İSTANBUL BİLGİ UNIVERSITY
INSTITUTE OF SOCIAL SCIENCES
MA PROGRAM IN INTERNATIONAL POLITICAL ECONOMY

THE CALCULATION DEBATE IN SOCIALIST ECONOMIES

MA Thesis by

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İstanbul, 2013

THE CALCULATION DEBATE IN SOCIALIST ECONOMIES

Sosyalist Ekonomilerde Hesaplama Tartışması

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Tezin Onaylandığı Tarih : 04.02.2014

Toplam Sayfa Sayısı: 120

Anahtar Kelimeler

1) Sosyalim
2) Avusturya Okulu
3) Hesaplama
4) Planlama
5) Yeni Sosyalizm

Key Words

1) Socialism
2) Austrian School
3) Calculation
4) Planning
5) New Socialism

ABSTRACT

This thesis attempts to analyze the calculation debate in socialist planning. This issue was discussed, from the 1920s until the late 1940s, between economists of the Austrian School and socialist economists. The calculation debate can be defined as the discussion of the impossibility of efficient distribution of economic resources in planned economies. After analyzing and defining '*the Calculation Debate',* that is named so as in the literature, the thesis aims to study the reflections of this debate under the light of historical experiences. In this sense, there will be a presentation and brief summary of the works that are advocating the idea of 'A New Socialism/System' is possible and including the lessons of these historical experiences.

Keywords: Socialism, Austrian School, Calculation, Planning

ÖZET

Bu tez, Sosyalist Planlama üzerine olan Hesaplama Tartışmasını analiz etmeyi amaçlamaktadır. Hesaplama Tartışması, 1920'ler ile 1940'lar boyunca sosyalistler ile Avusturya Okulu liberalleri arasında geçen ve sosyalist bir planlı ekonominin işleyip/işleyemeyeceğinin ve etkili kaynak dağıtımını sağlayıp/sağlayamayacağının tartışılmasıdır. Tez, literatürde adı *'Hesaplama Tartışması'* olarak geçen bu tartışmayı ele aldıktan ve tanımladıktan sonra, bu tarihsel tecrübenin ve birikimin ışığında, bugüne dair bu tartışmanın yansımalarını incelemeyi hedeflemektedir. Bu amaçla, yaşananlardan dersler çıkaran ve 'Yeni Bir Sosyalizmin/Sistemin' mümkün olduğunu savunan çalışmaların kısa bir sunum ve tanıtımı yapılacaktır.

Anahtar Kelimeler: Sosyalizm, Avusturya Okulu, Hesaplama, Planlama

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1. INTRODUCTION

The Russian Revolution in 1917 changed the world irreversibly. It also brought about a positive conclusion to the works of Marx and his apprentices, after a long incubation period, proponents of Marxism and socialism at last had chance to implement their theories. The Bolsheviks were in power, and under the leadership of Lenin, they created the institutions of socialism one by one. However, a question arose on how a theory being implemented for the first time would perform in reality. In addition, could this theory be implemented successfully in the real world?

Before this revolution, some theories or suggestions about the aspects of a socialist community and economic model were put forward. However, they were not sufficient because Marx disapproved of such utopic speculations. Therefore, his followers did not pursue the speculations on how to implement a socialist economic model. In this sense, discussions on the functioning of socialism have been on the agenda ever since the thought of socialism was first raised.

These questions—whether a socialist economic structure would function, and whether it would give better results than a capitalist, free market economic model—are important because if socialist thinkers and ideologists could not demonstrate the superiority of socialism over capitalism, or worse, if a socialist economic system faced problems in the process of implementation, then the need to discuss the theory of socialism in economic terms would not arise. It means, in economic terms[1], the theory of socialism would fail to achieve its objectives when put into practice. Both the opponents and supporters of socialism understood this point.

[1] The phrase, "economic terms," is being emphasized repeatedly because this thesis examines in detail the economic aspects of socialism in the sections that follow.

It has been claimed that it would be impossible in practice, if not in theory, for a single, central planning authority to gather and process the huge amounts of data required for efficient resource distribution.

The debate began with Ludwig von Mises, an economist from the Austrian School, which was a school of liberal thought. He was initially known for his works, *Economic Calculation in the Socialist Commonwealth* in 1920 and *Socialism: An Economic and Sociological Analysis* in 1922. In these works, Mises presented an economic and sociological analysis of socialism and tried to show the impossibility of making calculations in socialist planning. Frederich von Hayek, his successor and student, developed his thoughts. After Mises' critique, the socialist economists tried to provide theoretical proof on the possibility of calculation in socialist planning. Economists like Oskar Lange and Fred Taylor showed that there could be a price mechanism in a socialist economy that would distribute resources efficiently. Based on these new views, Hayek began to work on this issue, wrote many books, and created new ideas. Hayek continued the works of Mises, but introduced a new approach to the problem. He tried to show the impossibility of calculation practically. He claimed that calculation was impossible in planned economies and that planned or socialist economies were eventually doomed to collapse. According to Hayek, although a rational economic calculation is logically possible in a collectivist economy, in practice, such a calculation is impossible. Hayek argued against the welfare state that was based on socialist economic models and welfare theory. According to him, efficient resource allocation could only be possible under the free market mechanism.

Why is the calculation debate so important? Why is it so essential for both sides to prove their theories? For socialists, why this challenge, the impossibility of rational

calculation in socialist planning economies, is so important? Further, why did the Austrian School take the debate so serious and make it the central point of their attack on socialism? This thesis attempts to answer these questions.

Two points must be clarified; in order to understand the importance of the calculation debate. First, it is not just about the supremacy of one theory over the other. If one of the theories were to prove its supremacy, then the other's existence would be questioned. Therefore, during the debate, both the Austrians and the socialists understood that identifying the superior theory was not the central issue. Second, if one can prove the practical feasibility or impossibility of a theory, it would prove the stability, or otherwise, respectively, of that theory. In addition to these, the debate is important as the calculation debate is a finished, historical experience and we can learn much from it.

In addition a belief exists that although the Soviet Union has collapsed, socialism is still of some relevance to the world. It is true that socialism has collapsed practically, but it does not mean we cannot talk about it theoretically. Besides, several other problems could have contributed to the collapse of the Soviet Union, such as the historical and environmental conditions of the country and the war conditions that the world was facing. These conditions affected the Soviet planning model, which ran into several problems when faced with a war economy. However, other models—socialist, collectivist, or participatory—may still be possible. At least, these deserve to be examined and considered.

Currently, owing to technological improvements and development, humanity is forging ahead. For example, highly sophisticated computers can make planning easier than

before. With this technology and with the help of advanced mathematics and complex algorithm systems, it is argued that a new economic model namely a planned socialist economic model may be possible in a future society.

In this context, the socialist calculation debate is the main argument and starting point of the thesis. It means above all, the aim is to present the *Calculation Debate* with either two sides and give a brief and proper perspective.

In the following chapter, some background information is needed before entering into details of debate. It is necessary for readers who do not know much about the debate, the Austrian School, and socialism. So in this sense, a historical background of the Austrian School and its methodology and principles and main components of socialism have been provided. These summaries aim to prepare readers for the discussion that follows and to help them understand the terms "socialism" and "Austrian School of thought" used during the debate. After that also in this chapter, some other ideas and thinkers will be mentioned. These can be seen as the earlier ideas that affect the main debate.

In the third section, the calculation debate will be analyzed from the main actors' perspectives. Only the main actors are mentioned in this section. Some of the thinkers are excluded because they expressed the same thoughts as the main actors or the reason their contributions were too limited they do not deserve a separate mention. However, before listing these names and their contributions, "calculation" needs to be defined in order to demonstrate what this term means and what these economists understood and meant by it.

Finally, in the fourth section, the debate is revisited. In this chapter, two new perspectives that have emerged after 1980s will be discussed with reference to the Calculation Debate. One of these views is that, the claim proposed by the new generations of Austrian school, socialists could not grasp the problem clearly from the very beginning of the debate and for that reason Mises and Hayek were right.

The other view is the new socialism perspective advocated by the new Marxian/socialists after the 1990s. Their claims with experiences of Soviet Socialism and in the light of the lessons from the calculation debate a new socialism/system is yet possible. In this chapter, these ideas and systems will occupy more space than Austrian claim. New socialism perspectives and new economy models will be analyzed but not all of them only the original, unique and distinct ones. Proposition in this chapter is even if we accept the Austrian School's claim and criticism as right, new technical means such as super computers, the internet, mobile phones etc. frustrates them, makes it possible for calculation and eases the conditions for a planned socialist economy.

2. BEFORE THE CALCULATION DEBATE

It is logical and easier to start with the Austrian School of thought for it is less complicated and lesser known than socialism. Nearly every individual has either knowledge or perceptions about socialism, but the same cannot be said about the Austrian School. So let us start with the Austrian School.

2.1.Austrian School: From Menger to Mises

The Austrian School is considered one of the most important schools of thought whose theories are different from the Walrasian (neoclassical) economic tradition. Most people consider the Walrasian tradition as mainstream orthodox economics. The other schools of thoughts in the mainstream are the post-Keynesian and Institutional Schools. Therefore, an analogy can be drawn as follows: if Walrasian economics is the core, then the Austrian, post-Keynesian, and Institutional Schools are electrons spinning around the core.

Carl Menger is considered the founder of the Austrian School and one of the three founders of the marginal school. The year 1871, when Menger's *magnum opus, The Principles of Economics,* was published is considered the birth-year of the Austrian School and this book, for contemporary Austrians, was the starting point for the intellectual origins of the School (Yay, 2004; 1).

The Austrian School first drew the attention of the international community with the debate between Menger and Schmoller, who was a member of the German Historical School. The latter advocated that there could not be any scientific laws in economics, apart from politics, tradition, and the legal system and that economic issues could be discussed only by thorough historical examinations. This early debate between

Menger's Austrian School and Schmoller Historical School contributes to our understanding of the Austrian perspective and approach toward economics phenomena.

Economic theory took a remarkable leap in the 1870s, when Léon Walras, William Stanley Jevons, and Carl Menger discovered the concept of marginal utility independently of each other. They defined the concept of marginal utility in different ways. However, this theory was a great development in economics (Holcombe, 1999). Owing to this concept, economics was not only accepted as a scientific discipline, it was also accepted as a separate discipline. Interestingly, these three philosophers developed the same theory at the same time using different approaches. The marginal revolution brought a new reform to economic thought: the subjective value theory that is at the heart of marginal theory. Although these three philosophers spoke about subjectivism, they had different views about the focus of economic research (Yay, 2004; 2).

According to Walras, it is important to show consistency between different economic activities. The focus of his research was how to formulate general equilibrium in competitive markets. He stated that at this point, the economist's duty is to show the harmony between different individual exchanges and economic activities, instead of analyzing individual behavior under market circumstances. This approach is accepted by mainstream economics; microeconomics, especially, is based on Walras' work (Yay, 2004; 2).

However, Jevons was influenced by the British utilitarian philosophy (a continuation of J. Bentham and J.S. Mill). He developed a value theory that is based on the marginal utility principle. According to his theory, the main economic problem of individuals and society is how to allocate resources effectively between the given objectives. According

to Jevons, the problem is not individual behavior, but how individual behavior can be optimized when an aggregate of individuals is considered (Yay, 2004; 2).

Menger's economic problem is different from those of Walras and Jevons. According to Menger, in the economy, the demands of people and the conscious, individual human activities to supply those demands is important. Thus, economic research should focus on intentional human activities and their results, and "methodological individualism" should be the basis of analysis. Menger's theory includes the concepts of marginalism and utility; however, their meaning and conception is completely different from that of Walras and Jevons. What Walras and Jevons meant by the marginal value of a variable is the rate of total change of the variable. Menger was against using mathematics in economics, and hence, he preferred to work with intangible variables. For that reason, the aim of economics should be intentional human actions and their consequences and analysis method should be methodological individualism (Yay, 2004; 2 ; Caldwell, 2004; 21 ; Herbener, 1991; 34).

This methodological aspect of Menger's theory has contributed to structure of the school for a very important argument. By this, the school can develop their human freedom theory and relation between individual and institutions. Hence, according to the Austrian methodological perspective individualism became not just a pure ethical value or a deontological assumption, but an epistemological postulate (Smith, 1993; 130). *"Menger rejects a priori axioms and theorems deduced from them."* (Hutchison, 1981; 178)

He says:

> Theoretical economics has the task of studying the general nature (das generelle Wesen) and the general inter-connections of economic phenomena, not of analyzing economic concepts and of drawing the logical resulting from this analysis. The phenomena, or certain aspects of them, and not their linguistic image, the concepts, are the objects of theoretical Research in the field of economics. (Menger, 1963; 37 also cited in Hutchison, 1982; p. 178)

In neoclassical economics, value is determined by subjective (utility) and objective (physical cost) circumstances. According to Menger, data are determined by consumers' activities. In addition, cost is used in order to pass more preferable situation in the future, and refers to sacrificing utility in the present for possible future benefits (Kirzner, 1987).

"Carl Menger's emphasis on the similarities between the methods and criteria of the social and natural sciences differs profoundly from that of Wieser, Mises, and other Austrians, whose approach was much closer to that of German historical economists. They insisted on the wide and profound dissimilarities between the social and natural sciences." (Hutchison, 1981; 189)

Eugen von Böhm-Bawerk, another important economist of the Austrian School, helped Menger to develop and communicate the subjective value theory. In addition, Böhm-Bawerk made significant contributions to capital and interest theory. Besides that "*Böhm-Bawerk hardly made a major, distinctive contribution to methodological ideas"*

(Hutchison, 1981; 202). *"Since Böhm-Bawerk did not write any really important, original work on methodology, and Schumpeter is not counted as an 'Austrian', after Carl Menger the next-and in some ways most influential and distinctive-contribution to Austrian ideas on the philosophy and methodology of economics came from Friedrich von Wieser." (Hutchison, 1981; 205)*

Friedrich von Wieser of the Austrian School introduced the concept of "opportunity cost". When Böhm-Bawerk released his work on capital theory—that is accepted as Austrian these days—in the 1880s and 1890s, it was widely accepted as part of economics (Holcombe, 1999). After Menger's retirement, Böhm-Bawerk became the chairman of Vienna University. He studied capital theory and continued to comment on the Marxist labor theory of value until his death in 1914. Thus, Vienna University became the popular center of the Austrian School before the First World War. Böhm-Bawerk organized many seminars at this university, which helped to spread the Austrian School's theories and views to a large number of students. The second generation of the Austrian School included Hans Mayer, Ludwig von Mises, and Joseph Schumpeter (Yay, 2004; 3-4).

Wieser, developed Menger's works even further, and gave clarity to Austrian methodology. However, Wieser was influenced by German ideas, but could develop a distinctive characteristic of an Austrian perspective. *"In Wieser's writings (unlike, briefly, in Menger's Problems) there seems to be very little recognition of the significance, and uniquity, of ignorance and uncertainty, which are especially relevant with regard to his opportunity-cost doctrine." (Hutchison, 1981; 207)*

Wieser explains (1928, p.8 also cited in Hutchison, 1981; p. 206)

> For all actions, which are accompanied by a consciousness of necessity, economic theory need never, strive to establish a law in a long series of inductions. In these cases we, each of us, hear the law pronounced by an unmistakable inner voice.

Until Mises, the Austrian School did not have an integrated viewpoint or system. Although Menger is the founder of the Austrian School, Austrian economics did not differ significantly from mainstream economics until 1920. Mises accepted this after he completed his studies (Holcombe, 1999). In 1912, Mises published his study, *The Theory of Money and Credit*, which made him a leading authority on financial economics. However, "*The Calculation Debate*" was the main study that built his reputation (Holcombe, 1999).

Mises' work is covered in more detail later. However, to enable easy comprehension, some points about the Austrian School are reiterated here.

At the beginning of the 20th century, Austrian economics differed from mainstream economics because of two factors: the calculation debate and the development of economics as an academic discipline. A few years after the foundation of the Soviet Union, in 1919, Ludwig von Mises claimed that centralized, planned economies were condemned to failure. Mises integrated this thought with his later studies and defended it until his death in 1973. Hayek agreed with Mises; however, most other economists of the time opposed this view, thereby creating the socialist calculation debate. The general belief of the economists of that time was that Mises was wrong and that centralized

planning was not only viable, but was also better than the market as a method of allocation of economic resources (Holcombe, 1999).

The modern Austrian School is very different from the neoclassical school in its interpretation of economics because of methodological, ontological, and epistemological factors. For Austrians, the logic of economic processes includes choosing between alternatives, using resources efficiently, preventing resource wastage, and making rational choices to achieve rational and reasonable results. Then, the main problem of economic science is how to actualize all of these systematically and consistently. The economists' task is to find sustainable solutions and correct approaches to all of these problems.

In the context of rational calculation, the Austrian School finds the emergence of information under implied circumstances through individual behaviors important. They consider that, therefore, such information can be used by society. In addition, information is discovered because of the interaction between individuals. According to the Austrian School, individuals' subjective knowledge is not significant from the economic perspective; rather, the interaction between individuals causes creativity. This is an important viewpoint of the Austrian School. The School also explains that the availability or discovery of implied knowledge can only be possible because of the existence of competition and personal property (Adaman and Madra, 1995).

Thus, the main theories and views of the Austrian School can be summarized (Kirzner, 1987) as follows:

i. Methodological Individualism: This view states that economic facts and phenomena can only be understood by analyzing individuals' actions and motivations. It is different from political or ideological individualism.

ii. Methodological Subjectivism: According to this view, economic value can be understood by referring to individuals' actions, choices, perceptions, and knowledge.

iii. Marginalism: This theory states that changes are important where decision makers are faced with economic constraints

iv. Marginal Utility: A decrease or increase in marginal utility influences demand and market prices.

v. Opportunity Costs: These costs, which influence economic decisions, are the costs of foregoing the next best alternative or opportunity.

vi. The structure of consumption and production: The structure of consumption expresses time preference, whereby present consumption is usually preferred to future consumption. The production process is roundabout in nature and involves a time component.

2.2. Main Components of Socialism

It is difficult to define socialism, because one faces questions such as what is understood by "socialism," where socialism begins, and where it ends (for instance, whether communism is the end of socialism). These are important questions, and some answers must be given in speaking about socialism. The most important factor is that a specific definition and structure of socialism does not exist. Because socialism

encompasses all the richness and complexity of political history, we cannot talk about socialism as a whole. Therefore, it is not possible to reduce or degrade its origin to one point; it is also inaccurate to say that it flows from a single source. In other words, the theoretical construct of socialism cannot be separated from the conditions of its origins (Lichtheim, 1976; 13).

Because of these difficulties, certain definitions of socialism according to certain restrictions and principles can be given. In addition, this will be enough. The aim is not to bring a new perspective to the concept of socialism; that task is best left to historians and political scientists. The best way is to trace the development of socialism in political history and discuss the stages of theory and practice together. This method will help to integrate its historical and philosophical contexts and observe the associated interrelationship. Besides, to look at the history of socialism is to look at the political history of Europe, especially in the last two centuries. This too is a difficult task.

Contrary to the word "communism," socialism is the basic analytical and critical word about human nature. It is the expression of a certain form of social action with the people, or a specific group of people, or is used to describe those who believe in the movement. Socialist opinions began with the aim of achieving equality. However, the collective ownership of the means of production and the management of ideas based on the idea of a society were developed only with the advent of socialist political parties toward the end of the 19th century. From 1830, thinkers had a vague sense of the word "socialism" in this respect, and the reshaping of society as a basis to relate to this word had partly begun (Hobsbawm, 1982; 7-8).

From the beginning, the purpose of socialism was to show the necessity of a certain social order and ask for its establishment (Lichtheim, 1976; 13). Socialism expresses itself as a criticism to protect personal liberty and rationalism (Lichtheim, 1976; 14). In the past, such demands were considered impossible and ignored. However, the industrial revolution provided new ways of creating goods by setting free the forces of production. Thus, it became difficult to assume that the equal satisfaction of everyone's material needs was an unreasonable demand. If society was richer, why could simple, ethical criteria is not used to fulfill everyone's financial requirements? If the existing social order prevented this from happening, why this order could not be changed peacefully, or through less peaceful ways to counter upper-class resistance? Once the possibility of the spread of welfare was understood, these assertions could not be ignored easily. Equality should not be limited to small, segregated groups; it should be applicable to the entire society. This was what the utopian socialism schools wanted to achieve between 1815 and 1848 (Lichtheim, 1976; 19-20).

> Private property can be abolished only when the economy is capable of producing the volume of goods needed to satisfy everyone's requirements… *The new rate of industrial growth will produce enough goods to satisfy all the demands of society…* Society will achieve an output sufficient for the needs of all members… *the ending of the system by which one man's requirements can be satisfied only at the expense of someone else.* (Henderson, 1976; 372-6, italics added, also cited in Hutchison, 1981; 10)

The socialist movement began to take shape from about 1818 until 1848, the period of the French Revolution. It was a time of high emotion that influenced and was influenced

by the socialist movement. The publication of the Communist Manifesto in 1848 further stimulated the period of revolution in Europe, as it marked the birth of the modern theory of socialism with its political implications.

Marx's work influenced by German philosophy and he formulated socialism in a scientific manner with the help of this philosophy. However, in forming the concept of socialism the work of Anglo-French thinkers predominates (Lichtheim, 1976; 20). Many people believe that Marx shaped socialism in its original form, removing it from the realm of utopia and giving it a scientific basis (Huberman, 2009; 53). Some believe that Marx was a revolutionary, a man of action; others believe him to be a thinker, a theorist, whereas for some, he is a philosopher and a scientist. No matter how people may think of him, we can say that he was the founder of scientific socialism as a theory. In the history of socialism, it can be said that socialism began with Marx. Before him, there were not clear and systematic works about socialism. Today, Marx is considered the greatest thinker of the complex ideology of socialism; it can be claimed that he is the only real thinker (Lichtheim, 1976; 267).

After Marx, his disciples and followers continued his work, and tried to look for solutions where they found missing parts. Some experts say that Marx's theories are complete in themselves, as a careful scanning of his works would reveal. This is out of the scope of our argument. The best-known Marxian theorists, also known as imperialist theorists, after Marx include Rosa Luxemburg, Rudolph Hilferding, Lenin, and Nikolai Bukharin.

Marx's theory and philosophy are not explained in the following pages. However, even if we do so literally, we cannot claim that it is exactly Marx's description. That is

because Marx's ideas spread to several studies, covering many areas and subjects; and if you do not read in this coherent manner, it will remain closed to you. Besides, it is not possible to separate Marx's work from the definition of socialism. Marx's thoughts and the concepts of socialism are so intertwined that after a point, there is no need to explain this or distinguish between them. Therefore, we focus on the relationship between Marx and socialism and describe the history of the movement, making use of trusted sources.

Marx and Engels were acquainted with communism relatively late. Writers and theorists of the 1830s and 1840s did not impress these two thinkers much. Even though they were interested in the communist movement, the quality of these movements was different from the utopian socialism of the middle class in the same period (Hobsbawn, 1982, 6-7). Utopian socialism was based on a feeling of injustice to human beings. Utopian socialists not only denounced the status of present-day society, but also thought and discussed about their ideal society. Each thinker made detailed proposals about the structure of the future society. In contrast, the socialism of Marx and Engels was based on the analysis of humanity's historical, economic, and social development (Huberman, 2009; 50-52).

Unlike the utopian socialists, Marx did not spend time on detailing the structure of future economic institutions. Instead, he focused on examining present-day economic institutions. Marx's work, in his time, was very shocking and frightening, because he attacked capitalism and the bourgeois economy with their weapons and also claimed that the contradictions in capitalism would sow the seeds of its destruction (Huberman, 2009; 52).

Marx's conclusion was that civil society is a mental fiction and something that describes the reality of bourgeois society in a closed manner and conceals its evils. This created a false consciousness for the entire society and proletariat. . Bourgeois society created by bourgeois entrepreneurs is based on the market economy. This is an integrated society with class conflicts. In this society, an inherent conflict exists between the owners of the means of production and those who have been deprived of these means by the owners. This conflict includes disputes between the various elements of society (Lichtheim, 1976). Marx and Engels questioned the reasons for this state of society and in their research, found the existence of a unifying element that characterized all human historical development. Marx found that materialism characterized human development and that human history was a history of class struggles. Historical events are not free of each other; the situation might seem like a random collection of events, but facts and events differ. History is not a rat race; it is a law-abiding, certain science. That, Marx finds, are the laws of the development of society (Huberman, 2009; 54). This law is best understood in the following extract from the preface of Marx's book, *A Contribution to the Critique of Political Economy* (1977):

> The mode of production of material life conditions the general process of social, political and intellectual life. It is not the consciousness of men that determines their existence, but their social existence that determines their consciousness.

This means that in each civilization, economics, politics, law, religion, and education depend on each other. It is impossible to distinguish between these relationships because they are based on each other and change each other; they are cause-and-effect relationships. Among all of these forces in the economy, economic relationships are the

most effective and fundamental. The pillars of the structure are the relationships that exist between people as producers. The way people live and forms of livelihood in a given society at a given time determine the prevailing mode of production. In this sense, people's ways of thinking, ways of life, or generally accepted social behavior specifies the order in life. (Huberman, 2009; 54)

As in the previous section, it would be helpful to summarize Marx's theory of socialism here. Marxian socialism is separated from its predecessors in three ways (Hobsbawn, 1982; 23):

i. Instead of partial critique of capitalist society, introduce a comprehensive critique of capitalist society
ii. Place socialism within a historical analysis of evolutionary process
iii. Bring clarity to transformation process from the old social structure to the new one

Socialism and capitalism are contrary systems. In capitalism, instead of common ownership of the means of production, there is private property or private ownership of means of production. Furthermore, in capitalism, production is for profit, whereas socialism is often considered an anarchic system where production is planned for use. In this sense, socialism is not an improvement on capitalism; it is a revolutionary change, the re-establishment of society on different lines. The most important feature of this socialist system is that it is based on a planned economy. The socialist economy is characterized by public ownership of the means of production and central planning. Thus, the country ceases to be the property of a handful of people; everything is in the public domain, for the public benefit, and is used by the public. Public interest is

foremost in this system, production is planned for the use of people; and everyone is provided jobs and economic security. (Huberman, 2009; 63-65)

It is important to remember this last point about socialism—that the socialist economy is necessarily a planned economy; and without centralized planning, socialism is impossible. This point is of vital importance for both sides of the calculation debate, and has been made here to put the criticisms of both sides into perspective. Let us now move to the calculation debate.

2.3. Thoughts About Calculation Argument

The socialist calculation debate began with Mises' 1920 article, "*Economic Calculation in the Socialist Commonwealth*." Although Mises started the debate, some economists had considered this problem before him. However, these initial opinions were based on assumptions because of the lack of socialist economic experience and practice. These philosophers explained that there would be problems in implementing socialism. Philosophers like Pareto and Barone expressed that socialism has a responsibility to solve those economic problems, which in a market economy are solved by the market itself.

In 1897, Pareto put forth some thoughts about this issue, which were later developed by other economists. Pareto's main approach was mathematical analysis, and he stated that the mathematical analysis of equilibrium assumed that the data necessary for equilibrium was available. Barone and other philosophers also expressed similar reservations and came to the same conclusion: the mathematical solution of the calculation problem in socialist economies would need to use the same methods as

market economies. However, both Barone and Pareto emphasized the importance of the data provided by the market, and said that without these data, it would not be possible to solve this equality system mathematically (Huerta, 2010; 101).

Pareto (1971; 171) says:

> …as a practical matter, that is beyond the power of algebraic analysis…In that case the roles would be changed; and it would no longer be mathematics which could come to the aid of political economy, but political economy which could come to the aid of mathematics. In other words, if all these equations were actually known, the only means of solving them would be to observe the actual solution, which the market gives.

In 1902, five years after Pareto, Pierson claimed after a discussion with Kautsky that there would be a "value problem" in a socialist economy. Besides, he claimed that socialists have to show how they would have a price system. In a capitalist society, this value problem would be solved by the market; but a socialist society would not have such tools to solve the value problem:

> The practical problem of value which is automatically solved (by the market)… would not disappear if its automatic solution were made impossible; it would remain in its entirety. (Pierson, 1902: 60-1)

Pierson (1902; 75) added:

> The commercial principle, which such a society sought in vain to abolish, comes once more into the foreground… The phenomenon of

> value can no more be suppressed than the force of gravity. What is scarce and useful has value… to annihilate value is beyond the power of man.

Pierson addressed the issue and identified all the essential characteristics of economic calculation. They are as follows (Steele, 1981; 12):

i. Society faces economic problems, which cannot be solved by those competent in other fields, such as technologists or engineers.
ii. These problems will not disappear under communism/socialism, but in the present solution the market (for factors of production) will disappear. Therefore, communism/socialism will have to find an alternate solution.
iii. Any such solution must take the form of comparing all goods according to common units denoting what Pierson calls their "value."
iv. (By implication) Apart from market prices, no such units can be found. Therefore, communism is impossible.

Mises pointed this out in his book: "Pierson clearly and completely recognized the problem in 1902" (Mises, 1922; 135). In this context, we can claim that Pierson was the first scholar who analyzed the issue systematically and commented on it.

When Hayek revived the debate with his collection of essays in English, *Collectivist Economic Planning* (1935), it was natural for him to feature Pierson's essay, "*The Problem of Value in the Socialist Society*" in the book. Hayek also put Enrico Barone's article, "*The Ministry of Production in the Collectivist State*" in the book. Barone's thoughts were similar to those of Pareto and Pierson; besides, like Mises, he drew attention to mathematical impossibilities. In the 1920s, when Mises started the debate,

some scholars who pointed out criticized him that Barone had already explained these views. Apparently, Mises did not know about that study.

Barone, following Pareto, drew attention to the mathematical impossibility or great difficulty of solving the system of equations. He adds that even if it was assumed that a collectivist, centrally planned state would somehow overcome the equations system and solve them, the information provided by the market that is necessary for determining and formulating the equations would still remain a problem (Huerta, 2010; 101).

Barone (1908; 287-8) stated:

> It is not impossible to solve on paper the equations of the equilibrium. It will be a tremendous—a gigantic—work: but it is not impossibility… but it is frankly inconceivable that the economic determination of the technical coefficients can be made a priori... This economic variability of the technical coefficients is certainly neglected by the collectivists... It is on this account that the equations of the equilibrium with the maximum collective welfare are not soluble a priori, on paper.

It can be said that these thoughts do not include the whole problem, especially Barone's problem. This is very important because most people believed that Barone, who had also suggested a solution before Mises, had already mentioned Mises' thoughts and objections. However, there are two missing points here: first, nobody could understand the nature of problem; and second, they did not read Pareto and Barone correctly (Huerta, 2010; 125).

Friedrich Wieser, Max Weber, and Boris Brutzkus offer similar solutions to this problem. Although their contributions are not as significant as Pareto, Pierson, and Barone, they were nevertheless important, and it is appropriate to mention them.

Wieser, like Mises, in 1889 and 1914, sensed the existence of this problem and compared a centrally planned economy to a market economy. He stated:

> In economics, the dispersed action of millions of individuals is much more effective than organization from above by a single authority, since the latter 'could never be informed' of countless possibilities. (Wieser, 1914; also cited in Huerta, 2010)

Max Weber's ideas on the calculation problem are found in two books, *Economy and Society* and *The Theory of Social and Economic Organization*. In these books, he expressly addresses the economic problems that would arise from an attempt to put socialism into practice. In particular, Weber stresses that calculation in kind, proposed by socialists like Otto Neurath and Otto Bauer, had limitations, and could not provide a rational solution to the problems of socialism. (Huerta, 2010; 102; Steele, 1981; 13):

> In order to make possible a rational utilization of the means of production, a system of in-kind accounting would have to determine "value" – indicators of some kind for the individual capital goods, which could take over the role of the "prices" used in book valuation in modern business accounting. But it is not at all clear how such indicators could be established and in particular, verified; whether, for instance, they should vary from one production unit to the next (on the basis of economic location), or whether they should be

> uniform for the entire economy, on the basis of "social utility," that is, of (present and future) consumption requirements [...] Nothing is gained by assuming that, if only the problem of a non-monetary economy were seriously enough attacked, a suitable accounting method would be discovered or invented. The problem is fundamental to any kind of complete socialization. We cannot speak of a rational "planned economy" so long as in this decisive respect we have no instrument for elaborating a rational "plan." (Weber, 1978; 100-3)

Brutzkus' works are closely related to those of Mises and Weber. After the establishment of communism in Soviet Russia, Brutzkus tried to analyze the practical problems of communism. He claimed that without market prices, economic calculation is theoretically impossible in societies with centralized planning (Huerta, 2010; 103). Brutzkus denied the idea of calculation in kind, which was proposed by Neurath and Bauer, and claimed that such a calculation could not be performed. He considers the idea of using labor as a measure of production costs, but concludes that it is not possible to use labor and reduce the varying qualities of labor to a single, homogeneous measure (Steele, 1981; 15). He states that socialist planners must evaluate every individual's needs and then determine the means to fulfill these needs. However, he acknowledges that it is an impossibility to calculate such enormous data and is no doubt well beyond the capacity and power of any administrative and planning authority (Steele, 1981; 16).

> Under socialism, there is no general measure of value. Suppose that a Soviet estate has contributed so and so much milk, so and so many pounds of meat, so and so many bushels of grain. How many pounds of best quality seed, how much artificial manure or oil cake, how many head of breeding cattle or

> suits of clothes and how much fuel may the estate claim in return for its products?... in a society without markets the problem is insoluble. (Brutzkus, 1935; 45-6)

On the other side, that is, the socialist side, we have the value argument based on Marxist value theory and on how value can be determined in a socialist society. The following extract from Engels' Anti-Dühring is significant in this context:

> Society can simply calculate how many hours of labor are contained in a steam engine, a bushel of wheat of the last harvest, or a hundred square yards of cloth of a certain quality, society will not assign values to products. It will not express the simple fact that the hundred square yards of cloth have required for their production, say, a thousand hours of labor in the oblique and meaningless way, stating that they have the value of a thousand hours of labor. It is true that even then it will still be necessary for society to know how much labor each article of consumption requires for its production. It will have to arrange its plan of production in accordance with its means of production, which includes, in particular, its labor-power. The useful effects of the various articles of consumption, compared with one another and with the quantities of labor required for their production, will in the end determine the plan. People will be able to manage everything very simply, without the intervention of much-vaunted "value" (Engels, 1962; 424-5 also cited in Huerta, 2010; Cockshott and Cottrell, 1993b).

The socialist side of the debate had a supporter in Otto Neurath, who is from Austria, and objected to the arguments of Pareto, Pierson, and Barone. He claimed that a war

economy could work at the time of peace as well, and tried to demonstrate this. He tried to describe the operation of an economy in kind and the priorities of the market economy in his article, "*Through War Economy to Economy in Kind*." He stated that in the economy of the future, money would not exist and calculations would be conducted according to value in kind.

Mises was moved to action by Neurath's article. In his response, Mises explained the problems of the socialist economy described by Neurath; he added that if these problems were not solved, such an economy would not be able to operate. According to Mises, the theory and logic of socialism is not superior to that of the market economy, and problems that are easily solved in the market economy would pose greater challenges in a socialist economy.

Mises did not receive any response to his suggestions, the reason being that he wrote in German. Therefore, this debate remained stuck in the world where German was spoken, that is, between economists in Germany and Austria. Although the debate had started in the 1920s, most people and economists had no idea about it. Both Mises and this debate drew the attention and participation of British and American economists only when Hayek translated Mises' article in English and put it in his book with his own arguments (Hayek, ed., 1935).

From this point, this debate is recorded in the literature as "The Socialist Calculation Debate" or simply the "Calculation Debate." It started in the 1920s, continued intensively in the 1930s, and drew participation until the mid-1940s. The main question was whether or not socialism was possible, and whether economic objectives could be

realized under this system. In other words, does a socialist economy perform? On the other hand, can there be a socialist society?

After this summary, a classification may provide an understanding of the sides and the times. The first classification is the "Standard Version," whose main participants were Lange, Neurath, and Taylor on the one side, and Mises, Hayek, and Robbins on the other side. This is also separated into two part, one that in 1920s and the other that in 1930s. In the first part, Mises is the central figure, the second part is mostly Hayek's years. The second classification is the "Revised Version," which was started by new-generation Austrian economists in the 1980s. They started to discuss this topic again, because according to their theory, socialists could not clearly understand the arguments of Mises and Hayek and were, therefore, unable to find persuasive answers to them. In other words, the theories of Mises and Hayek were either not understood by others or they could not find an answer to these theories. Because of this, the new Austrian economists stated that the calculation debate was not over yet. Don Lavoie had strong feelings about this (1985). They also claimed that Austrians had won the debate, because first, socialism could not solve the central planning problem and switched to a market economy, and second, the Soviet system had collapsed.

After this short summary, we can now discuss the details and actors of the debate. The following section will focus on the six thinkers who are considered the main actors in this debate.

3. THE CALCULATION DEBATE

Before starting the discussion, it is useful to define "calculation" and explain the differences or similarities between "calculation" and "computation." This will help us to understand the issue better and will save time. Knowing what definitions and concepts represent helps gain awareness and facilitates discussion.

3.1. The Meaning of Calculation

When research is conducted about the meanings of calculation and computation, some issues about physics and mathematics arise. The meaning of these words in mathematics and physics is completely different from their meaning in economics. Therefore, we will focus on the definitions that concern economics. Such a definition is given below:

> The word calculation comes from the Latin *calces* (chalk used in the Greek and Latin abacus). In a number of languages calculation or rather the corresponding foreign word of the same origin means computation in its wide sense, while in others it is used not only of computation of in the sense of judgment and conjecture. In trade and economics, calculation generally means a computation of what a commodity will cost collectively or as a unit, at purchase or sale (Hoff, 1949; 11).

Calculation is a broader concept than computation. It can be said that calculation includes computation. Computation works with individual costs, whereas calculation works with all of the costs. Calculation is based on estimation, it defines mathematical operations; it is also a process to determine costs and attribution of value.

This gives rise to the next question: why do we need calculation or why do we make a calculation?

We need calculation partly because of competition and partly from desires. To satisfy our own desires, we demand something and make choices, and in every choice we make, there is some exclusion. We search for the ideal to satisfy our demands and desires. Alternatively, in trade, we supply something, but because of competition, we need to decide what to supply and in what size and amount; for this, we need calculations. To gain more, we compel ourselves to produce or supply the appropriate goods or services in appropriate proportions. In both of these processes, we both make and need calculation.

> In trade the basis of calculation is the purchase price of the commodity (foreign currency being converted), to which is added freight, packing, insurance (where goods are bought c.i.f.: cost, insurance, freight), duty, loss of interest, wastage and other charges. In industry the object of calculation is to determine, what the commodity produced costs the producer. Here is the basis is the purchase price of the raw or semi-manufactured materials used, to which is added all the costs connected with its manufacture: wages, power, wear and tear, amortization and wastage, together with the general charges of the producer himself. The size and nature of these depends on whether the concern in question sells through wholesalers or direct to the public. (Hoff, 1949; 11)

In commerce and economics, we have seen that calculation helps to determine the cost of each product or collective costs of several products and services. “Cost” expresses a

financial statement and exchange value. If we analyze the concept, we can see that it represents money, price, exchange, market, quality, and value. There are no markets or money in socialist society, which makes the situation more complicated. A socialist society does not have to use money, but this situation is unclear. In other words, will socialist societies use money or will money-value appear? If socialist societies use money, they would not be very different from capitalist societies. However, if there were no money and market, what would replace these? According to classical Marxism, labor-money will replaced money and markets. This evolution will be more rational than money value (Cockshott, 1993c).

Here, we should make a distinction between "money cost" and "real cost." If cost is defined using a financial approach, it is money cost; if cost is defined as the sum of physical and mental labor, it is real cost. Money cost is flexible, whereas real cost is constant.

Two other definitions of costs are as follows:

I. Embodied costs or pain costs: the effort or resources used to produce the product

II. Alternative costs or opportunity costs: for the purpose of production, it defines "why" and "for what" we should sacrifice production of a particular commodity.

However, these two definitions do not resolve our problems. Costs are related to psychological and subjective concepts, that is, they represent a value criteria, unit, or element. The concept of value is related to the concept of cost. The value problem is always a critical problem for economists. It makes frequent appearances in economic calculation discussions.

At this point, the problem will exist depending on how we define its existence or absence.

> If, e.g., we define calculation as "computation of commodity's value" and then later give "subjective" definition of the concept of value, we undertake a priori an inadmissible limitation of the scope of our investigation, in that by doing so we preclude solutions based on "objective" (Marxist) theory of value. If, on the other hand, we give an "objective" definition of the concept of value, we exclude the possibilities of calculation, which have to be based on subjective value-reactions (Hoff, 1949; 13).

From here, the following definition of calculation is accepted:

> By calculation is understood computation of what an economic good, acquired or self-produced, collectively or as a unit, "costs" in its acquisition (or will "cost "at the moment of its disposal) irrespective of how the costs are measured (Hoff, 1949; 14).

Since we are talking about economic calculation, and have used the term "economy" in the discussion of calculation, we must explain what "economic" means in this context. Practically and technically, all economists who have discussed economic theory have defined it based on their understanding of economic activity. All definitions are appropriate within a wide range. This methodological difference is due to the existence of different schools of economic thought, each of which has its own economic theory and specific definitions of economy and economic activities. The content of these definitions is beyond the scope of this study. Besides, it would not be productive to

discuss economic theory at this stage. However, these definitions are analyzed briefly in order to build a background for our issue. It will also help us understand how economists on both sides of the debate perceived and approached the problem.

We can analyze the definitions under two groups. The first group relates the economy with wealth and emphasizes production, exchange, distribution, and consumption. The second group relates the economy with scarcity. From this perspective, the first group gives great importance to economic activity. The focus is not on defining which activities are "economic" or otherwise, but on planning economic activities with the objective of maximizing a benefit, profit, or utility. It is the planning of economic activities, finding the optimum situation in the future.

The second group's focus is how to rationalize the economic problem or how to be economical (increase saving). It states that economics should choose the rational way because of the scarcity of resources. This definition is interested in "the choices of individuals from the different available alternatives in order to satisfy their wants and needs." According to this group, given that resources are scarce, those activities should be given preference that work toward the future welfare.

However, the economic calculation issue is related to both these definitions. It is related with production, distribution, and their effective planning, of and with making rational choices between scarce resources.

It may be noted that our problem, the investigation of the possibility of economic calculation, fits equally well with either group of definitions. Calculation is concerned with the state of production and distribution, thus agreeing with the first group; it also

represents precisely the study of the distribution of limited resources, which conforms to the second group.

Since the term "economic good" is used in the definition of calculation, the element of scarcity comes in. "Economic good," is understood as material objects or services of any kind, which are desired and which exist in a limited quantity. Since the term "economic good" has been introduced in the definition of calculation, it is, strictly speaking, unnecessary to characterize calculation as "economic." However, we will refer to it as "economic calculation" to show that it is concerned not only with production and distribution, but also with conditions that presuppose scarcity, such as necessitating a choice between alternative uses. In other words, if a notion such as scarcity did not exist, then economic calculation would not be needed. The scarcity of resources enforces the necessity of economic calculation (Hoff, 1949; 17-18).

When making choices between alternatives, a choice is "economic" if after the choice, what we achieve is greater in value or quantity than the alternatives and wants we sacrificed for this choice. Thus, any choice that is made must be "rational." In other words, if an individual wants to make a choice between alternatives and wants this to be a rational action, then he or she should consider the economic calculation. Here, scarcity is accepted as a prerequisite and a condition; a situation of no scarcity is excluded from the analysis. To make economic calculations, it is necessary to see the presumed situation not subjectively, but objectively.

After a brief review of the definitions and concepts in the discussion of economic calculation, we can now move to the debate.

3.2. The Possibility of Economic Calculation in Socialist Economies

After the 1917 revolution in Russia, Lenin and the Bolsheviks took control of the country's management. In this context, the criticism often made against Lenin and his party that they did not know what to do after assuming power, is unwarranted and false. They began to establish the elements of socialism, gradually building a kind of socialist economic organization. However, before doing so, it was necessary to eliminate the structure and institutions of the old order. In 1918, the Bolsheviks declared war communism with the aim of supplying weapons and food to the cities and the Red Army. To achieve this, all industries were nationalized and centralized planning began. The state monopolized all the economic components, including trade. The market and money were removed (Nove, 1969).

> On 15 December 1917, the supreme council of national economy was set up. This was known by its initial letters, VSNKh (or vesenkha). In examining its powers at the time of its creation, we shall find some evidence of the view held at this time of the role of central planning and the intentions with regard to the nationalization of industry and trade (Nove, 1969; 51).

VSNKh's task was to detail the norms and principles of the plans. Furthermore, coordination and operation of the nationalized land, commerce, and enterprises was also in the ambit of VSNKh's responsibilities. Several sub-committees and workers' associations were established to coordinate these tasks. These regulations and institutions helped economic activities all across the country and began to reorganize economic life in accordance with the principles of socialism.

> VSNKh endeavored to cope with an impossible job. By September 1919, according to Bukharin, there were under its control 3,300 enterprises, employing about 1.3 million persons, or the statistical records purported to show, while Bukharin himself thought the number of nationalized enterprises was about 4,000, but presumably the figure here given only relate to those within the purview of VSNKh (Nove, 1969; 68).

Therefore, we can identify the following characteristics of war communism (Nove, 1969):

i. An attempt to ban private manufacture, the nationalization of nearly all industry, the allocation of nearly all material stocks, and of what little output there was, by the state, especially for war purposes
ii. A ban on private trade, never quite effective anywhere, but spasmodically enforced
iii. Seizure of peasant surpluses (prodrazverstka)
iv. The partial elimination of money from the state's dealings with its own organizations and the citizens. Free rations, when there was anything to ration.
v. All these factors combined with terror and arbitrariness, expropriations, requisitions

This was for the first time that a socialist system was experienced in reality. Soviet Russia had experienced both planning and a planned economy. Already, these applications were going to be a source of inspiration for Neurath. We can now discuss Neurath's inputs on the fundamental issue of calculation.

3.2.1. Neurath: Through War Economy to Economy in Kind

If Mises lit the fuse of the socialist calculation debate, then it can be said that Neurath was the fuse. Neurath was influenced by the German Historical School and worked with Schmoller. In this context, it is interesting to recall the methodology debate between Schmoller and Menger at the beginning of the 20th century. In the socialist calculation arena, on one side was Neurath who belonged to Schmoller's German Historical School, and on the other side was Mises, who belonged to Menger's Austrian School.

Neurath was a socialist, and from his early days, he believed that the principles on which a socialist economy works should be different from those of a capitalist economy. Before the First World War, he had already started work on developing such an economic system.

He wrote the essay, "*Through War Economy to Economy in Kind*" in 1919 after the war, in which he explained how the economy should be after the war. At this point, the importance of this book and Neurath begins for us. As we stated earlier, these thoughts influenced Mises.

Neurath wrote this book because he believed that the war marked the end of the free exchange economy, which would be replaced by an administrative economy. In other words, an organized economy in kind would replace the money economy (Neurath, 124). According to Neurath, money causes wrong allocation of resources and leads to inequality, because identifying prices in monetary terms causes falsification of values (Desai, 290). Neurath envisioned an economy that is managed without money by a center.

Neurath evaluated the war economy as a different system. According to him, extreme situations such as wars reveal the insufficiencies of the market economy and the superiority of the administrative economy. If the war economy were planned correctly, the system would also work smoothly during times of peace. This system would be an economy in kind that would not use money. In conclusion, he said that economies in kind would be the future structure, the economic system then would become socialized and hence, more effective. War works as a tool to reshape societies to the economic structure that he had in mind. Therefore, there would be a systematic socialization with the help of war.

According to Neurath, a world war would pave the way for the future administrative economy, because during a war, economic resources and the labor force are used and planned administratively. A normal economic crisis proceeds slowly, starting from a certain point, and gradually spreading to other parts of the economy, whereas the crisis caused by war appears suddenly and affects all parts of the economy simultaneously (Neurath, 1919; 126).

Consequently, if peacetime circumstances and a free market economy model continue at wartime, it could prevent the country from achieving its military objectives. Because of this, a different economic theory is required for wartime. Besides, war changes the structure of economic organization in a different way. Most traditional forms disappear and are replaced by newer forms that are often the opposite of the traditional forms. It must be so because the existing system could not handle the wartime structure (Neurath, 1919; 131,133).

In Neurath's words:

> Perhaps existing professions and forms of organizations are inadequate; perhaps in order to achieve full humanity and the best use of all energies towards each envisaged goal, we must create new forms of profession and organization. (Neurath, 1919; 131-2)

During the First World War, the plan implemented by Germany was similar to what Neurath had in mind. In this planned model, resources were allocated directly without considering the prices. Briefly, it can be said that the priority during war is productivity instead of profitability. The primary aim of a capitalist system, in all economic relations such as production and commerce, is to maximize profit. However, in socialist economies, the primary objective cannot be profit. The socialist economy aims to maximize happiness. The aim of a socialist economy is *"to have maximum fun from life and to get maximum benefit from life for communities"* (Desai, 2011; 291).

However, like utility, happiness is not measurable either. Therefore, Neurath tried to create a measure for a life standard using variables such as nutrition, health, life expectancy, housing, and clothing. He tried to collect all of these in one criterion, whose level and range would be of interest to a socialist planner. He envisaged a central economy administration supported by a calculation in kind center. This center would calculate the life standard as a universal statistics, and economic responses and relations would be calculated based on these statistics (Desai, 2011, 291).

> Of course, all this depends largely on whether today's growing intention to overcome the effects of war as quickly as possible, will find a clear goal.

> Then it will be possible that after the war we shall not only make good through organizational reform the permanent damage attendant on war but also furthermore create a happier life than existed before the war (Neurath, 1919, 135).

Economy in kind and Character and course of socialization

Neurath explains the process of establishing the possible future economy in kind. That process is socialization, which will involve removing money and establishing management by a central system; economics in kind will then take place in this planned economy. If this were possible, resources would be used effectively.

The essential of socialist economics is its moneyless nature. As Neurath wrote:

> The socialist economic theory, based on economic planning, without making profit and loss calculations, and excluding the circulation of money, recognizes only one manager or producer society who organizes the production or forms the life standard (Neurath, 1919).

Therefore, there would be no market or commerce. Products would be supplied according to needs that are estimated by a scientific calculation such as the life standard. Production decisions would depend on a democratic control and money or profit would have no role in a socialist economy (Desai, 2011; 292).

> The epoch of the free trade economy whose falling off we are witnessing was based on the officially recognized aim of the greatest possible net

> profit. This obviously did not lead to a complete use of all capacities (Neurath, 1919; 132).

Economic efficiency can be realized by building an organization that has a proper economic plan. The planners should not only know about possible production and consumption, but also about the availability of raw materials, energy resources, labor, and machinery. Then, they can decide where and how much to spend (Neurath, 1919; 140).

In the new economic structure, remuneration and other negotiations would be based on working hours. The central office would evaluate how many hours to work daily, such as seven, eight, or nine hours, whether to have more free time and produce less, or produce more with less free time. The daily hours of work will then be made a regulation. In the traditional order, working eight hours a day is perceived as a reflection of greater productivity, whereas spare time is seen as a commodity in a socialized economic system (Neurath, 1919, 142).

Let us summarize Neurath's (1919; 150) views as outlined by him.

> ...[One way of handling] pressures from the internal political situation of implementing it [socialism] would be to enlist the traditional large organizations, cartels, co-operatives, etc., while at the same time, the state administration takes control of the economy. Successful socialization is possible only in the whole and from above. If one wants to socialize at all, it should be done at once and quickly, because delays and insecurity paralyze. The present moment is especially suitable for

> socialization because the organizations of war still exist, and dire want fairly cries out for a planned administration of all forces, while the break in international relations has made an independent start of socialization easier. Socialization is the prerequisite for the establishment of a comprehensive economic plan and the creation of a directing central office.

Finally, the main tenets of Neurath's works are as follows:

i. War economy: The war economy is a new system that allocates resources effectively,
   namely through a center for managing the distribution and use of resources.
ii. Administrative economy: The war economy requires administration. This is also a control center for the use of resources in order to fulfill the requirements of war.
iii. Economy in kind: The computational model of a planned economy and government would be based on measures other than money; the planned economy would be an economy in kind.
iv. Economy and socialization of the future: The future model of the economy will be created through a process of socialization.

3.2.2. Mises: Economic Calculation in the Socialist Commonwealth

While Menger is widely recognized as the founder of the Austrian School, a vast majority consider Mises the leader of the Austrian School. During the early 20th century, Mises had read Carl Menger's magnum opus, the *Principles of Economics.* This book

helped him to discover the weaknesses of interventionism and contributed to his understanding of free market liberalism (Rothbard, 2004; 47).

As stated above, the calculation debate was seen as a continuation of the debate between Menger and Schmoller, with Mises and Neurath on different sides. Both Menger and Mises challenged the ideas of the German Historical School. The distinguishing characteristic of the German Historical School is its insistence that economic laws cannot be generalized; they are specific to individual circumstances, time, and place. Therefore, rather than economic theory, the only legitimate way to study economics is by an examination of history. This means that, from a political perspective, there can be no economic laws that produce negative consequences of governmental measures (Rothbard, 2004; 61).

After Neurath expressed his ideas, which we tried to analyze above, Mises pointed out the difficulties in an economic system that abolishes the use of money. He did not refer to Neurath by name openly, but it can be easily seen that he meant Neurath and his theory. In 1920, Mises wrote an essay, "*Economic Calculation in the Socialist Commonwealth*," responding to Neurath's theories, and then published a book in 1922, *Socialism: An Economic and Sociological Analysis*, in which he further developed his ideas.

As mentioned earlier, the criticisms of socialism and the difficulties in the operation of a socialist economy model are not new. The critique of socialism is almost as old as the theory itself. However, these earlier criticisms were either based on postulates and prejudices, or abstractions and assumptions. In contrast, Mises' argument included clearer and more distinct elements; he tried to show the fallacies of socialism through

"economic logic." Therefore, Mises' assault on socialism is widely considered both destructive and extensive, because the main components of the economic theory of socialism formed the core of his claims. The shocking effect of Mises' thesis was his way of using socialism's arguments against it.

> Before Mises, the criticisms of socialism had been generally moral or political, mostly emphasizing the massive coercion of the society. In addition to that, if they were economical criticisms, they had mostly focused on the grave disincentive effects of communal or collective ownership (Rothbard, 1988; 27).

The distinguishing feature of Mises' critique was that it was based on the rationality of economic calculation in socialist planning. This was, for the vast majority, "the most devastating possible demolition" of socialism. "His claims were striking, and if they could be sustained, (they were) apparently devastating to the cause of socialism" (Cockshott, 1993b; 5).

Socialist planning, based on Marxian concepts, implies the abolition of private ownership of the means of production and the use of money. For Mises, this was nothing but the "abolition of rational economy." He argued that "every step that takes us away from private ownership of the means of production and the use of money also takes us away from rational economics" (Mises, 1935; 104). Without access to any pricing mechanism for the means of production, the socialist planning authorities could not de facto calculate resource costs, profits or efficiency; as a result, they could not successfully distribute the resources rationally in a modern, complex economy (Rothbard, 2004; 59).

Mises was a money theoretician. This was the main reason he made money the starting point for his attack on Neurath's moneyless economic model. In his book, *The Theory of Money and Credit* (1912), he integrated money with individual behavior and an analysis of the market economy. Thus, through his analysis of individual behavior, choice, and the demand for money Mises was able to integrate the theory of money with the Austrian theory of value and price. He also transformed monetary theory from an unrealistic and distorted concentration on mechanistic relations between aggregates, to a theory consistent with the theory of individual choice (Rothbard, 1988; 10).

It is important to specify two aspects here. First, because of the reason mentioned earlier, Mises mainly criticized Neurath for his ideas on money and value and drew attention to the difficulties and impossibilities of the economic system that Neurath had designed. Second, in a similar manner, Lange made monetary theory his starting point for criticizing Mises. For Lange, Mises was confused about the essence of money and prices; in other words, Lange thought Mises misunderstood the issue.

> But Mises showed that, even if we set aside the vexed question of whether the planners' goals coincide with the public good, socialism would not permit the planners to achieve their own goals rationally, let alone those of consumers or of the public interest. For rational planning and allocation of resources require the ability to engage in economic calculation, and such calculation in turn requires resource prices to be set in free markets where titles of ownership are exchanged by owners of private property. But since the very hallmark of socialism is government or collective ownership [or, at the very least, control] of all nonhuman means of production—land and

> capital—this means that socialism will not be able to calculate or rationally plan a modern economic system (Rothbard, 1988; 28).

Economic Calculation

The economic problem was one of "dissolving, extending, transforming and limiting existing undertakings, and establishing new undertakings" (Mises, 1922; 215). Such acts would be based on "speculative" anticipations of future conditions (Mises, 1922; 205). *Thus, analysis of an economic system cannot be complete without examining the way in which that system influences the relationship between expectations formation and economic outcomes* (Murrell, 1983; 95).

According to Mises, an economy must have a means of economic calculation in order to function (Mises, 1922; 117; Mises, 1949; 199). Economic calculation can be defined as something that provides valuations, both based on present and expected future conditions, and that helps producers choose a production point (Murrell, 1983; 94). "Calculation can be based upon the valuations of all participants in trade; there is monetary profitability an immediate and sure indication of economical production; and values can be referred to as a common unit" (Steele, 1981: 17).

If economic calculation could not be performed, then resources would not be used efficiently, so they would be wasted. This is important, because one of the main criticisms that socialism makes toward capitalism is the inefficient use of resources. Socialists claim that capitalism cannot use resources efficiently because of the problematic structure of the market mechanism. Socialists believe that by replacing the market mechanism with a planning authority, resources can be used more efficiently. However, if it were proved that socialist planners were unable to achieve this aim, then

a system like socialism would not be needed, as it would not have succeeded in removing capitalism's faults. Thus, the theory of socialism, in economic terms, falsifies itself.

All human activities involve an exchange of circumstances or situations, as long as the exchange is rational. Individuals dedicate themselves to economic goods and they dedicate their personal time and labor to the things that provide them maximum satisfaction under certain constraints. Besides, they give up satisfying their less urgent needs in order to satisfy the immediate ones. This is the basis of the process of exchanging economic activities (Mises, 1922; 108).

An individual who makes a preference between needs in order to satisfy one of them uses some sort of standard of judgment in decision-making. These judgments are directly related to people's satisfaction. Someone who can be objective is able to evaluate products for consumption. Besides, under simple circumstances, it is less difficult to make judgments about the importance of factors of production. On the other hand, under complicated circumstances and when it is difficult to determine the relations between means, calculations that are more sensitive are needed to evaluate these means.

A man living in isolation can easily decide whether to dedicate his efforts to improving agriculture or hunting. The production processes he observes are relatively shorter and his desired product can be easily reached. However, a decision regarding whether to use a waterfall or develop a coal mine for generating electricity is a wholly different issue. In this case, the production processes are too long and too many factors are involved in the potential success of such a venture, so cloudy ideas are not enough. Careful

calculation is required in order to decide whether the action is logical (Mises, 1922; 109).

> An action that is based on reason so that is only understood by reason, recognize only one purpose, the maximum satisfaction/pleasure of the acting individual. To achieve satisfaction and to avoid suffering are his/her intents (Mises, 1922; 107).

However, calculations require units as necessary tools. Moreover, the subjective usage value of products cannot be used as units in these calculations. Marginal utility cannot be used as an objective unit to measure value. The value of two units of a certain product—even if it is bigger or smaller than actual product—is not as big as two times of this unit. Standards of judgment do not measure; they organize and provide a rating. If the standard is based on a subjective evaluation, even the person in isolation cannot reach a decision, which has to be based on certain calculations. This man has to assume substitution relations between products in order to make his calculations; generally, he would not grade all the products in a common unit. However, he manages to grade the products based on an evaluation of the labor involved in its production, and then makes his decision on this evidence. However, this situation is also only possible in simple circumstances. For complicated and long production processes, this will be impossible (Mises, 1922; 109).

Finally, calculations based on exchange values provide the ability to grade products using a common unit of value. In capitalist economies, money is the preferred common unit of value. Market negotiations then organize the exchange relationships between products. A product can be obtained through this process (Mises, 1922; 110).

The Economics of a Socialist Community

According to Mises, today's high-tech production has become so complex that it is not possible to cover the entire process in a single plan. To study the production process, the plan should be divided into various sub-plans. In addition, according to Mises, to think that *in natura* calculation would replace monetary calculation in a socialist state is an illusion. In an exchange economy, *in natura* calculation could only include consumer goods, and the calculation of production goods would be excluded. Once production goods are excluded from calculation and their monetary price cannot be determined, rational production would not be possible.

> Just because no production good will ever become the object of exchange, it will be impossible to determine its monetary value. Money could never fill in a socialist state the role it fills in a competitive society in determining the value of production goods. Calculations in terms of money will here be impossible (Mises, 1920; 92).

In a static world, economic calculation would not be needed, and socialism could be efficient (Mises, 1922; 163). However, "In the world of reality there is no stationary state, for the conditions under which economic activity takes place are subject to perpetual alterations which it is beyond the human capacity to limit" (Mises, 1922; 196). Change is the most important environmental feature because the uncertain future produced by change is the cause of all action (Mises, 1949; 105). Therefore, "the problem of economic calculation is of economic dynamics; it is no problem of economic statics" (Mises, 1922; 139). *Despite Mises' emphasis on "change," he did not give a precise definition of the phenomenon. However, it is clear that change caused*

unpredictable alterations in the behavior of economic agents and that it revealed new information (Murrell, 1983; 94).

In conclusion, Mises considered the calculation issue clearly, seriously, and from all economic perspectives. Mises' work was considered by the other side of the calculation debate, but it was a long time before it drew a response.

3.2.3. Taylor: The Guidance of Production in a Socialist State

We specified above that Mises' analysis had no response for a while, because the debate remained between people who knew the German language. Fred Taylor was an exception. Taylor did not fulfill the required conditions, for he was neither a socialist nor an Austrian. Besides, he was living in a region where English was spoken. However, he represented some ideas about production in a socialist economy when he made an announcement at the 41st American Economic Association. His work was later published in *The American Economic Review* in 1929. It is possible that he had not heard of Mises, because there are no references to Mises in his study. Nevertheless, he defined the problems of a socialist economy and proposed a solution that had great benefits. He suggested that the use of resources, which are managed by the production administration, should be decided by a method based on the socialist government's essential qualification.

> The problem embodied in this question: What is the proper method of determining just what commodities shall be produced from the economic resources at the disposal of a given community (Taylor, 1929; 1).

In a socialist state, the decisions of what to produce and how to produce should be made as follows: (1) The government provides money to its citizens (2) the citizens use this money to buy the products they want from all the products produced by the government. This system works exactly as it would in a capitalist economy. Economic agents have a certain income; they have the right to spend this money according to their needs; and finally, this system helps to build the balance between supply and demand. Through this method, citizens can compel the managers of the economy to produce the products they need (Taylor, 1929, 1).

Taylor built his theory on two pillars. First, he talked about why the exchange between production and the citizens seems a powerful starting point and he defended this method. Next, he talked about the problem that should be solved by the authorities before implementing a production management plan.

Before talking about his argument, Taylor explains his view of a socialist government. According to Taylor, the socialist government is a type of government that controls the production mechanism and manages production activities. Therefore, the government buys the productive services of its citizens and sells products produced with these services to the citizens. Thus, there is an exchange relationship in a socialist economy.

At this point, he details the components of the plan that the government could use to control production activities. First, this plan would provide financial incomes to citizens, and citizens would have the right to use this income to purchase necessities. Second, authorities should be honest and serious in determining the amount of money to be provided to citizens. Third, citizens must know the prices of the products when they

make purchase decisions. Finally, economic bodies should decide product prices by considering the cost of each product (Taylor, 1929; 2-3).

Taylor also explained the concept of "effective importance," which he said, could become a criterion to determine how we act and how we value a particular product. Thus, he proposes to determine the effective importance or values of the primary factors (land, waterpowers, raw materials, etc.) owned by the national authorities of socialist governments and note these in "factor-valuation tables" (Taylor, 1929: 3-4). Therefore, costs of products could be determined with the help of these factor-valuation tables as follows:

> In order to determine the cost of producing any particular commodity, let us say a sewing machine, it would be necessary to multiply the valuation of each factor used in producing that machine by the quantity of that factor so used and add together these different products. If the resultant total turned out to be thirty dollars, we should have to say that the producing of the sewing machine made a drain on the community's economic resources of thirty dollars; or, in other words, that it's resources-cost was thirty dollars (Taylor, 1929; 4).

According to Taylor, this is the most appropriate method for a socialist state to administer production and factors of production. Of the elements of Taylor's plan detailed above, Taylor felt there was no need to defend the first three, but the fourth one needed to be emphasized. The fourth rule states that the economic authority should determine the sale price of a product by taking the cost of production into account. The

necessity of calculating the sale price is evident, but how will this be calculated? This point forms the second important part of Taylor's theory.

In this context, the socialist state must solve "the problem of imputation" absolutely. The problem of imputation involves clearly defining the effective importance of every basic factor in the production process.

> Without that information, those authorities would manifestly be unable to compute the resources-cost of any particular commodity; hence would be unable to determine the correct selling price for that commodity; and, consequently, would be unable to make use of the particular method of determining just what commodities they ought to produce which, according to the contention of this paper, is the only correct method (Taylor, 1929; 6).

According to Taylor, in a socialist state, the trial-and-error method is the best way to solve this problem. This method requires using a series of hypothetical solutions until a successful conclusion is reached. As a result, it is possible to determine the most appropriate range or value (Taylor, 1929; 6).

The prerequisite to using this method is availability of information regarding the quantity of economic factors, their inventories, and factor incomes in a particular production period. The effective importance of every factor can be fixed using this information and the following method:

> (1) The economic authorities set about constructing factor-valuation tables in which they gave each factor that valuation, which, on the basis of careful

study, they believe to be the nearest approximation to its correct valuation which they could work out in advance of experience;

(2) They then proceed to conduct their functions as managers of all productive operations, as if they considered the valuations given in their provisional tables to be the correct valuations;

(3) While thus acting, they keep a close watch for results that indicate that some of their provisional valuations were incorrect;

(4) If such results appeared, they make the needed corrections in the factor tables, lowering any valuations proven to be too high and raising those proven to be too low;

(5) Finally, they repeat this procedure until no further evidence of divergence from the correct valuations is forthcoming (Taylor, 1929; 7).

The most important of these stages is, without doubt, the third one. At this stage, authorities will try to determine the whether the values they put in the provisional tables are high or low. The question is whether this kind of error can be seen in the tables. If an error does not appear, the correct value cannot be accessed. According to Taylor, the answer to this is positive, that is, the tables would reflect errors in valuations.

If the authorities give a high or low value to a factor during the initial production process, the error will necessarily emerge. For example, if the value of a factor is too high, the usage of that factor will be lower. As a result, this factor will not be consumed much and there will be a surplus. On the contrary, if the value of a factor is too low, that factor will be used excessively, and at the end of the term, there will be a deficit for that

factor. After this, the authorities will make the required adjustments by decreasing high values and increasing low values (Taylor, 1929; 8).

Consequently, it can be understood that there is a failure when a surplus or deficit occurs, and the socialist state will not face difficulties when calculating appropriate values. Thus, the resource cost for each requested good would be calculated with complete accuracy. This establishes the state's relation to the exchange between products and services and the revenues of citizens. Citizens will determine what to purchase, according to the cost of each product, and the state, as the only manufacturer, can plan production in line with demand.

3.2.4. Robbins: Impossibility of Mathematical Calculation

Lionel Robbins, an economist of the Austrian Economic School, supports the debate with his argument about the impossibility of mathematical calculation. He discussed this issue in the section, "The Central Difficulty of a Planned Society" in his book, *The Great Depression* (1934).

He begins the discussion by asking a series of questions: On what basis would planning be done and what purpose will it serve? Whose choice would lead production management? According to Robbins, the answers are clear if the questions are asked in this way. A democratic society will try to organize production in order to fulfill consumers' preferences. Among the different types of industries, the factors of production would be distributed such that it is impossible to transfer these factors form one industry to another, because the value of the goods these factors are producing is

greater than the value of the new products in the industry to which they would be transferred.

If demands or the means of production change, the society will reorganize production in order to reach the same conclusion. How will this happen? It is impossible to use political methods to determine the variable and complicated tastes of millions of different people that form society. Furthermore, the question of production planning covers a wide range of alternatives. It is not just a matter of a choice between A and B. Trying to solve the problem through centralized planning will cause chaos. Not what consumers want, but what they need to want, will be determined by the planning authority arbitrarily (Robbins, 1934; 148).

This problem can be solved easily at first sight. At this point, Robbins, complying with the general view, follows market socialism rather than Marxist socialism. With reference to this, he states that the problem can be solved by giving some amount of money to consumers. Given this income, consumers would purchase different goods, thereby influencing the prices of these goods. These prices would reflect their different preferences and a series of objective prices would become available as an index of consumer preferences. With the aim of planning production, this kind of society uses the market as a tool to determine the relative urgency of demand for various goods. The planning authority also will make an effort to distribute productive resources in proportion to the demand for available goods, that is, factors of production would be transferred from one industry to another depending on the demand for each industry's products.

However, designing the requirements of a plan is different from designing its application. Planning production to meet consumer preferences will face some basic problems in meeting the requirements of productive organization. For rational planning, the factors of production (land, capital, and labor) must be distributed among different production alternatives such that any produced good has no less value than the alternative products that could have been produced using the same factors of production. How does the planning authority decide the relative efficiency of various resources in producing different kinds of goods (Robbins, 1934; 149-150).

In response to this question, Robbins makes his famous comment that changed the progress of the calculation debate. The planning authority can quote prices in order to determine consumers' preferences, but this will not be enough; the planning authority also has to determine the relative efficiency of productive factors while generating different alternatives. Robbins says that theoretically, this problem can be solved by some series of mathematical calculations. Graphs that express consumer choice can be plotted and it can be presumed that technical knowledge includes the knowledge of the efficiency of each factor of production. An equation system can be formulated, which would give equilibrium distribution and equilibrium production levels. However, this method is useless in reality, because it will require solving millions of equations belonging to millions of people.

Solving the equations, in any case, would be a time-consuming process; and by the time they are solved, the basic information for them would have become outdated. Therefore, the equations will need to be calculated again. It is clear that besides being time-consuming, this process is irrational and ineffective. Therefore, according to Robbins,

theorists who have made this suggestion, which find its basis in the Pareto equation system, did not understand the problem or the meaning of these equations. Therefore, it is a desperate effort to find a reliable solution to "discovering the relative sacrifices of" alternative investment opportunities. In such a structure, there is no hope for a method that can adjust production to consumer choices (Robbins, 1943; 151).

In competitive situations, this problem is solved by comparing price and cost. In a free capitalist society, a businessperson considers two factors when making a decision: sale price expectancy and cost expectancy. Sale price expectancy is based on knowledge of market conditions, whereas cost expectancy is based on technical information. A businessperson equipped with information about these two factors has more knowledge than a planning authority has, because these prices include the different price offers of different competitors in the system. Therefore, the prices of factors of production are the result of the different price offers by entrepreneurs for those factors. These prices reflect the value of the contribution of the factors to the production of different products. Thus, the calculation of costs and prices is a shortcut to the solution of millions of equations in a competing world (Robbins, 1934; 152).

According to Robbins, price and cost computations are easy in a competitive system; but in a planned economy, it is not easy to see how a planning authority would make these calculations. For this kind of profitability calculation, a market only for consumer goods will not be enough. There should be markets for every intermediate element or good that is used in production. In addition, there should be entrepreneurs who act according to their own price foresights in different markets and operate as buyers and sellers of resources. However, by definition, a central planning authority removes all of

these and controls all resources. Thus, there is no difference between a buyer and a seller in this system. The plan means that factors of production will be used centrally, which in turn will prevent the creation of a free market (Robbins, 1934; 152-3).

However, is this problem unsolvable? According to Robbins, some scholars have suggested that this problem can be solved by projecting imaginary markets. Planned society can be divided into semi-independent production units and managers of these can act as if they were competitors. These firms can make price offers for factors of production and can sell their goods in a competitive market; in other words, they can act as competing capitalists. Robbins adds that the supporters of this scheme to realize a planned society evaluate the problem as static and simple. However, demand and supply conditions are not static; they change constantly. Tastes and techniques are changing regularly. The availability of resources; labor, and capital changes constantly. Competitive prices in factor markets are formed because of all these forces that affect the usage of capital. For free competition to exist, entrepreneurs must be free to transfer their capital from one field to another or sell a production facility in order to operate in another market (Robbins, 1934; 153).

Robbins continues by saying that such a free market is difficult to find in a planned society, because the society is characterized by central control and ownership. He accepts that capitalism, in the form we know today, is bordered by "interventionism and State-created monopoly" from one side, and bows down to the will of money that is badly managed from the other side. However, this mechanism is undoubtedly still more flexible than all sorts of collectivist alternatives. A planned economy does not organize production in a way that considers consumer preferences; production in a planned

economy is further away from consumer preferences than in capitalism. In addition, it is not true to envisage that authorities of a planned society would apply a pseudo-competition system; they are more likely to apply authoritative planning. They will try to control and manage production as a whole as if a general leads his army in war (Robbins 193; 154).

The opinions of Robbins end here and some points need to be emphasized. Robbins discussed freedom and authority issues superficially. There is no answer to the question of why the situation needed to be that way. For this answer, we need to wait for Hayek's book, *The Road to Serfdom.* Another point is the definition of economics for Robbins. Robins projected that the difference between "economic" and "technical" is important. He expressed that the main problem in economics is not being able to distinguish between being economic and being technical. It is useful to remember the definition of economics in his famous book, *Essay on the Nature and Significance of Economic Science*.[2]

If the problem is what means to use to satisfy the needs of a single person or many people, the problem is just a technical problem. However, if the problem involves the potential to choose different alternatives among the available means, the problem is an economic problem. In this case, it is not enough to show the technical possibility of a production plan; there is a need to calculate the economic cost of the plan(s), namely the cost of alternative opportunities among the plans.

[2] "Economics is the science which studies human behavior as a relationship between given ends and scarce means which have alternative uses." p.16, *Essay on the Nature and Significance of Economic Science*

Another distinction in Robbins is between positive and normative problems. While positive problems deal with "what happened," normative ones deal with "what should be." According to Robbins, economics should work on "what happened" rather than "what should be." When this occurs, a conclusion can be reached about what the present plan is, why it is sufficient and effective, and it is no more a problem what the present plan should be.

It could be useful to look at other theories and assumptions to understand Robbins' opinions on calculation. However, this requires more work, which is out of the scope of this thesis. Emphasizing that Robbins' opinions are an important contribution to the discussion is enough for now. We end this part by specifying that Robbins' changed most of his opinions about planning after the Second World War.

3.2.5. Hayek: Economics and Knowledge

The period of the calculation debate was marked by intense discussion about the systems and models that could offer an alternative to capitalism. The effects of the Great Depression of 1929 were still being felt. The planned and controlled economy models of the National Socialists in Germany and the Bolsheviks in Russia echoed the crisis and made significant progress in the name of stability. During this period, Keynes was working on solutions to save major Western economies that fell into this crisis. These combined models will then be called as mixed economic models.

Keynes' contemporary and intellectual rival, Hayek had a very different approach and continued on a different path. The book that built his reputation was *The Road to Serfdom*, and during this period, the discussions in the book formed the basis for his

theory and intellectual world. According to some, Hayek was a savior of liberalism in its darkest hours, its indomitable champion. According to others, he was the only one of his generation in favor of a liberal society and he discovered the importance of information in forming the content as well as in understanding the errors of collectivism, and was much more effective than all the other writers of the period were. (Butler, 2001; 1).

Regardless of criticism, ignoring the effects of his intellectual contributions or staying indifferent to these is impossible... Hayek's contribution is important because his work influenced many prominent figures in the world of politics, and his theoretical works were implemented practically (Butler, 2001; 2). He received the Nobel Prize in Economics in 1974, which also increased interest in the Austrian School.

With his contributions, Hayek changed the course of the calculation debate. As a student of Mises, Hayek accepted his preceptor's opposition and theory, while acknowledging that it was insufficient. One of his first contributions was the collection of articles in English on the calculation debate, *Collectivist Economic Planning* (1935). Hayek was the editor of this book, and when this book was published, known names like H.D. Dickinson, Abba Lerner, and E.F.M. Durbin had entered the debate. This marked the end of the first part of the debate started by Mises, and the beginning of the second part, where Hayek took over the flag. This second part, according to some (such as Oskar Lange), was a "draw back to a second line of defense" from Mises' main argument. However, according to some modern Austrian economists, such as Don Lavoie, it was a move to take Mises' argument a step further.

The reason for this was that Hayek, like Robbins, emphasized the difficulty/impossibility of mathematical calculation in planned economies. Hayek, like Robbins, implicitly accepted that calculation was possible in theory, and that calculation is likely to occur; but in practice, calculation may occur in such a way that it leads to problems of comprehension. This point will also be emphasized later and raised in more detail in the context of Lange. Let us now look at the foundations of Hayek's theory.

The basis of Hayek's objection is that market agents use their knowledge of a market economy for trading. Market information cannot be a single collection of data by the Central Planning Authority; if it is the case, then the authority will encounter problems in pricing. Hayek says that every day, tens of thousands of sophisticated goods are bought and sold in a market economy; prices for these goods are information that is transmitted among agents. According to Hayek, planners will use the information in this respect, but the most important challenge is to find this information. Prices of products that will generate the equations of supply and demand are determined and the information needed for them is collected by the market; in the absence of a market, even with tens of thousands of simultaneous equations, socialist planners would not be able to solve the equation system.

In addition, the market situation is not static and changes constantly. Therefore, the points of supply and demand change continuously, and as a result, the price and information also changes. Therefore, the equation system has to be rewritten each time, and then resolved. Because of the ever-changing flow of information, information collected from a particular point in space and time will be invalidated. Therefore, a

structure such as the Central Planning Authority is meaningless and invalid and will trigger capacity to be idle. (Hayek, 1935b, 1935c, 1937)

Hayek's critique of a socialist society can be seen as the starting point to Mises' main argument and the same view that rational economic calculation is not possible in a socialist society. According to Hayek, the proper purpose of a government is to provide the necessary conditions for people based on what is appropriate for their knowledge and capabilities (Hayek, 1935b, 1935c).

In this regard, Hayek focuses on two arguments about socialist planners:

i. The quality of information

ii. Motives for motivating people

According to Hayek, socialists could not see the economy as a whole, as necessarily a spontaneous order. Thus, in socialist-style economic and social organization, all members of the community are expected to act in accordance with the instructions of a single person or group. This will make it impossible for a "spontaneous natural order" to emerge; and this order is the force that makes material and technical progress possible. Hayek's reasoning was that planned orders could handle complex problems only to a limited degree. However, the current economic and social structures are so complex that they are totally beyond the capacity of any planner's grip. In contrast, the spontaneous natural order regulates a process of natural selection; even if the order is not understood, it leads to evolution and tends to be designed by the script into a single unit. In this sense, the "natural order," of which the most important institution is the market, includes much more information than a single mind could and is committed to

progress because it uses a much more efficient and effective method than the planning authority would (Hayek, 1935b, 1935c; Klein, 2004; 79-80; Butler, 2001; 97-98).

Hayek's views on these two points are in the early stages. He provides more detail in his future studies, especially *Economics and Knowledge*. According to many commentators, Hayek's work on knowledge, discovery, and competition is a reflection of the ideas developed in the socialist calculation debate during the 1920s and 1930s (Klein, 2004; 79). In his collection of essays, *Individualism and Economic Order* (1948), Hayek discusses the use of information by society, knowledge, and economic processes in more detail. He says that in these times of complex economic and social relations, the main problem of the planning authority would be collection of necessary information. In such an economy, the problem would not be a decision problem after all the data about goods and services have been collected; in other words, it would not be a resource allocation problem. Conversely, the problem would be collecting all the information necessary for decision-making (Butler, 2001; 98).

Hayek (1948; 91) says:

> To assume all the knowledge to be given to a single mind in the same manner in which we assume it to be given to us as the explaining economists is to assume the problem away and to disregard everything that is important and significant in the real world.

If an authority has all the information about present and future manufacturing process, and people have all the information related to preferences and supply conditions, then knowing where to use which resources would be only a calculation problem. However,

millions of individuals in society have their own unique, local, certain knowledge. This information changes very quickly, and therefore, can never be put in central economic equations. Unexpected events and needs may occur; even larger firms, which need information to work efficiently, and can obtain such information as the renewal of the roof, stationery, and other things easily from the market, cannot know exactly when they would need such information (Hayek, 1948; 83; Butler, 2001; 98-99).

Here, it should be added that Mises' critique of socialism was based on private property and money. In other words, Mises said that without these means, an economy could not perform rational calculation. Mises did not focus on issues such as the acquisition of knowledge. On the other hand, Hayek attacked another indispensable feature of socialism, the logic of operating a planning authority. If a planning authority could not get information of the kind that Hayek described, then a socialist-style economic model could not work. In any case, the socialist planned economic model based on collective ownership had major problems to be solved. Hayek made a wording error, when he said that logically, this problem could be solved at least on paper. If we define Mises' opposition as theoretical, then we only have Hayek's opposition to the possible difficulties that may be encountered in practice to rely on.

While we see more of this in the discussion on Lange, the idea of Hayek's "acceptance of the calculation on paper" is derived from the following: "*Now it must be admitted that this is not an impossibility in the sense that it is logically contradictory"* (Hayek 1935b, 207). On the other hand, according to some, Hayek's and Robbins' theories do not mean a "step back" from Mises' main argument. Instead, these theories constitute an

explanation of later versions of central planning. Thus, the problems of central planning and a prerequisite of the possible answers are received. In addition, the contributions of Hayek and Robins constituted a step forward to Mises' theory. In fact, Oskar Lange's "competitive solution" model represented a retreat. Both Hayek and Robbins comment on the difficulties of calculation and they could not be responsible for the incorrect interpretations. In reality their actual contributions were completely consistent with the claims of Mises. (Don Lavoie, 1985; 20).

Regardless of the results and comments, the criticisms and interpretations of the socialist system by Hayek and Robbins undeniably constitute a valuable contribution to the debate. After completing this section, the last discussion (given the fact that the answer that ends the debate for many people should be the last), and the most important (because it brought a new perspective) can focus on Oskar Lange.

3.2.6. Lange: Trial and Error Method

The only person who gave a decisive answer from the socialist world to the whole offensive of Hayek and Mises was Oskar Lange. The answer was so decisive that after Lange revealed his theory, many scholars considered the debate to be over and believed there were no problems in the performance of socialism. Lange presented his views in an essay named "*On the Economic Theory of Socialism*," which was published in two parts in *Review of Economic Studies* in 1936 and 1937. He showed that in a socialist economy, prices could be computed by a trial-and-error method such as that of Taylor and that mathematical calculation can be done with the help of Walras' general equilibrium model. He claimed that the system could work without a problem in a market-like environment (artificial market) where there was no private property. After

Lange's arguments that calculation was not impossible, the Austrian School, namely Hayek, withdrew to a second line of defense.

Another point about Lange and his theory is what it is called. Some scholars call it "market socialism" because it creates a relationship between the market and socialism, whereas others call it "neoclassical socialism" because they use the tools of neoclassical economics to prove the theory. In order to make a distinction between Lange's theory and the market socialism of the 1980s, in parallel to Cockshott and Cottrell (93b), we will call it neoclassical socialism.

> In this light it may be more appropriate to label Lange's ideas as 'neoclassical socialism' rather than 'market socialism': it is clear that he thought of the market—even his artificial market of 1938—as merely one possible means of achieving a certain kind of optimization (Cockshott, 1993b).

On The Theory of Socialism

According to Lange, Mises' claim that a socialist economy cannot distribute resources rationally because of the impossibility of calculation arises from confusion about the core meaning of prices.

Price has two meanings:

i. Exchange ratio of two products in a market

ii. An index of alternatives such as ensuring most efficient production, making choices, maximizing profit, and so on. According to Lange, prices are indispensable to solve the problem of resource distribution.

For Lange, the economic problem is a problem of making a choice between alternatives. Three kinds of information are necessary to solve this problem: (1) A preference scale that guides selection, (2) Information about conditions under which alternatives are offered, and (3) Information about the quantity of resources on hand. If all of this information is known, then the selection problem can be solved (Lange, 1966; 52).

In a socialist economy, the problem is whether the socialist ruling power can obtain the second bit of information. According to Mises, this is impossible. However, according to Lange, this can be calculated with the help of technical possibility and production functions; if the first and third pieces of information are available, at the end alternatives can be suggested. With this, socialist management has as much information as capitalist entrepreneurs (Lange, 1966; 52).

According to Mises, private ownership of the means of production is indispensable for rational allocation of resources. For him, without private ownership, proper indexes of alternatives (prices) will not be available. In this sense, economic principles that enable selection among different alternatives are possible only in a society based on private property.

Lange claimed that although Mises is not an institutionalist, he acted like one in this context. Mises belongs to an economic school that believes economic theory is universal. However, in this context, Mises claims that economic principles are

applicable only in some circumstances, under proper institutions and time; this approach is surprising for Lange and must be refuted. According to Lange, Mises' ideas were inspected by Hayek and Robbins more seriously. Lange says these economists do not claim that a rational allocation of resources is impossible in socialist economies in theory. On the contrary, the question is whether this problem can be solved in practice.

Hayek's comment in this context was:

> Now it must be admitted that this is not impossibility in the sense that it is logically contradictory. However, to argue that a determination of prices by such a procedure being logically conceivable in any way invalidates the contention that it is not a possible solution, only proves that the real nature of the problem has not been perceived. It is only necessary to attempt to visualize what the application of this method would imply in practice in order to rule it out as humanly impracticable and impossible (Hayek, 1936; 207-8).

Robbins stated this more explicitly than Hayek did:

> On paper, we can conceive this problem to be solved by a series of mathematical calculations. But in practice this solution is quite unworkable. It would necessitate the drawing up of millions of equations on the basis of millions of statistical data based on many more millions of individual computations. By the time the equations were solved, the information on which they were based would have become obsolete and they would need to be calculated anew. The suggestion that a practical solution of the problem of planning is possible on the basis of the Paretian equations simply

> indicates that those who put it forward have not grasped what these equations mean (Robbins, 1934; 151).

In this respect, according to Lange, Hayek and Robbins veered away from Mises' basic opinion and withdrew to a second line of defense, since both of them accepted that the problem could be solved in theory, but was impossible to solve in reality, because it needs millions of calculations. With this, we can evaluate this second line of defense and this debate as a mathematical calculation problem.

This is very important because this is the point where the problem both gets analyzed and knotted further. For some scholars, what ends the calculation debate is the shift of the debate to this logic. The calculation problem can now be set up as an equivalence system, whereby equations can be formulated and solved by the trial-and-error method. Thus, the calculation problem is solved and the debate is over. However, as we will see later (with reference to the debate started by Lavoie in the 1980s), the problem is not to solve these equations, but to first set them up. Because there are millions of data to be processed and it can take millions of years for a planning authority to process these data, it is impossible to set up these equations. Therefore, the debate is not over, for a satisfactory solution has not been found.

It is claimed that Hayek's and Robbins' arguments shifted the progress of the debate. The problem became a computation problem more than a calculation problem. In others words, if we assume we can set up the equations, then the problem is reduced to solving equations. If equations are more than can be set up manually, then technical tools or computer technology can be used for this purpose.

Lange first showed how equilibrium is achieved by trial and error in a competitive market. Equilibrium should provide two conditions: (A) Every person in the economy should reach their highest position (consumers should maximize utility and producers should maximize profit, for instance) with the help of equilibrium prices. (B) Equilibrium prices are defined as the price where the demand of a product is equal to the supply of that product. The first of these conditions is subjective and the second one is objective. However, any equilibrium also needs to have a third condition. This condition is: (C) Incomes of consumers are equal to the incomes provided by the sale of their productive resources. The entrepreneur's profit should be added to this later. This last condition is a determinative factor; even it is not an absolute equilibrium condition. (Lange, 1936, 57)

Later, Lange explained how these subjective and objective conditions could be achieved. The subjective condition is achieved when a person has the highest profit, income, or benefit that comes from his productive resources. Consumers maximize total utility that increases by spending their incomes. Therefore, the marginal utility of one unit is the same for all products. In order to determine the utility that can be obtained from one unit, prices must be known. After determining consumer incomes and prices, the demand for consumer goods is determined.

Producers use two steps to raise their profits by decreasing production costs: (a) determining the optimum mix of factors, and (b) determining the optimum scale of production. The first is achieved at the point where factor prices equal the marginal efficiency of factors. If factor prices are known, the lowest average cost curve of the producer can be found. On this basis of this cost curve, the optimum scale of production

is fixed where marginal cost is equal to market price. Thus, the quantities produced by every producer can be determined by the demand for factors of production, the total production of the industry is the sum of each producer's output, and the sum of the demand for factors of that industry is fixed. Therefore, when the prices of products and factors are given, supply and demand of factors can be determined (Lange, 1936; 578).

The objective equilibrium condition can be achieved only based on price and consumer incomes. People evaluate prices as independent of their behaviors. We obtain a different demand and supply amount for every income and price set. According to the equilibrium condition C, consumer incomes are service prices that they obtain from selling their own resources. That is why incomes are determined by the prices of productive resources. At the end, prices alone determine the demand and supply of goods. The objective situation of equilibrium obtains a special price set at which each consumer will achieve their highest level of satisfaction. This situation necessitates the equality of demand and supply of every good. Prices that ensure this condition are called equilibrium prices (Lange, 1936; 58).

This method is a theoretical solution of the equilibrium problem in a competitive market. This problem is solved by trial and error based on the parametric function of prices. Although every person affects market prices by his behavior, every person looks at market prices as data he should adapt to himself. Therefore, market prices become a parameter that adjusts persons' behavior (Lange, 1936; 59).

When a random price set is selected, the true prices would be found after a series of trials, as Walras showed. With these random prices, producers try to maximize profit and consumers try to maximize utility. At this point, the demand for every good tries to

equal the supply for it. If by coincidence, demand and supply are equal, the equilibrium prices have been reached and this represents true prices. So, the problem is solved. If the quantities demanded and supplied are different, with the help of the objective equilibrium condition and competition, the prices slide up or down until they come to a balance; people make their choices and provide equilibrium. The new price component that is formed here will be equilibrium price. Here, historically given prices are taken as data for the random price system at first (Lange, 1936; 59-60).

After showing how equilibrium is reached in a capitalist system and the application of the trial-and-error method at length, Lange tried to apply this method to a socialist system. Lange's socialist society is a system that provides freedom in job selection and consumption, and where consumer choices are the main determinants of production and distribution of resources; these consumer choices are expressed through demand prices. In this socialist system, there is a real market for consumer goods and labor services, but there is no market for capital goods and productive resources apart from labor. Based on these assumptions, Lange showed how equilibrium is achieved in the system (Lange, 1936; 60-1).

Lange said, as in a competitive system, there are two conditions for equilibrium here: (A) Persons and managers or public servants as consumers or labor holders make decisions in accordance with proper economic principles, and (B) prices are calculated for every good at a point where quantities demanded and supplied are equal. Again A is a subjective condition and B is objective. In addition, a third condition, C defines the social organization of the economic system. In a socialist economy, productive resources other than labor are public property. Therefore, consumers' incomes are

distinct from these resources and condition C is defined by assimilated income principles. Condition C can be fixed in a number of ways in a socialist society, which provides great freedom to the government to share out incomes (social dividends) accruing from publically owned factors of production (Lange, 1936; 61).

Let us now look at Lange's description of how the subjective equilibrium condition is achieved in a socialist economy. First, it is assumed that there is freedom of choice in consumption. This objective equilibrium condition of a competitive market also applies to the consumer goods market in a socialist economy. Along with consumer incomes, when the prices of consumer goods are given, their demand is also determined. However, production decisions of the production managers are not determined by profit maximization; on the contrary, they are determined by the principles of a Central Planning Board (CPB), which aims to realize consumer choices in the best possible way. These principles together determine the optimum mix of factors of production and the scale of production. According to the first rule, the mix of factors of production and the scale of production should be selected at the point where the average production cost is the lowest. Factors should be combined at the point where the marginal efficiency of every factor is equal. The scale of production is fixed where the price equals the marginal cost of that product. Thus, using these two principles, the scale of production of and the quantity demanded for each factor of production can be determined for every factory. The second rule allows firms to be part of an industry freely. For production managers to follow these rules, they must be given the prices of factors and goods. In the case of consumer goods and labor services, prices are determined by the market; in all other cases, they are fixed by the CPB. When prices are given, the quantity of goods supplied and for factors demanded will be determined. Prices, functioning as indexes of

alternatives, will determine the method and scale of production —methods and scales that have lower average cost will be preferred to alternatives with higher average cost. The first rule (equilibrium conditions) says that every good should be produced with minimal sacrifice; the second rule says that the marginal importance of every choice that is made must be equal to the marginal importance of alternatives that have been sacrificed (Lange, 1936; 62). Equilibrium in a socialist economy would satisfy both these rules.

As we showed how subjective equilibrium should be provided in socialist economy, now we show how objective equilibrium should be provided. The objective equilibrium condition is actualized only when prices are known. Moreover, only when prices are known can the optimal distribution of productive resources and the lowest average cost be achieved. However, if there is no market for capital goods and productive resources other than labor, can their prices be determined objectively? Are the prices fixed by the CPB arbitrary in character? This is also the basis of Mises' criticism. Lange uses the tools of neoclassical economics to resolve this problem. He explains that the objective price structure in competitive markets exists because there is only one price set that ensures objective equilibrium conditions are met, and quantities demanded and supplied are equal for every good. This equilibrium is achieved because of the parametric function of prices. That is why, if the parametric function of prices works, this objective price structure also can be obtained in a socialist economy (Lange, 1936; 63).

In a competitive system, the parametric function of prices arises because individuals believe their behaviors cannot influence prices. In socialist economies, however, managers influence prices by their decisions. That is why this rule should be imposed as

an accounting rule. All accounting processes must be performed as if they were free from pricing decisions. For accounting purposes, prices must be seen as constant. The Central Planning Board should fix the prices and ensure that all managers create their own accounts with these prices and do not use data ın another account. When the parametric price function is assimilated, the price structure will be set up by objective equilibrium conditions. For every price and consumer income, an appropriate amount of supply and demand will be determined for every good. The condition C of equilibrium determines consumer incomes according to the prices of their productive resources and social dividends (Lange, 1936; 63-4).

The condition of equality of demand and supply for every good allows a comparison of decisions in choosing equilibrium prices. Every price that is different from the equilibrium price will result in a shortage or surplus for that good at the end of the accounting period. That is why accounting prices in a socialist economy, far from being arbitrary, will have the same objective character as market prices in a competitive market. Any errors made by the CPB in fixing prices will show up as a shortage or surplus of goods, which will require further price adjustments.

In a socialist economy too, only one price set meets the objective equilibrium condition, thus both prices of goods and costs will be defined. The CPB performs the same functions as the market. By setting rules, it shapes and determines the parametric function of prices, resource contribution limits of the industry, production scale, and composition of factors. Lastly, in order to balance the demand and supply for every good, it determines prices and fixes them. In brief, the CPB acts as a market; it has the

same functionality and is workable in the same way. In other words, there is no reason that a central authority cannot perform the functions of a market (Lange, 1936; 64).

After explaining how equilibrium is achieved in theory in a socialist society, Lange tries to show how this can be achieved with a trial-and-error method similar to a competitive market. This method is founded on the parametric function of prices and starts with the CPB choosing a random price set. In reality, this price set is historically verified and is accepted as an opening set. The CPB initially has general information about the society and economy; it can use this information to make small adjustments to the historical price set, rather than setting up a new price set. After this point, the only thing left to do is adjustment of the price set according to demand and supply. Managers also adapt to this price set. If there is an error in these prices, for example, if they are set too high, there will be surplus reserves. On the contrary, if a low price is assigned, then demand for that good will increase and there will be a shortage in reserves (Lange, 1936; 66).

Lange acknowledges that his method is very similar to Taylor's and works on the same logic. In one sense, Lange uses Taylor's system and synthesizes it with his own thoughts to develop a new theory.

> Neither would the Central Planning Board have to solve hundreds of thousands (as Professor Hayek expects) or millions (as Professor Robbins thinks) of equations. The only "equations" which would have to be "solved" would be those of the consumers and the managers of production plants. These are exactly the same "equations" which are solved in the present economic system and the persons who do the "solving" are the same also…Exactly the same "equations," no less and no more, have to be

> "solved" in a socialist economy and exactly the same kind of persons, the consumers and the managers of production plants, have to "solve" them. To establish the prices, which serve to the persons "solving equations" as parameters no mathematics are needed either. Neither is there needed any knowledge of the demand and supply functions. The right prices are simply found out by watching the quantities demanded and the quantities supplied and by raising the price of a commodity or service whenever there is an excess of demand over supply and lowering it whenever the reverse is the case, until, by trial and error, the price is found at which demand and supply are in balance (Lange, 1936; 67).

Thus, the accounting prices in a socialist economy can be determined by a process of trial and error in the same way a competitive market do. To identify the prices, the Central Planning Board does not need to have "complete lists of the different quantities of all commodities which would be bought at any possible combination of prices of the different commodities which might be available" (Lange, 1936; 66-7).

According to Lange, there is no doubt that trial and error works in socialist systems as it does in competitive markets. Lange says, in fact, it will work better in a socialist economy than in a competitive market, because the CPB has more information about the economy than an entrepreneur does. With the help of this information, it can reach the exact equilibrium prices faster with the trial-and-error method, as compared to the time taken by a competitive market for the same (Lange, 1936; 67).

Lange's opinions about calculation and determination of prices with trial and error in an economy conclude here. However, a question arises at this point: why is socialism

required, if the same rules are used in a socialist economy for distribution of resources as are used in a competitive economy? Alternatively, what is the logic of changing the whole economic system, if the results will be the same as in the present system?

Lange's answer to this question is that the analogy between the competitive economic system and the collectivist socialist economy based on ownership of resources is only formal. Many of the principles are the same, but the real distribution is very different. Two features differentiate a socialist economy from a system in which there is private ownership of means of production. The first feature is income distribution. Only a socialist economy can distribute income to reach maximum social welfare. In a system where means of production are privately owned, the distribution of ownership of the ultimate production resources is determined by income distribution. This distribution is also historical data, tied to a starting point, but free from the necessity of maximizing social welfare. Under these circumstances, demand prices do not reflect the relative urgency of the needs of different individuals and resource distribution is far from realizing maximization of social welfare. Thus, some people live in luxury, whereas others live in poverty. Balance between these two and continuity cannot be provided. A socialist society, on the other hand, can identify consumers' revenues for the whole population in order to maximize their wealth (Lange, 1937; 123-4).

Under the assumptions of freedom in career choice and consumption, two conditions must be met for income distribution to maximize social welfare: (a) Income distribution must be such that the price determined by the demands of different consumers, shows the relative urgency of different consumers' needs. (b) Income distribution of labor services in different areas should be such that the value of the marginal product of labor

distribution that must be performed to obtain this product must be equal to the marginal cost (Lange, 1937; 124).

The second characteristic that sets the socialist economy apart from an economy based on private property is inclusiveness of the elements that enter the price system. Elements that enter the price system are attached to institutions and are given historically. Lange says that as Pigou showed, there is a difference between the private cost incurred by an entrepreneur and a producer/production. Only elements of cost incurred by the entrepreneur will be included in the entrepreneur's cost accounting. Humanistic costs such as those arising from illness, accidents, or dismissals are not considered. On the other hand, there are elements that will not be added to the production costs of private producers. In a system based on private initiative, many such alternatives are removed. Some important alternatives, such as the life, security, and health of a worker are not included in the calculation of production costs. In a socialist economy, however, all such alternatives can be included in economic calculation. As it considers all alternatives, a socialist economy can avoid business cycle fluctuations. Alternatives that are obtained or removed can be taken into consideration while correcting errors. Therefore, errors can be localized and the spread of these errors over the economy, which results in issues such as overproduction, demand deficiency, underemployment, or wrong usage of factors, can be, avoided (Lange, 1937; 125-6).

In brief, Lange solved the calculation problem by showing that a new socialist regime could consider the current prices as a starting point. These prices are undoubtedly equilibrium prices. After this point, all that planners have to do is move the prices up or down in response to new information. Therefore, there is no need to collect all the

information, because current prices summarize this information. This explanation was a strong principle of Walrasian theory and remains a basic assumption of efficient markets. In this manner, market equilibrium theory was used by Lange to destroy the reasoning of Mises, Hayek and Robbins (Desai, 2011; 297).

Therefore, Lange demonstrated both the differences between and the superiority of the socialist system to the capitalist system. A socialist system is more beneficial, more sensitive, and endures economic crisis and fragility better. Moreover, as we quoted from Lange before, there is no reason for a socialist economy not to function. With the help of trial and error similar to a capitalist economy, there will be equilibrium and the socialist economy will function properly. The central authority that replaces the market has all the information necessary for a healthy economy. If there is a problem, the central authority can intervene before the problem spreads across the economy, thus preventing generalization of problems. The biggest Lange's achievement is that he took the tools and theories of neoclassical economics and included them in his system to prove the operability of socialism. Thus, he both proved the operability of the system and prevented probable objections from the other side, because every objection that is made would also be against neoclassical economics and the capitalist economy. Lange's critics would then disprove their system by their own arguments.

4. THE CALCULATION DEBATE ONCE AGAIN

The socialist calculation debate that was started by the Austrians took a different shape form what they intended. The problem was that the main weapon used by the liberals was two-edged. In a socialist economy—actually in every economy— determination of prices can be showed mathematically using Walras' studies. (Desai, 2011; 294)

> It was Hayek's tactical mistake emphasizing that too many calculations is not practical. Although he discussed an array of convincing issues, computation was the basis of debate (Desai, 2011; 297).

Socialism was not only rational or applicable, but also in tune with Walras' general equilibrium theory. In fact, some economists went too far and claimed that because distribution of income is more equal in market socialism than capitalism, some faults of capitalism and the market will be demolished by socialism. There was a need in socialism to see how Walras operated. In conclusion, socialists managed to take the debate where they wanted. Starting with Otto Neurath who denied the need for market prices, they came to a conclusion where market prices became a desirable tool, not a thing to avoid (Desai, 2011; 298).

The criticism that a mathematical economy lacked reality was a peak point of success for the marginal school. However, it became a disaster for the liberal criticism of socialism. The issue is that Walras' theory was not concerned with a real capitalist economy. In a real economy, change and uncertainty are common; there is bankruptcy and risk takers; new products and new courses of action are tested continuously. This

unstable, dynamic process was not theorized by Walras and the Austrian School offered an alternative on that topic (Desai, 2011; 299).

The problem here is the socialists' effort to solve the calculation problem by the equilibrium hypothesis. However, the equilibrium hypothesis is not only a static relationship; it also includes intangible assumptions that deny reality. Therefore, even with intangible assumptions, the general equilibrium hypothesis finds its place at the extreme end of the spectrum of economic theory. Besides the fact that this solution deals with static relations only, the other issue for a socialist economy would be to understand and analyze current world problems that tend to be isolated. This, at some point, will result in the theory not being translated into reality and will cause the system, structure, and theory to collapse.

For the Austrians, the problem is that in the present conditions of superior technical abilities, they are still pertinaciously using the same arguments to criticize socialism. In current world conditions, computer, communication, and transmission technologies can collect, analyze, and process large volumes of data rapidly and efficiently. Computers can also solve many mathematical equations in a very short time. Thus, current technologies make it possible to develop new theories and models. Focus must be on making such theories and models more humanitarian and feasible. On the other hand, to prevent such works will thwart development and progress.

In the 1940s, when the socialists gained a victory among intellectuals, official schoolbooks began to state that Lange and Lerner had found the solution to a vital problem introduced by Mises. However, Mises and the free market had the last laugh. Today, it is generally accepted, especially in communist states, that Mises and Hayek

were right, and the enormous failures of socialist planning in the real world confirmed these philosophers' ideas (Rothbard, 2004; 60).

It is often forgotten that an economy, in which millions of people continuously seek better opportunities and everyone acts on local information, is a process that organizes itself on its own. This was an idea that Marx shared with Hayek. The problem was not whether socialist planners could calculate all the functions of an economy. The problem is the impossibility of centralizing information, even when the most extreme assumptions are made. "*Moreover, centralization of information was terribly ineffective. Half of Europe would learn this lesson in the following half-century after the end of socialist calculation"* (Desai, 2011; 303).

4.1.Revisiting the debate

After the 1980s, as we mentioned earlier, a curiosity arose toward the Austrian School. One of the most important factors for that curiosity was Hayek's winning the Nobel Prize in 1974. These years were also a period of crisis for socialism and the Soviet system, which further fueled this curiosity. The main factor was that the most devastating and permanent criticisms of socialism come from Austrians for nearly fifty years. Starting with Mises and continuing with Hayek, this line of thinkers made people consider the ideas of the Austrians in order to challenge the socialist argument.

However, this could also be seen as a disingenuous act, for the international community did not pay sufficient attention to the Austrian School roughly between 1940 and 1970, and Austrians were excluded from the academic community. However, the Austrian School had not changed; it was the same as before. What, then, had changed? The most

reasonable answer to this question is that a significant number of politicians in the 1970s were influenced by Hayek's thoughts and wanted to implement them.

In this sense, the socialist calculation debate is one of the strongest theoretical contributions of the Austrian School and gives it a reputation. It also helped the Austrians to establish their own theory and identity. The modern Austrians, the new generation of the Austrian School, claimed that the socialists misunderstood Mises and Hayek, and therefore, they could not give appropriate answers. Because of this misunderstanding, Mises, Hayek, and their followers tried to theorize their thoughts in different ways. These ideas are interesting because they reflect the contemporary perceptions of the 1980s. The following section focuses on this hypothesis.

According to general opinion, the socialists, with Lange as pioneer, won the calculation debate by using the tools of the neoclassical model. That was a sufficient answer for most people, and it was assimilated by everyone that socialism would work and there was no problem about planning. A market socialism fed by neoclassical tools was far enough from the crisis of capitalism and could avoid the potential problems that socialism tends to face. In other words, Lange put an end to the debate started by Mises.

After this, even in Western countries, planning took first place with governments. Apart from the countries that were organized on socialist principles, governments of other countries a put a planned social democracy model into action. The aim was to keep their countries away from the socialist wave and prevent the expansion of socialism to America and many European countries. Although the system seemed to function well for 30 years, a crisis wave around the world in the 1970s showed that these combined

models could also have problems and could be affected by crises. The search for a new model began after that, which led to renewed interest in the Austrian School.

In the first years of the 1980s, new-generation Austrian economists claimed that the opinions of Mises and Hayek were not understood correctly in their time, and that is why wrong answers were given to their arguments. As a result, the Austrian School was pushed backward and socialism won an imaginary victory, all because the socialists misunderstood the problem and the Austrian School. This new discussion is a little different from the earlier debate. These ideas are fully developed in Lavoie's book (1985). Other works by new-generation Austrians, such as Ramsay Steele (1981), Murrell (1983), and Kirzner (1988) also discuss similar ideas (Cockshott, 1993b).

> Thus, if the calculation debate is interpreted as having taken place within a neoclassical framework, neoclassical market socialism should indeed be declared the victor. There is no theoretical justification for an efficient economic system. However, this standard interpretation has been vigorously contested by the Austrian rejoinder of the 1980s (Adaman, 96; 526).

For Lavoie (1985), the discovery and learning aspects of the market mechanism that are the main arguments of modern Austrian thinking, were also clearly advocated by both Hayek and Mises. Since Mises and Hayek already had such an approach in mind, their contributions and approaches cannot be considered as a retreat from the main argument. Thus, Lange and many others, who had developed the neoclassical socialist approach in the 1930s, could not perceive the main arguments of the Austrian approach, and as a result, could not respond correctly (Adaman, 96; 526).

In summary, we can define Lavoie's position under two main points. First, Lavoie does not accept the argument that Austrians found it necessary to "retreat" from the main argument and establish a second line of defense. For him, it is not a retreat from the main argument or the redevelopment of a new idea; instead, it is no more than a clearer, more understandable restatement of the originally created main argument. Second, Lavoie insisted that the Mises-Hayek approach from the beginning has clearly reflected the Austrian understanding of the market as a process of discovery and learning (Kirzner, 1988; 1-2).

Lavoie (1990; 78) stated that:

> Like verbal conversation, the dialogue of the market depends on the specific give-and-take of interaction, a creative process of interplay in which the knowledge that emerges exceeds that of any participants.

In addition, according to Lavoie, Mises never denied socialism could work under static conditions. Instead, says Lavoie, Mises realized this would not be suitable in real-life conditions. In this respect, while other economists were using Walrasian tools and thinking in the context of general equilibrium conditions, Austrians were considering a different problem. For them, the problem was that of dynamic adjustment (and discovery) in the face of continuously changing technologies and preferences. Therefore, for Austrians in general and especially for Lavoie, the Walrasian system does not provide a suitable and feasible model for a real socialist economy or for any real economy (Lavoie, 1985).

On the other hand, some Austrians like Kirzner (1988) insisted that the Austrian approach has evolved through the debate. Therefore, we cannot claim that Mises and

Hayek had considered the correct form of the market process argument in the early years. Instead, for Kirzner (1988), they conceptualized and clarified their arguments after the neoclassical market solution challenged them. The response of the neoclassical market socialist model that Lange-Taylor had developed, for Kirzner, forced the Austrian economists to clarify their analysis of the dynamic aspects of markets as processes of discovery and learning (Adaman and Devine, 1996; Kirzner, 1988).

> New generations Austrians did not give enough attention to the computation argument. In this revised version of the debate the problem is not there are too many equations to solve, but these equations could not be formed from the beginning. This means socialism has a false theory from the very beginning. This was a destructive claim. To respond them we need to look at the ideas of new generation socialists who wrote after 1990s. And this again take us to the feasibility of socialism.

4.2. New Perspectives of Socialism

In this section, there will be a presentation about some of the scholars who resist the idea socialism is impossible. These thinkers believe that socialism can still be implemented theoretically and practically, although this has been practically falsified with the collapse of the Soviet Union.

Classical Marxism and classical socialism were the reflections of the struggle of working class to the consequences of capitalism. In other words, Marxism and socialism in their classical forms determine the laws and give guidance to working class with their fight against the current economic model namely capitalism. Following the birth of the

idea of socialism, it had the opportunity to be a reality in Russia instead of being a hypothesis. However, the main and real problem began with the establishment of socialism. Because, there was not any practical prescription for the facts, realities, and historical and geographical conditions made it even worse for the conditions of a true socialism to be implemented. Transformation of life according to laws of socialism is a difficult process and this reality forces the ideas and theories to renew themselves perpetually. This renewal process also demands new and creative experiments and searches.

Planning experts in socialist countries of 20th century had faced a serious problem. Determining of production process of what will be produced in where and to distribute this again to where was a very complicated, complex and difficult process. The difficulty derived from the hardness and vastness of the geography to collect and distribute all the necessary information needed. This transformation of information process took so much time. More importantly, because of the reason this mutual exchange of information could not continue forever, at a point it need to be cut. And this, sometimes lead to serious deviation. (Özalp, 2005; 5)

After the fall of the Soviet Union, there were substantial number of people who have believed that a better world is possible and those that were advocating that it would be possible again only with a Marxist socialism. Especially after the second half of the 1990s, debates on the future of socialism and the number of people participating to these debates have increased significantly. For example, in America, New York, ‘Socialist Conference’ is made on a regular basis every year since 1996, and organizes meetings involving over 1,000 participants. Moreover, in France, 'International

Conference on Marxism (Escape Marx) takes place every two years since 1995 and again with the participation of over 1000 people. Since 2006 World Association of Political Economists (WAPE), combining Marxist economists, political economists from all continents, meets in a different country every year in order to discuss the important agenda topics such as the economy and the working life. (Zhisheng, 2011; 48)

We have pointed out that the debates on the future of Socialism have increased recently. For many scholars and thinkers, this new wave of thinking, post-capitalist society has revealed the ideas and theories about how the structure of the society will be. Another important and interesting aspect of these studies is that a variety of diverse issues, innovative and original contributions are coming all over the world. This of course, contributes to build the theory on a more solid basis. In this section, we will concentrate on the few concrete sample names. These approaches are covering a wide area of interest. For example, while some of them focus on some of the characteristics of socialism, the others highlight its aims and some of the others focus on the foundational basis of the future of socialism. Some focus on what must have a priority in socialist system, others make the problems that must be solved their central issue, some others points out the indispensable features of a socialist system and so on like this. This list may get longer, but ultimately the common emotions and feelings demonstrate that the better and sustainable society is possible. Eventually, however, these different approaches are important and worth studying, as they demonstrate different approaches, a new era and desire.

Today, with the help of technological improvements, the giant companies can collect, distribute and conduct all production and distribution processes centrally not only in one country but across the globe. This is the proof of how easy and possible planning can be

made. Owing to the information technology (IT), almost all types of production and distribution process can be recorded and it is possible for every one easily access to these records and registrations. This means, many people now can contribute and control production and distribution process, identification of problems, and finding solutions to them. In a society that people own the means of production, experts, faculty members, teachers, students, amateur researcher, namely all kinds of people in the society, can examine, repair, correct and give proposition to the institutions they what, and so by this every member in a society can join the issues that interest society (Özalp, 2011; 133-134)

4.2.1. Cockshott and Cottrell: Towards A New Socialism

Cockshott and Cottrell claim that they used the basic concepts of socialism by using and referring to its main principles. Therefore, this will give us a chance to compare their ideas with those of the early socialists, and see how close they are to Marxian ideas.

In this section, we focus on those works of Cockshott and Cottrell, in which they form their theories based on lessons from the calculation debate. This and following sections will focus on this perspective—what we learned from the calculation debate and where we can go from here. These works mainly cover ideas about building a more humane and egalitarian economic system

Cockshott and Cottrell's presentation of new economic models is found in *Towards a New Socialism*, their original solutions to the problems of socialism. The most important of these, of course, is to do with planning and calculation, which is of interest to our topic. They do not emphasize the calculation problem in this book, but discuss it in their other works. Therefore, it is necessary to interpose their opinions in their other

essays. In this book, they show that this kind of calculation can be done. Their basic hypothesis is that calculation can be done in a socialist economy by using labor-value per hour; moreover, this method would be more active and rational than money calculation in capitalism, because modern technology has the ability to do such calculations.

They (Cockshott & Cottrell, 1993b) say that (a) "labour-time calculation is defensible as a rational procedure, particularly when supplemented by algorithms which allow consumer choice to guide the allocation of (a subset of) economic resources, and (b) that such calculation is now technically feasible, with the type of computing machinery currently available in the West and with a careful choice of efficient algorithms."

According to them, a different type of socialism is still possible. They accept that the Soviet Union was indeed socialist, with many problematic and undesirable features; however, they believe other forms of Marxian socialism are possible (Cockshott & Cottrell, 1993c; 2). In this context, they do not stand for a social democracy, which they find inadequate. They accept that most successful social democratic parties have certainly succeeded in improving the conditions of the working class, as compared to a situation of unregulated capitalism (Cockshott & Cottrell, 1993c; 3). They add, however, that social democracy has stood for a mixed economy, and in order to decrease the inequalities created by capitalism, it has used the means of taxation and social benefits (Cockshott & Cottrell, 1993c; 3). Therefore, social democracy has continued to face some of the key problems of capitalism. There are some reasons for that. First, capitalist economic mechanisms tend to generate gross inequalities of income, wealth, and life opportunities, and social democracy has had little real impact

on these inequalities. Only a radical change in the mode of distribution will offer a real solution to this problem. Second, the mixed economy is problematic in two ways. In such economies, socialist elements are subordinate to capitalist elements. Social democratic governments have been dependent on the health of the capitalist sector and the strength of the tax base.

Therefore, social or socialist activities have to rely on the success of capitalist sectors. Similarly, if the mixed economy is a mixture of capitalist and socialist elements, then there has been little serious attempt to define the principles of operation of the socialist sector in these economies. This makes the whole idea of a mixed economy vulnerable in a global context, where planned economies are disintegrating (Cockshott & Cottrell, 1993c; 3). This argument comes to a similar conclusion as Mises and Hayek, albeit from an opposite point of view. According to Mises and Hayek, social democracy is not a solution because the capitalist elements like the free market would be under the control of socialist elements, and free markets can only work in a free society and private ownership. Cockshott and Cottrell acknowledge that the USSR was socialist (1993c; 4) and that some lessons that can be learned from the failure of Soviet socialism (1993c; 6). They use this information and lessons to establish a post-Soviet socialism that is based on radical democracy and efficient planning (1993c; 8). They then establish their theory step-by-step. Each step solves a problem of Soviet socialism and each responds to an argument put forth by the liberals or the Austrian School.

> The computation of labour values for a whole economy is now feasible in a few minutes using modern supercomputers. These computers are expensive, but not prohibitively so. They are already used for weather forecasting,

> atomic weapons design, oil prospecting, and nuclear physics. It would not be unreasonable to give a national planning bureau the same computational capacity as the Met Office (Cockshott and Cottrell, 1993c; 58).

By the 1980s, it did not need a prophet to see that shaky socialism was heading for a collapse. The over-centralized structure of the Soviet system, in a sense, had prepared its downfall. From a somewhat different perspective, Nove's (1983) *The Economics of Feasible Socialism* presented a more pragmatic case for the impossibility of effective central planning. While Nove's argument did not rely on Mises or Hayek—and unlike the Austrians, he argued in favor of a variant of market socialism—nonetheless, his criticisms of central planning and those of the neo-Austrians were mutually reinforcing. Nove's main criticism is that there was too much data for a planning authority to handle in Soviet Russia, and hence, it was impossible to calculate all these inputs and outputs and process them. Not long after these arguments had been made, central planning was abandoned in the former Soviet Union and Eastern Europe (Cockshott, 1993a).

> In his book *The Economics of Feasible Socialism* (1983), Alec Nove emphasized the importance of the sheer scale of modern economies. He said that the Soviet economy included some 12 million distinct types of product, and quoted the estimate of one O. Antonov that to draw up a complete and balanced plan for the Ukraine would take the labour of the whole world's population over a 10 million year period (Cockshott and Cottrell, 1993c; 55).

They often expressed in different studies and pointed out that, in spite of the failures of socialism; a new 'socialist system' is still possible. According to them (1993a), Soviet-

style planning contained many problematic features and had its own mechanism. The collapse of this system should not mean the rejection of alternative solutions and different forms of socialist planning. Furthermore, in the present form of the 'calculation debate' classical Marxist arguments were downplayed. Therefore, it is necessary to re-examine the calculation debate in the light of the emerging theories and considering the development of computers and technologies. One of the most important of these is economic calculation, which is done via labor-time (labor time) (Cockshott and Cottrell, 1993b). Labor-time is defended as rational calculation. This calculation is supported by the introduction of algorithmic equations and will be guided by consumer preferences for distributing resources. This kind of calculation is possible thanks to the computers currently available in developed countries and the technical capabilities available in the modern world (Cockshott and Cottrell, 1993b). For such an economic calculation, a set of carefully chosen algorithms will be the most efficient. In this sense, this study on economic planning refutes the opinion that calculation is technically impossible.

Socialism, more accurately, a special form of socialism should be tested. If it is completely wrong when it is tested again, that does not mean that it should not develop. It is true that Soviet-style socialism has been tried, but a planning model may contain many problematic structures. The lessons from this model will provide the foundation for a new socialist model. The technical requirements of the developing world, computers, and communication technologies support and strengthen this argument (Cockshott & Cottrell, 1993c). In conclusion, recent advances in computer technology combined with advanced mathematics and algorithms make an effective socialist planning system possible.

4.2.2. Albert and Hahnel: Participatory Planned Economies

This model was first offered by the political theorist Michael Albert and economist Robin Hahnel in the 1990s. One of the main aims of this model is to surpass both the capitalist market economy and the socialist planning economy. This model offers a better, suitable, and more feasible movement and action and application opportunities to individuals, consumers and producers, governments and managers. The following comparison will provide more information about participatory planning. In their essays, "*The Economic Calculation Debate*," Adaman and Devine emphasized on this point.

> At a technical level, Dobb identifies the fundamental systemic problem of capitalism (and also of market socialism), while the Austrians identify the fundamental systemic problem of centralized administrative command planning (and also of neoclassical market socialism). Yet Dobb's advocacy of central planning fails to address the Austrians' insight, and the Austrians' advocacy of the capitalist market fails to address Dobb's insight. Participatory democratic planning (unlike market socialism) offers a way of combining the two insights (Adaman & Devine, 96; 531).

According to Adaman and Devine, socialists can learn much from the calculation debate. This debate may also help socialists and socialism to adjust and improve their theories and models. Thus, participatory planning models and ideas emerged from the mistakes of the Soviet system and learned from the calculation debate. It can be claimed that participatory economics is based on a stronger and steadier theory and also comes from a more constitutive background.

Participatory economics or “parecon’” (derived from combining “participatory” and “economics”), uses participatory decision making at each level, which would enable knowledge of previously unarticulated interests and discovery and articulation of possibilities and interdependencies, through a process of social interaction among those affected. It also uses processes as an economic mechanism to guide production, consumption, and allocation of resources (Adaman & Devine, 1996; Albert & Hahnel, 1991).

> The participatory planning alternative seeks to combine planning with the articulation of tacit knowledge. Democratic participatory planning is envisaged as a process in which the values and interests of people in all aspects of their lives interact and shape one another through negotiation and cooperation. In the course of this process, tacit knowledge is discovered and articulated and, on the basis of that knowledge, economic decisions are consciously planned and coordinated. (Adaman& Devine, 1996; 531-2)

Participatory economics is based on equity and self-management, and is recommended as an alternative economic system. It advocates workers and consumers councils and participatory planning, and also offers a rational perspective. It enters the details of everyday life and suggests institutional structures that would enable a democratic division of labor. Thus, participatory economy models aim to reach a more desirable society by using economics as a tool.

These studies reject the principle of absolute necessity that is imposed by the current economic structure on individuals, communities, and states. They also suggest alternatives to overcome the dilemmas and shortcomings of both the market economy

and centrally controlled economies. Thus, they refuse to believe that there is no alternative, and instead propose an alternative or third way.

Albert and Hahnel (1994) oppose the idea that if an economy needs to be efficient, then it must have a hierarchical working order. In addition, a direct factor for their opposition is the assumption of unequal consumption and the coordinating required by the market. According to the authors, it is possible to determine economic life based on values such as solidarity, equality, freedom, justice, and creativity. Furthermore, by caring for these values, much more efficient management can be possible than under the other two alternatives.

A participatory economic model, which makes it impossible for establishments to engage in constant rotation in a hierarchical structuring, makes everyone equally creative in their routine work and provides a basis for developing the business and outperforming the competition. Thus, a participatory economy aims to be more creative than the command economy, and to dissolve the hierarchy of the market economy that creates obstacles for creativity. The economy is characterized by: production decisions made by a council consisting not of a fixed group but the employees; balance between production and consumption; and a flexible and democratic planning process that everyone can participate in through the provision of computers, and which leads to the development of concrete and detailed proposals (Albert & Hahnel, 1991).

Lastly, it will be wise to summarize the features of their participatory planned economic model. An economic model that;

i. distributes the duties and benefits of social labor fairly
ii. involves members in decision making

iii. develops human potentials like creativity, cooperation and empathy

iv. utilizes human and natural resources efficiently

Shortly, *"an equitable and efficient economy model that promotes self-management, solidarity and variety under real world conditions"* (Albert and Hahnel, 1991; 7).

4.2.3. Dieterich and Lebowitz: Socialism for the 21st Century

Different from previous works that mentioned above, Dieterich and Lebowitz have separate works, not works together. The reason why they are combined together is they do not have much works as Cockshott-Cottrell and Hahnel-Albert. In addition, their models are not too complex and can be briefly explained. The other reason, they both talk about the practical experiences of Venezuela and use the term of 'Socialism for the 21st century'. These make them classified under the same heading.

Heinz Dieterich had a chance to implement his ideas in some areas. His theories suggest an alternative economic and political model and a new social project for future generations. In his book, *The Socialism of the 21st Century*, Dieterich explains the theoretical basis of the new socialism. He named this model as a new historical project. He says that four fundamental institutions must be established in order to develop "the socialism of 21st century" in the post-capitalist civilization (Dieterich, 2007; 21):

i. A democratic equivalent economy (a) based on use value and value theory, (b) non-market economy, (c) designated by the creators of direct value

ii. Majority democracy, which uses plebiscites to make decisions on the problems that interest all society

iii. Participatory state, which considers the general interest, and protects minority participation in a suitable manner

iv. Free citizens, who are responsible, rational, reasonable, and ethical

Dieterich also points out the calculation argument and references to Cockshott and Cottrell's works. According to him Cockshott and Cottrell's works prove the possibility of calculation. An advanced computer can calculate over 12 million datas, inputs and outputs for a democratically defined planned economy. This technological development makes the criticisms of impossibility of calculation argument archaic. (Dieterich, 2007; 106) By works of Cockshott and Cottrell, the structural and theoretical deficiencies in a post-capitalist society namely a new socialism can be prevented. Then, a new economy can be defined and institutionalized with three sub-institutional or sub-systems. (Dieterich, 2007; 180)

i. A democratic micro and macro planning that can provide establishment of a popular sovereignty in economic area instead of a bourgeois democracy and economic form
ii. Objective calculation of goods and services through contemporary mathematics, communication and science techniques
iii. Equitable exchanges (barter) of commodities and services in accordance with the principle of equivalence

The second postulate of socialist political economy associated with the necessity to break down the logic of a market economy system. The share of labor that shows itself in goods must be calculated and valued instead of a price-profit mechanism. Production and consumption objectives will be democratically defined and this will help to replace the system to a natural value calculation. The replacement of one system into another in an economic logic requires a gradual transformation and a long period that they must be exist together. (Dieterich, 2007; 190) Lastly, he gives a definition of an ideal socialist model. For him socialism is a system *"in which the majorities have the greatest*

historically possible degree of decision-making power in the economic, political, cultural, and military institutions that govern their lives." (Dieterich, 2007; 132)

In his book, *Build It Now: Socialism for the 21st Century*, Lebowitz analyzed the problems of capitalist production relations. According to him, the discussion of what would be an alternative in the 20th century was made so much. He says we must create a world and the socialism of the 21st century by taking lessons from previous experiences and mistakes.

The first problem he discusses is how to eliminate inequality. However, communist ideals must be a bit different from this ideal. Of course, the aim of a socialist society must be to enable every individual to have the opportunity to develop him/herself according to his/her capabilities and strengths. For him "*at the core of the goals of socialists was the creation of a society that would allow for the full development of human potential and capacity"* (Lebowitz, 2006; 57).

However, the main principle must be a continuous revolutionary process that changes the structure simultaneously by using democratic participation. Therefore, the system would have a chance to re-evaluate and reorganize itself quickly when defects occur (Lebowitz, 2006; 72). Here, the important thing for Lebowitz is to give the chance to working class to do their own mistakes freely. By this, they can learn from the dialectics of the history. Because, socialism, as Marx says so, is not a thing that comes from above to the society. Socialism does not drop from the sky. It must be established from the below, and only a government of the working class could be a real alternative to capitalism. By quoting from Hugo Chavez he says, *'we must give the power to the poor'.* The other feature of this is to make the working class to know why they need the

change and the transformation. After coming to an agreement on these terms, it needs to be defining the motives and notions that the new society is based on. At this point, the important part is can an equivalent and participatory economic model be possible. For Lebowitz, it is possible and there are examples for these (Lebowitz, 2006; 59).

In his view, democratic decisions in the workplace and by the community, production based on satisfying needs, common ownership of means of production, a democratic, participatory, and protagonist government, and solidarity based upon recognition of our common humanity characterize "the true human society" (Lebowitz, 2006; 67; Sarker, 2009). For that to be achieved, we need to learn from the lessons of the 20th century and then develop the 21st century socialism and society. The other parts of his book refer to the practices and experiences of Venezuela and Latin American countries. For him, these countries, especially Venezuela, provide a very good example and application of these principles (Lebowitz, 2006; 66-67).

Lastly, according to Lebowitz, a new society, economy model and socialism can be possible. We must give up the partial criticisms of capitalism and make full, adequate and deep analysis of capitalism and a society after capitalism. We must fight against the property rights, commodification of everything, prices and money to cover every aspect of our lives. If the people resist consciously and build up a perpetual solidarity all across the world, only then it can be possible to overcome this capitalist structure and replace it with a socialist world (Lebowitz, 2006; Sarker, 2009)

5. CONCLUSION

From 1920s to the middle of 1940s it was discussed whether socialism could provide a system that able to overcome the excess and crisis of capitalism. In other words, it was the period which system is better and provides a better way of life. In this sense, liberalism and socialism have always been in opposite directions when they provide a structure of a life with such economic, political and social aspects. They are also considered in the same category when they propose a system that is ideal for human being. It means that both liberalism and socialism existentially need, could and will offer a system that is ideal for both individual and society. The issue of priority whether individual or society comes first is an ontological and epistemological postulate, which also forms their ideology and way of theorizing. In socialism the priority given to society whereas in liberalism individual is the important one. The discussion between liberalism and socialism must be read and understood in this context then this will help us to grasp the background of the main discussions.

In the years of war and post-war period, different forms of socialism were accepted, implemented and shaped the world. It was considered, in terms of these periods, that socialism would and could be alternative and helped to construct the new society. This intellectual success and victory of socialism caused all the criticisms of liberalism to be ignored. Eventually, with all its deficient and mistakes, a type of socialism had occurred that does not renew and question itself. The next thirty years after 1940s were the golden years of both socialism and capitalism. If we consider this type of capitalism as a different form of socialism and in a sense affected by socialism, it can be claimed the world was shaped by thought of socialism. This socialist political economic structure

had ruled over the world and for some time it was very successful and sustainable. Since the 1970s, people began to question the components of socialism and excluded them one by one. The largest share in this was the global financial crisis and the reason that socialism did not seem to offer any solutions to the problems. On the other hand, Austrian School and liberal thought seemed to suggest an alternative solution to this problem. For them, socialism can, may and will not be implemented. Because of the features of socialism especially economic ones, socialism is not possible and cannot achieve its economic objectives. If socialism could not fulfill its promises and provide a sustainable political economic structure, than there would not be a necessity of socialism.

After 1980s, it was claimed that the world was dominated and ruled by liberal thoughts. From this period to onwards, nearly for thirty years, we are living in a world of liberalism. It was in this period, academic community claimed that socialism is dead and the only solution and way of life can be possible under the rule of liberalism. In short, people have believed that socialism was superannuated in 1990s. However, in the period since then, it can be claimed neither socialism was completely failed nor liberalism has given sufficient and sustainable solutions for the problems and issues of the modern world. People are also questioning the performance of liberalism with the last global financial crisis. This inadequacy of liberalism brings along the discussion of alternative ways, thoughts, models and systems and solutions to overcome the crisis. This causes, directly or indirectly, to discussions of socialist/Marxist system's possible solutions, reading of them and a desire to implement them. Especially, from the end of 1990s, a new political economy of socialism that covers and includes new technical means, models, develops itself with new perspectives and theories, adapted itself to the

new conditions of world and appropriate to needs and discourse of this new world that has been proposed and advocated by many.

The most important features of these; to offer a participatory economy, to give priority to localization instead of centralization, to envisage an equivalent and just distribution, to organize production based on needs. To make it real, these theories use the current advanced tools; for example to collect datas make use of communication technology like internet, to process these datas make use of super computers make the theory actual and durable. These are important parameters, because the liberal claim or actually the Austrian's claims were socialism did not work for it could not collect, operate and distribute the necessary information and resources. Therefore, by these new tools and means, a sustainable, feasible and viable socialism can be possible. The last section covers some of the ideas and examples for new perspectives of socialism. Shortly, according to the new perspectives of socialism, a new and better world is possible. New improvements, technics, and computers make it easier and possible for planning and calculation. The calculability argument in the Calculation Debate can be solved in a very short time by super computers. This also disproves the claims of liberals and Austrians that socialism is not possible.

However, at this point two criticisms can be made towards the new perspectives of socialism. First, socialism is a system that can be applied in its entirety only if some technical tools are developed; second, the belief in socialism or a planned, participatory, collectivist alternative system must undoubtedly include democracy. Since it is out of the scope of this study, these ideas are not found throughout the thesis. However, it is still necessary to emphasize a few points.

First, the suggestion above looks problematic because it imprisons socialism in history. It means that previous attempts to form socialism, including the foundation of the Soviet Union, were useless endeavors. This approach leads us to conclude that socialism was a system ahead of its times, whose foundation and performance depend upon the existence of suitable conditions and technical opportunities. This, we believe, is incorrect. This would mean that the calculation debate, which is also the topic of this thesis, is invalid, because the arguments of the socialist side are historically archaic. Eventually, accepting the arguments of a problem named the calculation debate, and even accepting its existence, would be meaningless. If socialism and socialist planning can only be possible under some conditions, and cannot be sustained in the absence of these conditions, then there must be a serious problem here, and counterarguments to socialism probably point out the problems correctly. If socialism depends on technical conditions such as supercomputers, then it must not be established in every country. Thus, if a country does not have the requisite technical conditions or supercomputers, then it must live under the free market and wait for technological development to fulfill the necessary conditions and provide the technical means to establish a rational economy.

Another question is why an alternative system to capitalism must again be linked to democracy. The suggestion that the Soviet experience was unsuccessful because it was not democratic implies that if the Soviet experience were realized with democracy, it would have been successful. The reason for this opinion is the apologetic approach of socialist ideas to Western capitalism that the former experienced a loss against the latter. This also legitimizes the debate between democracy-freedom and authoritarianism. However, the problem is different, and out of the scope of this work.

Different economic models and different approaches to economics have been discussed, throughout the thesis. This gives the chance to see, study, analyze different economic models and suggestions, and choose the most appropriate one. When theory and practice are confined to a single area and are to the point, then it is impossible to repair creative thinking and the system itself. A theory becomes stronger when it is faced with new ideas or challenges. This gives the theory a chance to compare itself to its counterarguments, observe its own faults and weaknesses, and thereby improve and develop itself. This method will remove the theory's defects and it can be fed from its original source, which makes it feasible and helps to achieve a viable system.

As can be seen throughout the thesis, neither does the discussion between liberalism and socialism seem to be over, nor is the search for alternatives and the desire of a better world likely to end. A better world is already here, to be achieved by removing the obstacles to the discussion of different ideas and perspectives, to contribute to humanity by reaching out a little more. It is then that, as different ideas and opinions and the common heritage of humanity coexist in freedom and solidarity, will products be distributed and technical facilities be used to benefit all. If this were done, the problems of economy and society that emerged in the course of the debate would not exist.

Finally, the thesis has shown how different ideas have arisen, interaction with each other, whether liquidated or evolved a new crossbred theory. The point I want to emphasize is, socialism had lost when it is isolated from its anti-thesis namely liberalism. In the same way, liberalism has been losing since 1990s when it is isolated from socialism, which is its anti-thesis. New discussions and arguments summarize and support this idea.

When a theory and thought remains pure, unrivaled and unique, people begin to think that as absolute and this drags it into danger of becoming a dogma. This causes to conceal the mistakes and errors, so it cannot be possible to provide permanent and efficient solutions to the problems. Eventually, under the modern conditions, it is not possible for people to give up the discourse of freedom and their desire to make world better. When people realize these are not so different things but instead similar, maybe then they will be able to exist and live together in harmony.

BIBLIOGRAPHY

Adaman F., and Devine, P. (1996), "The Economic Calculation Debate: Lessons for Socialists," Cambridge Journal of Economics 1996, 20, 523-537.

Adaman, F., and Madra. Y, (1995), "Hesaplama Yöntemi Tartışması Üzerine Bir Not, Toplum ve Bilim", 66, year 1995, Spring, 195-202.

Albert, M. & Hahnel R. (1991), The Political Economy of Participatory Economics, Princeton University Press, Princeton, New Jersey.

Albert, M. & Hahnel R. (1994), Geleceğe bakmak: 21. Yüzyıl için katılımcı ekonomi, Ayrıntı Yayınları.

Barone, E. (1908), "The Ministry of Production in the Collectivist State," Collectivist Economic Planning, 245-290.

Brutzkus, B. (1935), Economic Planning in Soviet Russia, London: Routledge.

Butler, E. (2001), Hayek, Liberte Yayınları, İstanbul, translated from original Hayek, His Contribution to Political and Economic Thought of Our Time, New York, Universe Books, 1985.

Caldwell, B. (2004), Hayek's Challenge, Chicago: Chicago University Press, 2004.

Cockshott, W. Paul & Cottrell A. (1993a), "Socialist Planning after the Collapse of the Soviet Union," Revue Européenne des Sciences Sociales 96, 167-185.

Cockshott, W. Paul & Cottrell A. (1993b), "Calculation, Complexity and Planning: The Socialist Calculation Debate Once Again," Review of Political Economy 5:1, 73-112.

Cockshott, W. Paul & Cottrell A. (1993c), Towards a New Socialism, Spokesman.

Desai, M. (2011), Marx'ın İntikamı, Efil Yayınevi. İstanbul.

Dieterich, H. (2007), 21.Yüzyıl Sosyalizmi: Küresel kapitalizmden sonra ekonomi, toplum ve demokrasi, İstanbul, Pencere Yayınları

Engels, F. (1962), Anti-Dühring, Herr Eugen Dühring's Revolution in Science, Moscow, Foreign Languages Publishing House.

Haupt, G. (1982), "Marx and Marxism," The History of Marxism, Volume One: Marxism in Marx's Day, (ed.) Eric Hobsbawn, Brighton, The Harvester Press.

Hayek, F. (1935), Collectivist Economic Planning, sixth edition. (ed.) F.Hayek, London, Routledge & Kegan Paul Ltd.,1963.

Hayek, F. (1935b), "The Present State of the Debate", in Collectivist Economic Planning, sixth edition. (ed.) F.Hayek, London, Routledge & Kegan Paul Ltd., 1963.

Hayek, F. (1935c), "The Nature and History of the Problem", in Collectivist Economic Planning, sixth edition. (ed.) F.Hayek, London, Routledge & Kegan Paul Ltd., 1963.

Hayek, F. (1937), "Economics and Knowledge," Economica, New Series, 4:13, 33-54.

Hayek, F. (1940), "Socialist Calculation: The Competitive 'Solution'," Economica, New Series, 7: 26, 125-149

Hayek, F. (1948), Individualism and Economic Order, Chicago, University of Chicago Press.

Hayek, F. (1997), Socialism and War-Essays, Documents, Reviews, The Collected Works of Hayek, (ed.) by Bruce Caldwell, Liberty Fund, Indianapolis.

Herbener, J. (1991), Ludwig von Mises and the Austrian School of Economics, Review of Austrian Economics, vol. 5, no.2, 1991, pp. 33-50.

Hobsbawn, E. (1982a), The History of Marxism, Volume One: Marxism in Marx's Day, (ed.) Eric Hobsbawn, Brighton, The Harvester Press, 1982.

Hobsbawn, E. (1982b), "Marx, Engels and Pre-Marxian Socialism," The History of Marxism, Volume One: Marxism in Marx's Day, Ed.Eric Hobsbawn, Brighton, The Harvester Press, 1982.

Hoff, T.J.B. (1949), Economic Calculation in the Socialist Society, Translated from the original Norwegian by M.A. Michael, London, W. Hodge.

Holcombe, R. (ed.) (1999), The Great Austrian Economists, Ludwig von Mises Institute, Auburn, Alabama.

Huberman, L. (2009), Sosyalizmin ABC'si, Arya Yayıncılık, originally translated from: The Truth About Socialism, İstanbul.

Huerta de Soto, J. (2010), Socialism, Economic Calculation and Entrepreneurship, Edward Elgar Publishing, Northampton, USA.

Hutchison, T.W. (1981), The Politics and Philosophy of Economics-Marxian, Keynesian and Austrians, New York University Press.

Kirzner, I. (1987), Austrian School of Economics, The New Palgrave Dictionary of Economics, cilt I, 141-151.

Kirzner, I. (1988), "The Economic Calculation debate: Lessons for Austrians," Review of Austrian Economics, 2:1.

Klein, P.G. (2004), F.A. Hayek: Avusturyan Ekonomist ve Sosyal Teorisyen, Piyasa, no. 11, summer 2004, 71-83. Originally published in 'Great Austrian Economist' (ed.) by R. Holcombe.

Kozanoğlu, H. (2006), 21. Yüzyılın Sosyalizmi İçin: Hem Eşitlik Hem Özgürlük, İthaki yayınları, 2006, İstanbul.

Lange, O. (1938), On the Economic Theory of Socialism. In Lippincott, B., editor, On the economic theory of socialism. New York, McGraw-Hill.

Lange, O. (1967), The Computer and the Market. In Feinstein, C., editor, Socialism, Capitalism and Economic Growth: Essays presented to Maurice Dobb. Cambridge, Cambridge University Press.

Lavoie, D. (1985), Rivalry and Central Planning: The Socialist Calculation Debate Reconsidered. Cambridge, Cambridge University Press.

Lavoie, D. (1990), Computation, Incentives, and Discovery, in Prybyla.

Lerner, A. (1934), "Economic Theory and Socialist Economy," Review of Economic Studies 2, 157–75.

Lebowitz, A.M. (2006), Build it Now: Socialism for the Twenty-first Century**,** New York, Monthly Review Press.

Lichtheim, G. (1976), Sosyalizmin Kökeni, Altın Kitaplar Yayınevi, İstanbul.

Marx, K. (1977), A Contribution to the Critique of Political Economy, Moscow, Progress Publishers. Originally published in 1859.

Menger, C. (1963), Problems of Economics and Sociology, ed L. Schneider, translated by F.J. Nock from the German Untersuchungen über die Methode der Sozialwissenschaften, und der politischen Ökonomie inbesondere, 1883.

Mises, L. (1920), Economic Calculation in the Socialist Commonwealth, translated and edited by F. Hayek in Collectivist Economic Planning, originally published in 1935, sixth edition. London, Routledge & Kegan Paul Ltd.

Mises, L. (1922), Socialism: An Economic and Sociological Analysis, US, New Haven University Press, 1962.

Mises, L. (1949), Human Action: A Treatise on Economics, New Haven, 1963.

Murrell, P. (1983), "Did the Theory of Market Socialism Answer the Challenge of Ludwig von Mises? A Reinterpretation of the Socialist Controversy," History of Political Economy 15, 92–105.

Neurath, O. (1919), Through War Economy to Economy in Kind, in Empiricism and Sociology, Dordrecht : Reidel, [1973].

Nove, A. (1969), An Economic History of the USSR, Harmondsworth, Middlesex, England ; New York, N.Y., U.S.A.,Penguin Books, 1972, .

Nove, A. (1991), The Economics of a Feasible Socialism Revisited, Harper Collins Academic.

Nove, A. and Nuti, D.M. (1972), Socialist Economies, Penguin Books.

Oğuz, F. (2004), Sosyalist Hesaplama Tartışmaları Niçin Hala Önemli, Liberal Düşünce Dergisi, Yıl 9, Sayı 33, Kış 2004.

Özalp, E. (2005), "Sosyalist Planlamada Yeni Olanaklar", Türkiye Sosyalist İktisat Kongresine sunulan bildiri.

Özalp, E. (2012), Teorisyeniniz Devrimciydi: 21. Yüzyılda Marksizm ve Sosyalizm, Yordam Kitap.

Pareto, V. (1971), Manuel of Political Economy, New York, Augustus M. Kelley.

Pierson, N. (1902), The Problem of Value in the Socialist Community, in Hayek, Collectivist Economic Planning.

Ramsay Steele, D. (1981), "Posing the Problem: The Impossibility of Economic Calculation under Socialism," The Journal of Libertarian Studies V, 7–22.

Ramsay Steele, D. (1992), From Marx to Mises, Open Court: La Salle, Illinois.

Robbins, L. (1934), The Great Depression. New York: Macmillan, 1934.

Robbins, L. (1945), An Essay on the Nature and Significance of Economic Science, Macmillan and Co., Limited St. Martin's Street, London.

Rothbard, M. (1988), Ludwig von Mises: Scholar, Creator, Hero, The Ludwig von Mises Institute, online edition, 2002.

Rothbard, M. (2004), "Ludwig von Mises: Avusturya Okulu'nun Lideri", Piyasa, Issue 11, Summer, 2004.

Sarker, K. (2009), "Review of Build it Now: Socialism for the Twenty-First Century," Studies in Social Justice, 3: 2, 263-265.

Smith, B. (1994), The Philosophy of Austrian Economics, The Review of Austrian Economics, vol.7, no.2, 1994, pp. 127-132.

Taylor, (1929), "The Guidance of Production in a Socialist State," The American Economic Review., Vol. 19, No. 1, pp.1-8.

Temkin, G. (1989), "On Economic Reforms in Socialist Countries: The Debate on Economic Calculation under Socialism Revisited," Communist Economies 1, 31–59.

Weber, M. (1964), The Theory of Social and Economic Organization, New York: Free Press of Glencoe.

Weber, M. (1978), Economy and Society, Berkeley, CA: University of California Press.

Wieser, F. (1914), Social Economics, New York: Augustus M. Kelley. English trans. A. Ford Hinrichs of *Theorie der Gessellschaftlichen Wirtschaft,* Tübingen: J.C.B. Mohr, 1914.

Wieser, F. (1928), Social Economics, translated by A. F. Hinrichs. (1929), Gesammelte Ablandlungen, ed. F.A. Hayek.

Yay, T. (2004), "Avusturya İktisat Okulu'nun Tarihsel Gelişimi ve Metodolojisi", Piyasa, 2004, no:11, p.1-29.

Yeager, L. (1994), "Mises and Hayek on Calculation and Knowledge", The Review of Austrian Economics, vol. 7, no.2, 1994, pp.93-109.

Zhisheng, Z. (2011), Geleceğin Sosyalizmi, Kalkedon Yayınları, İstanbul, 2011.