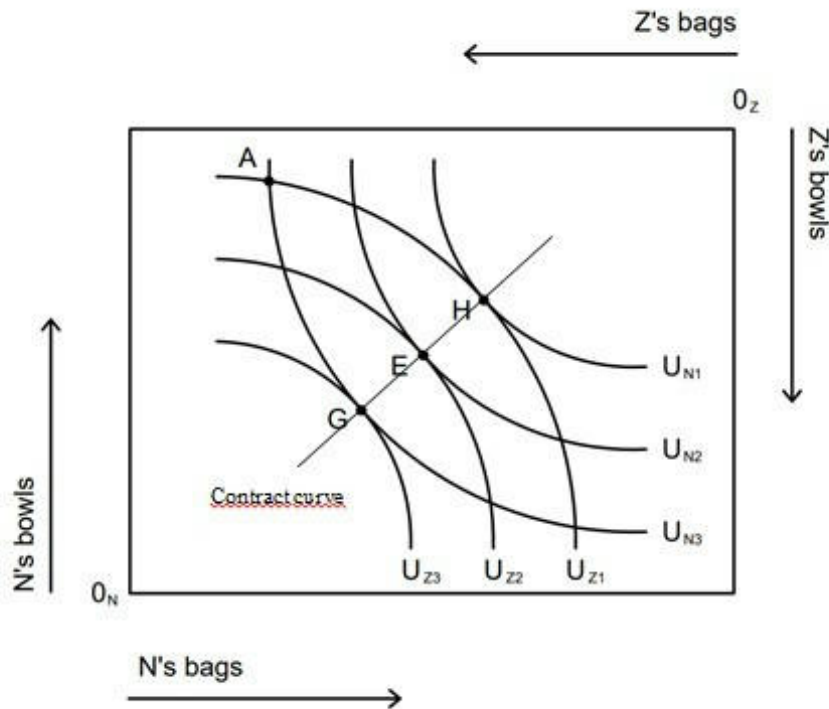
*The efficient points*



Point A shows the initial allocation of goods.  $U_{N1}$ ,  $U_{N2}$  and  $U_{N3}$  are N's indifference curves and represent N's preferences between alternatives.  $U_{Z1}$ ,  $U_{Z2}$  and  $U_{Z3}$  are indifference curves of Z and represent Z's preferences between alternatives. The indifference curves of N and Z intersecting at this point form a lenticular area. Both parties' utility from the allocation of goods as long as it takes place within this area. On the other hand, when point E is reached, where the indifference curves are tangent, it is not possible to make another exchange that will utility both parties. E is a Pareto efficient allocation. The theory does not allow predicting where in the lenticular area consumers will terminate the exchange (Browning & Zupan, 2014, p. 165). This is also true for the gift cycle.

**Figure 3**

*A contract curve showing all the Pareto-efficient possibilities*



The tangency of the indifference curves means that the marginal rate of substitution for the two consumers is equal. At the point where the indifference curves are tangent, there is no other possibility of an exchange that is of utility for both parties. The tangent points of the indifference curves explain the effective distributions. The contract curve shows several effective distributions joining the tangent points of the indifference curves.

### Mauss's Gift Theory from the Perspective of Behavioral Economics

In embedded social relations, individuals often exchange gifts and favours. This is part of the commercial exchanges (Mathews, 2017, p. 90). Analysing the factors of embedded relations in isolation can make it difficult to look at the issue holistically. For this reason, Mauss's gift theory is interpreted through a micro-economic analysis and the principles of behavioral economics.

Loss aversion is a core topic in behavioral economics (Ashraf, Camerer, & Loewenstein, 2005, p. 132) and shows the tendency of individuals to prefer to avoid losses rather than gain (Pindyck & Rubinfeld, 2014, p.

191). The gift system seen in archaic societies explains a mechanism that although theoretically voluntary, expects reciprocity. Although this response cannot always be provided, it fulfils the feature of eliminating the risk of a potential conflict for the party giving the gift. This shows the existence of a loss aversion tendency. As a matter of fact, conflict can mean both losing what you have and not being able to maintain social peace. The gift-giving cycle is an important contribution to social peace.

Social peace is the desired state of a social community. Societies with individual and social peace thrive and their economies grow. The absence of peace jeopardises the lives of individuals as well as social co-existence and decision-making systems (Kunze & Schlatterer, 2018, p. 30). The gift relationship is a mechanism that secures individual and social peace. As a matter of fact, Mauss also said: *"To refuse to give, to neglect to invite, likewise to refuse to receive, is tantamount to a declaration of war; it is a rejection of alliance and community"* (2018, p. 94). At the basis of the rights of societies is the right to social order. The origin of this right is based on contracts (Rousseau, 2016, p. 57). The equivalent of the social contract in archaic societies is the gift. (Sahlins, 2010, p. 167). Smith also states that societies will obtain what they need through exchange, contract or purchase (2000, p. 36-38).

Emotions and mental events that drive benevolent behavior, such as sympathy or altruism, are central topics in behavioral economics and neuroeconomics (Neumärker, 2007, p. 61). Social interaction is a unique feature of human behavior (Robson, Repetto, Gountouna & Nicodemus, 2020, p. 67). Experimental evidence on ultimatum games, dictator games, gift exchange games, and games for the common good has shown that many people are not only interested in maximising their own material payoffs, but also in social comparisons, fairness, and reciprocity (Fehr & Schmidt, 2003, p. 208). Gift giving is based on reciprocity. Refusing a gift indicates that a social relationship cannot be established. Refusal to reciprocate indicates future unreliability (Mathews, 2017, p. 100).

A significant part of behavioral economics research focuses on decision-making under risk and uncertainty. When choosing between alternative courses of action, people rarely know with certainty what outcomes these actions will lead to (Loewenstein, Rick & Cohen, 2008). In the gift mechanism, the first person to give the gift decides under uncertainty. The first uncertainty for the giver is whether there will be a return. The second uncertainty is whether a friendship can be established in the absence of a return. Even if the gift is not returned and a lasting friendship cannot be established, at least hostile feelings will not be harboured thanks to this mechanism. Dolfma et al. (2009, p. 318) also argued that gift exchange plays a vital role in initiating and maintaining relationships with individuals and groups. Frequent gift exchange or appropriate exchange will lead to reduced uncertainty and positive emotions.

## Conclusion

New methods and new understandings expand the fields of economics. The behavioral models or decision mechanisms that people show in their survival strategies diversify the fields of research. The Edgeworth box diagram is a pure exchange economy model. It is based on two consumers, two goods and a simple exchange system with no production. This diagram provides a simple model for the gift cycle in archaic societies. In the gift cycle, the gift given is expected to be reciprocated within a reasonable time. The return of the gift is expected to be equivalent within a reasonable time. If the return exceeds a reasonable time, it will have to be more than equivalent. In this mechanism, even if each return is more than its equivalent, an exchange rate is automatically realised. Moreover, in the continuity of this mechanism, the situation of being more than equivalent cannot be expected to be unlimited. The process of giving, receiving

and reciprocating gifts offers insights for behavioral economics together with the microeconomic model. Decision-making under uncertainty, loss aversion, reciprocity and social preferences, which are principles of behavioral economics, can be seen in the gift-giving cycle.



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